PERSPECTIVES ON MODERN ECONOMY

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SECTION I

LABOUR MARKET
1

UNEMPLOYMENT: THEORETICAL EXPLANATIONS

Gürçem ÖZAYTÜRK

Introduction

The theory of economics concentrates on capitalism in terms of both its subject and its historical development. The leading role in the functioning of capitalism belongs to the labor market. Therefore, in economic theory, the labor market has been a central issue in the discussions between all economic thought currents. Unemployment, which is a phenomenon belonging to the labor market; it remains important because it points out the inefficiency of efficient resource allocation, which is the basic issue of economic theory, and it stands out with its social and political consequences. In this context, the theoretical explanation of the phenomenon of unemployment has a fundamental role in shaping and defending economic policies.

Unemployment, especially with the 1929 world economic crisis, is one of the leading problems in the world. The period after the Second World War from 1945 to 1970 called the golden age, and it was identified with political stability, economic growth, full employment and strong social security, which were the basis of macroeconomic policies, social policies and labor market regulations. However, after 1970, the model based on political stability, economic growth, full employment, strong social security and national solidarity has undergone a radical change and the historical compromise between capital and labor has been shaken. Achieving the objectives of full employment, social protection and reduction of inequality has become difficult and perhaps far from being the target. Undoubtedly, the oil crises of the 1970’s played a major role in the closure of the so-called golden age. While the unexpected rapid increase in oil prices created a widespread economic recession, rising production costs and interest rates caused financial crises and employment-unemployment phenomena became the main economic and social

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problems. Globalization of capital markets after 1980 and intensified international competition, accelerated technological development, decrease in low and medium skilled manufacturing industry jobs, production and investment level, distribution of investments to earth and population increase triggered the deterioration of labor market (Ferrera, Hemerijck, & Rhodes, 2001). In addition to these macro factors, factors such as lack of qualifications, education policies that cannot meet the demands of the business world, productivity level, inadequacies of public employment institutions, institutional structure in the labor market, and increasing input prices can be counted.

In this context, the importance of understanding the phenomenon of unemployment is increasing. The aim of this study; In order to better understand the phenomenon of unemployment, to deal with unemployment within a theoretical framework. For this reason, the types of unemployment are mentioned in terms of establishing the conceptual framework of unemployment. Afterwards, the phenomenon of unemployment has been discussed in the economic approaches and views that have been continuing from the classical to the present day, which is the beginning of modern economics in terms of establishing the theoretical framework.

1. Conceptual Framework

The lack of detailed knowledge of the types of unemployment prevents the correct diagnosis of the problem of unemployment (Sherraden, 1985). However, there are many different unemployment classifications in the literature. Especially in 2002, the World Bank’s changing policies and criticisms about unemployment rates, many unemployment concepts and definitions have emerged as a result of renewing unemployment rates and definitions. The first of these is classified according to the periods of unemployment as “short-term unemployment” and “long-term unemployment”. Short-term unemployment; it is a type of unemployment that occurs due to the lack of knowledge in real life and lack of knowledge of labor in the real world where there is no complete information, and lack of knowledge about the capabilities of the labor force for employers (Helfgott, 1980). Long-term unemployment is unemployment for twelve months or more. In developed countries where the division of labor and specialization is used more effectively, there is a short-term unemployment due to lack of demand. However, in developing countries, there is a longer term unemployment due to structural and conjunctural factors.
The second classification is divided into two groups as “voluntary unemployment” and voluntary unemployment bağlı depending on the desire to work. Voluntary unemployment; is the absence of a job because a higher wage than the current one is required or better job conditions are sought than the existing one. Voluntary unemployment is not fully recognized as a real form of unemployment. Because it is thought that such unemployed people will find a job immediately if they consent to work under the current conditions. The voluntary unemployment, which is another unemployment classification depending on the willingness to work, is not considered as a type of unemployment by Classic economists. According to the classics, all unemployed are voluntary unemployed. As a natural consequence of this idea, classical-liberal economists have argued that workers will never be unemployed if they are willing to work as low as necessary. However, according to the Keynesian approach, voluntary unemployment; Although the labor force has the willingness and ability to work at the current wage level in the market and is ready to supply his labor, it is the situation that he cannot find a job due to lack of labor demand. Structural, friction, technological, cyclical and hidden unemployment are classified as non-voluntary unemployment. The reason for such unemployment is insufficient demand, insufficient production capacity, cyclical fluctuations, structural problems or insufficient capital equipment. Whatever the cause, this kind of unemployment cannot be remedied only by measures taken by the workers, for example by the willingness of workers to work for less wages. The problem must be solved considering the whole economy (Aren, 2008).

Structural unemployment under the non-voluntary unemployment classification; it occurs when the quality of vacant jobs does not match the qualifications and skills of job seekers, open jobs and job seekers are in different places and existing jobs and professions disappear with technological developments (Biçerli, 2007). More precisely, economic actors who cannot adapt to rapidly changing world markets lose their share in the market. If these actors cannot make the necessary transformation, they will not be able to survive. The type of unemployment that emerged during this transformation process is structural unemployment (Hart, 1990). Standing (1983) summarizes the factors that cause this type of unemployment in seven articles. These substances are change in industrial structures, inadequacy of qualifications, geographical obstacles, demographic changes, institutional rigidities, unemployment ability and capital-restructuring unemployment (Standing, 1983). As can be seen, structural unemployment is basically divided into two
categories as occupational and geographical. However, it should be noted that structural unemployment increases during periods of zero or very low unemployment, while structural unemployment decreases during periods of economic crisis where occupational and geographical mobility tend to rise (Flückiger et al., 1986).

Another type of voluntary unemployment is cyclical unemployment. It is called unemployment in periods of alternating growth and contraction in economies. The labor market has a dynamic structure in which continuous inflows and exits occur. It is the employee and employer side that causes labor mobility in the market. If the flow of information in the labor market was complete, the employee leaving one job would not lose time in the transition to another; But in real life the transition from one job to another takes time and causes unemployment. This unemployment is called frictional unemployment (Biçerli, 2007). In a healthy functioning economy, frictional unemployment, which is the most appropriate distribution of labor in various production lines and thus a mobility of labor required for productive work, is an expected phenomenon at the level of 1-2% on average even if full employment in the economy is concerned. Pigou says: “There is such a minimum that unemployment cannot go down from it” (Dirimtekin, 1981).

According to Schumpeter, various innovations create new jobs instead of man-powering jobs. New products, new production methods and new markets emerge with innovations. As a result, the labor force will start producing new materials, wage levels will rise and unemployment will decrease (Mouhammed, 2011). However, there is a substitution relationship between labor and capital, the two most important factors of production. In parallel with the advancement of technology, the workforce can be replaced by machinery and more efficient methods can be adopted. In short, in this type of unemployment, which occurs with the use of new inventions in the production process and the substitution of labor by machinery, the labor force is unable to adapt to new technologies and becomes unemployed. Of course, this depends on the substitution of the machine on labor on the one hand, and on the other hand, the knowledge of the workers on the other (Unay, 1996).

Another type of unemployment that should be considered is natural unemployment. This type of unemployment, which is considered normal in almost all economies, arises from the inability to completely eliminate unemployment in
an economy due to the natural course of labor markets. Natural unemployment is the sum of frictional and structural unemployment. From this point of view, natural unemployment represents the long-term minimum level of unemployment in an economy (Berber, 2013). The reason for this unemployment is a natural reason in economies. Therefore, it is more accurate to mention high employment rather than full employment in the economy. The natural unemployment put forward by M. Friedman and S. E. Phelps is the minimum unemployment or full employment unemployment limit that cannot be melted by economic policies, leading to inflation when attempted to be melted. In other words, it is the lowest unemployment rate that can be sustained without increasing inflation or the unemployment rate where the current national income is at the level of potential (full employment) national income. Friedman argued that the inverse relationship between the inflation curve and the unemployment rate of the Philips curve was only short-term, and that the expected level of inflation and the current inflation level in the long run were a steep line that could be shown at the natural unemployment rate of the Long-Term Philips Curve and that inflation would not rise (Layard & Nickell, 1997). This unemployment rate, which does not accelerate inflation, is called NAIRU. In particular, many economists sympathetic to Keynesianism have chosen to use the concept of NAIRU (Non Inflanotary Rate of Unemployment) instead of natural rate in long-term unemployment debates. NIRU, which was first used by Modigliani and Papademos (1975) as the rate at which inflation is expected to decrease during the period of unemployment above inflation, was then presented by James Tobin (1980) to NAIRU and thus used in the definitions of natural unemployment rate estimation. There are others, such as Ball and Mankiw (2002), who think that NAIRU is a synonym for natural unemployment, as well as King (1999). According to King (1999), the natural unemployment rate defines a real equilibrium determined by the structural characteristics of labor and product markets and is independent of inflation. However, NAIRU is influenced both by structural characteristics and by the gradual adaptation of the economy to previous economic shocks that determine the course of inflation. Carlin and Soskice (1990) point to another distinction between these two concepts. This difference comes from micro foundations. While Friedman’s natural rate is a concept that cleanses the market, NAIRU is an unemployment rate that will create consistency between the target real wages of workers, labor productivity and the possible real wages determined by the size of the firm’s mark-up. In the following years, the increase in unemployment and the equilibrium rates at the same time have led some new
Keynesian economists to examine a second explanation that allows aggregate demand to affect the natural rate (or NAIRU). Firstly, Phelps (1972) proposed the Hysteresis theory, which includes the idea that the natural ratio depends on the history of the equilibrium ratio.

2. Theoretical Framework

The views of economic approaches on unemployment constitute the theoretical framework of unemployment. Therefore, the contribution of economic approaches plays an important role in revealing the phenomenon of unemployment in the economy. With the period of Mercantilism, when systematic ideas started, discourses on unemployment were put forward. The important development regarding unemployment before mercantilism is the adoption of the ‘Poor Law’ in England in 1535 (Boyer, 1990). According to the mercantilists who ruled between the years 1500-1800, unemployment is not seen among the problems to be experienced due to population growth. Physiocrats, which emerged as a reaction to mercantilists, lay the foundations of voluntary unemployment today with the phenomenon they call ‘labor freedom’.

In the classical approach, it is accepted that there is only voluntary unemployment in the economy within the framework of Say law, which states that ‘each supply creates its own demand’. Unemployment was not seen as a problem, as the economy was in full employment and wages and prices were flexible. In 1929, the most important negative cyclical fluctuation, the massive depression in the world, despite the fact that the classics could not explain unemployment, led to a loss of confidence in this approach. Thereupon Keynes, in his work ‘General Theory of Employment, Interest and Money’ argued that the economy cannot come to equilibrium as the classics claim and that full employment cannot always be achieved. Accordingly, due to lack of effective demand, there is no full employment in the economy and there is underemployment. Since wages and prices are strict, there may be a voluntary unemployment. After these assumptions, especially Second World War, oil crises and global economic crises, unemployment has become an increasingly serious problem for economies. In this process, many theories were put forward in the axis of Classical and Keynesian approaches and the subject was discussed. Within the classical approach; neo-classics, monetarists, new classical economists, real conjuncture movements, and supply-side economists have assumed that wages and prices are constantly cleared and that if
there are no market failures and no intervention in the market, there will be no unemployment. On the other hand, in the Keynesian approach, with the basic assumption that there is no full employment and wages and prices are particularly downward, it has been suggested that unemployment cannot be solved by itself without external intervention and the subject has been addressed in various aspects by the explanations brought by structuralist school and new Keynesian people. In Marxism, which is one of the heterodox economic views apart from the dominant economic views, unemployment while it is seen as a natural consequence of capitalist system and mechanization, it is accepted as a problem in the theories of cyclical fluctuation due to political reasons during election periods. Within this framework, it is seen that each approach to the emergence of unemployment, its causes and solution proposals are the opinions developed from its own point of view.

### 2.1. Unemployment in Classical and Neo Classical Economics

The classics base their assumptions on the free market economy by stating that the prices of goods, services, labor and money are flexible. According to the parties of this approach, some problems and problems can be seen in economics. The reason for this is that free competition does not work well, but the way out of this situation is free competition. The invisible hand in the economy is capable of providing both price fluctuations and full employment. In other words; flexible upward and downward prices and wages will help ensure and maintain full employment. Namely; when wages exceed equilibrium wages, labor demand will decline, so labor supply in the labor market will exceed labor demand. In this case, since the demand for labor is lower than the labor supply, the wage level will decrease due to the competition between the components of the labor supply. While the demand for workers increases against the low wage level, it will be observed that those who do not want to work at this wage level will withdraw from the labor market. In this case, it is accepted that labor supply and demand in the labor market will come to a balance and full employment level will be achieved. In short, unemployment in the short term disappears as a result of wages being flexible, returning to the level that clears the market. The economy is at full employment level. The balance therefore represents full employment, reflecting a volume of employment in which the positions the employers want to offer are equalized simultaneously with the amount that workers agree to work at the current wages (Tobin, 1972). Therefore, strong trade unions negotiating wages above balance,
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laws that establish a minimum wage limit for employees, practices such as when workers and firms often avoid nominal wage cuts for psychological costs (sticky wages / negative wage elasticities), impede the natural functioning of the market and create unemployment (Solow, 1980).

According to classical economics, unemployment is the result of a voluntary choice in all circumstances except for bad luck. Unemployment should always be voluntary as long as there are alternative activities in the current economy. In this situation, all unemployment has irregular elements because nobody prefers bad luck instead of good. However, there are voluntary elements in all unemployment because one can always choose to be willing to work even if the conditions of work are bad (Lucas, 1978). Neoclassical unemployment theory also contains propositions close to classical unemployment theory. According to neoclassicals, the functioning of the labor market leads to unemployment. This theory considers unemployment to be temporary and voluntary.

2.2. Marxist Theory

In this theory, there is no generally accepted idea about labor markets and thus unemployment. However, it is recognized that unemployment stemmed from the economic system itself. Accordingly, unemployment is caused by deprivation of self-employment and mechanized substitution of the labor force as the current economic system leads to capital accumulation (Robinson, 1941). In this context, unemployment in Marxist economics based on labor value theory consists of two main reasons. The first is the idle workforce that emerges with the mechanization of production. Technology creates unemployment. The other is that, depending on the number of unemployed, the capitalist has difficulty in finding jobs due to the increasing demand for qualified labor. As the number of workforce seeking increases, wages fall, and therefore qualified people are willing to start at lower wage levels. In this case, the chance of finding a job is reduced if the unskilled labor accepts the low wage level. It is understood that unemployment in Marxist economics is a natural consequence of the internal contradiction of capitalism (Ataman, 1998). It seems that both types of unemployment are actually involuntary. The spiral of unemployment stemming from the structure of capitalism is a voluntary situation for workers.
2.3. Unemployment in Keynesian Economics

The classical approach was insufficient explaining the Great Depression in 1929. This situation brought new theories and explanations. The rise of Keynes’ theory coincided with the most troublesome period of capitalism. Capitalism rapidly monopolized all of Marx’s predictions, the income gap between classes grew, and the growing crisis of overproduction brought about a great misery. In an environment where unemployment is above 20 percent, the situation has reached a level that cannot be explained by the concept of voluntary unemployment, in which classical economists prefer not to work against the current market wages of individuals (Eaton, 2009). In such an environment, Keynes’ problem is not to explain temporary deviations from full employment, but to explain that full employment is a rare and short-term phenomenon (Meltzer, 1988).

Keynes begins General Theory by pointing to two assumptions of classical economics. First, Classical Theory assumes wage equal to the marginal yield of labor. This indicates that the labor market results are on the labor demand curve. Second, the Classical Theory assumes that the benefit of wage in a data employment volume is equal to the marginal labor of the employment volume. This means that the labor market results rejected by Keynes are on the labor supply curve. The rejection is that it will raise the possibility of voluntary unemployment (Snowdon & Vane, 1997). In other words, even in a non-stagnant economy (full employment), it is inevitable that some of the sources of employment will remain idle and voluntary unemployment will occur (Mankiw, 1990). This theoretical index of unemployment can be expressed in a more comprehensible arrangement as a state of absence of employment although it will be accepted and sought at the current wage level and working conditions (Keynes, 1973). This definition is now accepted as the definition of open unemployment.

So if Keynes’s discourses are taken in general; Unlike the classics, wages are not flexible. In the economy, for some reason, wages are inferior and therefore there is voluntary unemployment. Since there is a close relationship between labor supply and demand and supply and demand of goods, deviation from a balance in the goods market can cause unemployment by affecting the labor market (Törüner & Lordoğlu, 1991). All this shows that; The classical theory was a highly developed, comprehensive recession and unemployment theory, eliminated by a move by Keynes (Skousen, 2003).
2.4. Monetarist Vision

The proposals of the Keynesian approach were accepted by most groups until the 1970s. As a result of the policies pursued, budget deficits that cannot be prevented have arisen and the policies implemented to eliminate these deficits have revealed the phenomenon of chronic inflation. Inflation and unemployment, which started in the 1960s and gained momentum, became a problem for many countries' economies. The crisis, which started in 1970s with the decline in production and profitability especially in developed countries, gained an international character in a short time. With this development, economic growth slowed down and unemployment and inflation continued to increase. During this period, criticism against the Keynesian approach began to increase. The strongest criticism of Keynesianism came from the monetarists led by Milton Friedman, a professor of economics at the University of Chicago (Sloman, 2004).

According to the monetarists, unemployment is explained by the existence of a natural unemployment rate that can be seen in the economy even if it is full employment. In the face of Keynesian underemployment analysis, Monetarists argue that underemployment can only be a short-term phenomenon, and that in the long term, the labor market will come to a point where equilibrium will be eliminated. Unlike the classical, the equilibrium of the labor market is defined as the natural unemployment rate, not as full employment in the Monetarists (Friedman, 1977).

Friedman’s natural rate is the level at which a lower unemployment would put pressure on the rise in real wages (Friedman, 1968). According to him, the natural unemployment rate is a balance determined by all real conditions affecting labor demand and supply (Ekelund & Hebert, 1997). Despite a policy of achieving unemployment below the natural rate, unemployment will return to its natural rate, even if it decreases in the short term, with a higher nominal wage in the long term (Hoover, 1988). Here, the deviation from the natural unemployment rate in the short-term occurs as a result of short-term expectation errors of decision-making units (Fischer, 1977). In short, the natural unemployment rate is not cyclical and is a result of the structural characteristics of the economy.
2.5. New Approaches Explaining Unemployment

Following Keynes, economists were divided into two main camps. These are Keynesian economists and Neoclassical economists. The debate between the two schools on the question of whether the economy can automatically achieve full employment has continued for a long time (Branson, 1979; Hansen, 1951). One of the key questions here is: How much can the supply and demand fluctuations in the labor market be overcome by price and quantity adjustment in the discussion of flexibility? In other words, do wages change so fast that they can eliminate imbalances in the labor market? (d’IRIBARNE, 1990).

In the 1970s, criticisms of the Keynesian view that their theories were not based on micro-foundations brought the New Classical school to the forefront. Accordingly, it is stated that prices and wages are determined by the conditions that clean the market, it is costly for the decision units to obtain full information, but the authorities on money have full information. The fact that the decision-making units have rational expectations causes the changes in monetary policies to have no effect on the economy. Therefore, only surprise changes in the monetary authority’s policies affect unemployment (Barro, 1997).

In the new classical view, labor demand is the function of the current real wage and labor supply is the function of the expected real wage. The average monetary wage is constantly changing in order to establish the balance in the labor market and the balance in the labor market is not the only one. In other words, employment and real wage balance are affected by both current and expected price levels, which affect real wages. In this case, the difference between the current real wage and the expected real wage will cause an imbalance in the labor market. The emergence of an imbalance problem in the labor market has been the main point that differentiates the new classics from the classics. However, the reasons explaining this imbalance are similar to the classical theory. According to the new classical view, just as in the classical view, a fluctuation in real wages arising from the difference between the expected and the actual is a result of incomplete information in the market. Is unemployment, which will arise as a result of this imbalance, a voluntary unemployment problem, as in the classics? The answer to this question is not very clear (Ataman, 1998).

In the 1980s, new classical economists developed the Real Business Cycle theory as a result of the failure of expansionary monetary policies to solve the stagnation
prevailing in Europe despite the policies that adopted the classical view. Proponents of this view believe that the markets are constantly cleared to adapt to changes in wages and prices in labor markets and other markets, and that changes in labor supply and demand explain fluctuations in the level of unemployment (Greenwald & Stiglitz, 1993). Accordingly, large random fluctuations in the rate of technological development and supply-side shocks to which the production function is exposed cause rational individuals to change their labor supply and consumption decisions due to the change in relative prices, resulting in fluctuations in total production and employment. This development has greatly increased interest in the supply side of macroeconomics (Snowdon & Vane, 1997).

The lifting of the boundary between voluntary unemployment and involuntary unemployment is the end point of the new classical approach. However, the main point to be explained is the factors that prevent wages from falling. This is the topic of the New Keynesian school. The New Keynesian School, which emerged against the New Classics in the 1980s, primarily investigated wage and price rigidity based on maximization behavior and rational expectations (Gordan, 1990). The New Keynesian do not agree with the new classical explanations of instability, but share two methodological propositions of the new classics. First; macroeconomic propositions require microeconomic foundations. Latter; macroeconomic models are best regulated within the overall balance system. According to Greenwald and Stiglitz (1993), real business cycle theorists adopt full information, full competition and zero transaction costs. Problems with asymmetric information, heterogeneous units and imperfect and incomplete markets are not assumed. The main characteristic of the new Keynesian approach is that it is aware of the importance of all real world shortcomings (Stiglitz, 2000).

In explaining unemployment, the new Keynesian view accepts the Keynesian view as the assumption of the rigidities of wages to fall, but stresses that this assumption needs to be explained. This explanation requires an answer to the following question. Why do the reluctant unemployed oppose falling wages? The answers to this question are included in the wage rigidity models. In these models, effective wage theory, insider-outsiders and implicit contract models are the main approaches. These approaches are:
According to effective wage theory, firms do not reduce wages even in the event of permanent unemployment. Reducing real wages is not of interest to firms, because workers’ productivity is not independent of wages. In other words, if firms reduce wages, they know that negativities such as decrease in labor productivity, weakness of loyalty to work and firm, increase of labor turnover and dismissal will occur. Therefore, they do not go to reduce wages (Mankiw, 1990). The natural consequence of this is the emergence of a permanent unemployment in the market.

According to the insider-outsiders model, workers at work are insiders and outsiders are idle workers. This model is the power of insiders to determine wage and employment decisions, at least in part. This power of the insider emerges as a result of labor turnover costs (Vetter & Andersen, 1994). These costs; labor market review, advertising and research, negotiation of labor conditions, compulsory dismissal and legal costs. This also includes the training needs of new workers. Exact substitution of trained domestic workers and untrained workers is not possible (Greenwald & Stiglitz, 1993). Insiders react to the replacement of new workers with lower wages, and productivity is negatively affected. On the other hand, the recruitment of new workers poses both a cost of education and negativity resulting from labor turnover (Gordon, 1990). Because of all this, firms do not want to bear the risks of employing new workers by giving them lower wages. This results in the labor market not being completely cleaned up. The insider-outsiders theory and the effective wage theory provide different explanations of non-formal unemployment. Since the amount of voluntary unemployment depends on what firms want to give and what workers can get, these theories match and complement each other (Lindbeck & Snower, 1987). The implicit contract theory explains what dominates the labor market, which shapes the ‘economic glue tuman that holds workers and firms together in the long run. Because firms try to maintain the loyalty of workers and engage in unwritten agreements with their workers. This provides each worker with assurances about the terms of the agreement of the working relationship under various working conditions. Under these circumstances, the level of wages does not only apply to payment for labor. In addition, it acts as an insurance against the risk of variable income against shocks (Snowdon & Vane, 1997). In short, the theory is based on the assumptions that there is non-asymmetric information between firms and employees and that the parties will mutually comply with the provisions of the contract (Ricard, 1993).
Finally, another explanation of the New Keynesian about labor markets is the Hysteria Effect. According to this hypothesis, if the current unemployment rate is reduced by expansionary policies, the natural unemployment rate will decrease; because the natural unemployment rate will follow the path of the current unemployment rate (Snowdon, Vane, & Wynarczyk, 1996). Inflation due to the expansionary policy implemented will disappear after the economy settles at a lower unemployment rate.

**Conclusion**

According to Malinvaud (1990), the labor market consists of a very complex set of facts. This market occurs at the intersection of a series of individual behaviors affected by changes in economic life. It is not always easy to define all possible decisions and the consequences of these decisions, and these definitions cannot be fully explained by economic concepts. Certainly there is a need for such an analysis that an analysis that includes many features of the labor market that economic models do not take into consideration and which can show the interaction between different factors only helps to understand this contradictory phenomenon. This is the only way to understand. In short; For an accurate analysis of labor markets, a vivid and constantly restructured relationship must be established between a specific theoretical framework that will define structural features and concrete social formations that will give color and texture to this framework. However, the first way to achieve this is to understand the concept of unemployment very well theoretically. The second important point is that all schools of economics deal with this concept and the differences of meaning attributed to it. In this respect, the subject is theoretically handled with the types of unemployment. Then, the concepts of voluntary unemployment and involuntary unemployment of economic schools were questioned again. It is seen that the classical / neoclassical or Keynesian theories that have been known to date are insufficient in explaining the unemployment problem that is being experienced today and changing economic and social conditions have led to new approaches. An important part of today’s unemployment is structural and long-term, explained by these new approaches.
References


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2

ESTIMATION OF THE NAIRU WITHIN THE FRAMEWORK OF THE BRICS COUNTRIES AND TURKEY

Ayberk Nuri BERKMAN¹

Introduction

The concept of NAIRU was first coined as the Non-Inflationary Rate of Unemployment (NIRU) by Modigliani and Papademos (1975) and later referred to as the Non-Accelerating Inflation Rate of Unemployment by Tobin (1980). The NAIRU, as a useful instrument for policy-makers, represents an unemployment rate that is consistent with stability, so that it does not accelerate inflation. In this context, deviations in the NAIRU reveals the measure of inflationary pressure and can be used to calculate the output gap. High levels of the NAIRU may indicate the weakness of the labor market as well as an indicator of the cyclical component of unemployment. Therefore, economists assume significance in estimating the NAIRU. The NAIRU is different but similar to the natural rate of unemployment (NRU) proposed by Friedman (1968) and Phelps (1967). In some studies, both concepts were interchangeably used in the same sense, in particular, the Monetarists suggested that NAIRU was a different version of the NRU. On the other hand, other economists who criticized the Keynesian and the Monetarists such as Tobin (1997) stated that the NRU and the NAIRU were two distinctly different concepts. The NAIRU had been the locus of interest in the development of macroeconomic policies along with the recent economic crisis and global developments. Nonetheless, the rapid decline in output levels observed in some countries and the rise in unemployment rates boosted the debate on wage and price inflation.

NAIRU estimates can also provide enlightening information on uncovering the causes of the plunge in potential output rates. NAIRU estimates can also be

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considered as the unemployment rate that does not accelerate inflation, resulting in a stable inflation rate (Debelle and Vickery, 1998). When the unemployment rate is below NAIRU, there would be an increase in pressure on the inflation rate in the economy, on the contrary, and when the unemployment rate is higher than NAIRU, there would be downward pressure on the inflation rate. From this perspective, NAIRU is the unemployment rate that keeps inflation constant in the economy. It can also be asserted that NAIRU has a natural speed limit for economic activity. In other words, NAIRU measures a country's sustainable production capacity. If an economy grows faster than the resources it owns since it is allowed, the price pressure in the economy would result in the acceleration of the inflation rate sooner or later (Altig and Gomme, 1998). Central monetary banks should be able to predict future inflation accurately as monetary policy implemented to ensure price stability affects inflation with a delay. The NAIRU has been the subject of many studies in the academic literature as one of the signs reflecting the inflationary pressure in the economy (Estrella and Mishkin, 1999). There are different accepted approaches and methodologies for the NAIRU estimates. Upon evaluating these approaches as a whole, it is seen that the structural vector autoregressive model (SVAR) has advantages over other methods and additional information provided to researchers.

Developing policy suggestions to reduce unemployment, which has become a critical macroeconomic problem for all economies globally, is among the main objectives of policymakers. Therefore, many theoretical and empirical research studies on unemployment issues are conducted within the discipline of Economics and solution strategies are developed based on the results achieved. Considering the theoretical economic explanations regarding unemployment, three basic approaches can be mentioned pertaining to the path unemployment has followed over time. These are unemployment hysteresis hypothesis, natural rate hypothesis, and structural approach. The high level of persistence observed in the unemployment rates of developed countries following the first petroleum shock led to a lively debate on which theory could better explain the behavior of unemployment rates. The natural rate hypothesis of Friedman (1968) suggested that unemployment rates move around an equilibrium level that defines static oscillations. Initially, this ratio was considered to be fixed and exogenous in practice due to the lack of theories that explain the determination of the natural rate. Recent developments have also begun to include structural factors which explain the discrepancies among economies over time. In the second approach, known as the
structural perspective, most of the unemployment shocks are considered temporary, but it is generally stated that the natural unemployment rate is constantly changing and is also affected by changes in structural factors. As a result, the unemployment series follows a stationary process if structural breaks are allowed (Fosten and Ghoshray, 2011). The third approach, known as the unemployment hysteresis, was developed by Blanchard and Summers (1986), suggesting that the impacts of unemployment or labor market shocks are permanent. In this study, which of these three approaches mentioned for 5 BRICS countries is tried to be determined by the Lagrange Multiplier (LM) unit root tests that allow structural breaks. Therefore, individual LM unit root tests developed by Lee and Strazicich (2003) along with the panel LM unit root tests of Im et al. (2010) are utilized. Because when the related literature is analyzed, it is seen that LM unit root tests are generally used in the time-series dimension and are not handled in the panel dimension. The panel LM unit root test recommended by Im et al. (2010) is used in this study. This study consists of four sections. The first section focuses on the estimation and theoretical basis of the NAIRU and the findings of relevant studies in the literature. The second section describes the NAIRU estimation methods and the NAIRU estimations for the BRICS countries and Turkey. The third section involves the findings obtained from the performed analyses. Consequently, the final section includes conclusions and evaluations.

I. Theoretical Framework

There are three basic approaches to the path unemployment has followed throughout time. The first one is the “natural unemployment rate” or “unemployment rate that does not accelerate inflation” (NAIRU) hypothesis, which defines unemployment dynamics as a process that having mean-reverting tendency as a result of shock and is therefore associated with a stable inflation rate. According to the hysteresis hypothesis defined as “the high dependence of current period inflation on past period inflation”, shocks have a permanent impact on unemployment. Therefore, the hysteresis hypothesis suggests that the unemployment series is not stationary, does not have a mean-reverting tendency. In the structural approach suggested by Phelps (1994), it is stated that most shocks for unemployment are temporary and these shocks are generally associated with recessions that lead to changes in the level of natural unemployment. It is also emphasized that the natural rate is endogenous. For this reason, the structural approach states
that the unemployment series follows a stationary process with structural breaks (O’Shaughnessy, 2011).

These theoretical approaches can be explained more broadly as follows. In the natural rate hypothesis, there is only one long-term equilibrium for unemployment rates, and therefore the Phillips curve is in the form of a straight line. Shocks have a temporary impact. For this reason, the NAIRU hypothesis mentions that the degree of integration (d) of the unemployment series ranges between 0 and 0.5 (Marques et al., 2017). In the second approach, the hysteresis hypothesis, unemployment dynamics are considered as a nonstationary process that does not have a mean-reverting tendency. Another concept that is confused with the concept of hysteresis is called “persistence”. Here, rigidities in the market slow down the rate of mean-reverting unemployment (Ener and Arica, 2011). Therefore, as mentioned by O’Shaughnessy (2011) and Logeay and Tober (2006), it is essential to distinguish between hysteresis and persistence. Persistence refers to the mean-reverting tendency of the series, albeit slowly. If the unemployment hysteresis hypothesis is rejected, shocks merely cause temporary deviations around an average value or a deterministic trend. When these explanations are expressed using an econometric terminology, it is seen that the time-series features or integration degrees of the unemployment series loom large. In short, the hysteresis hypothesis mentions that the unemployment series is dependent on past values and that shocks constantly influence unemployment. As for the causes of unemployment hysteresis, there are many explanations in the literature. The most basic of these is the “insiders-outsiders” model of Blanchard and Summers (1986). In this approach, the negative demand shock, which increases unemployment, excludes workers (outsiders) who do not have the right to choose from the labor market and causes them to lose their bargaining power to other workers (insiders) working in the labor market. If the insiders give zero weight to the outsiders in wage bargaining, this leads to continuous increases in the unemployment rate. Because the insiders set a wage level that enables their own employment to continue, while the outsiders remain unemployed because they cannot put downward pressure on wages. Furthermore, many reasons can be put forward that are not based on the degree of unionization of the economy that explains the hysteresis effect. In the case of hysteresis, the high unemployment rate becomes a problem that cannot be solved without government intervention. Therefore, if the unemployment hysteresis hypothesis is correct, active government policies that tackle unemployment are necessary, especially during recession periods (Gustavsson and Österholm, 2007; Chang et
al., 2005). In other words, where the hysteria hypothesis is confirmed, macroeconomic policies will have a constant influence on unemployment.

However, if the natural rate approach or structural approaches are valid, there will be no need for government interventions as the unemployment series will have a mean-reverting tendency after a while. In line with these explanations, the presence or absence of an unemployment hysteresis is crucial also for policymakers.

II. Literature Review

Upon examining the literature, NAIRU estimation methods can be classified under three groups in general. These include structural models based on the Phillips curve, completely statistical methods such as unobserved component models (UCM) based on the trend estimate of the measured unemployment rate and Hodrick Prescott Filtering methods, and reduced-form models such as the Structural VAR models and Elmeskov method. Although statistics methods are very easy to apply, the selection of the correction parameter is not objective and it is not based on any economic theory. In structural models based on the Phillips equation, the NAIRU can be estimated using the information on both inflation and unemployment. Upon considering this point of view, economic interpretable estimates are obtained by using structural models. On the other hand, the single equation Phillips equation cannot give much information about the uncertainty in NAIRU, because a single equation cannot accurately describe the combined movements observed in inflation and unemployment. Therefore, in this study, the Structural VAR model, in which inflation and unemployment interact and can determine each other, was used in the estimation of NAIRU. With the SVAR approach, some important studies have been conducted in the international literature for NAIRU. Yavan (1997) estimated the NAIRU over the period from 1969 to 1995 for Turkey. The proposed method for the NAIRU estimation takes place in three stages. In the first stage, the study estimated two long-term equilibrium models using the unemployment rate, whereas the study used the unemployment change in the dynamic inflation and wage increase model in the second stage. In the third stage, the NAIRU is only obtained as a function of structural factors. The findings of the study suggested that the NAIRU over the period from 1990 to 1994 did not change significantly over the years and was around 4%. Bildirici (1999) utilized four different methods in estimating NAIRU for Turkey using TSI unemployment data and tested the determined NAIRU and the Phillips
ESTIMATION OF THE NAIRU WITHIN THE FRAMEWORK OF THE BRICS COUNTRIES AND TURKEY

Ayberk Nuri BERKMAN

curve. These methods include Nickell and Jackman’s (1991) NAIRU estimation, HP filter method, Elmeskov’s (1993) method, and NIRU approach. NAIRU, estimated by the first method, was found to be 18.4 and 21.6; 7.93 and 7.08 in the second method, 8.01 and 6.29 in the third method, and 7.88 and 5.68 in the fourth method in 1990 and in 1996, respectively. To test the Phillips curve, the output of the first methods was used. Groenewold and Hagger (2000) estimated the natural unemployment rate over the period of 1978-1997 with quarterly data using a two-variable structural VAR model. In the study, it was assumed that the natural unemployment rate represented the NAIRU. In the early 1990s, they associated the rapid increase in the real unemployment rate with the Hysteresis effect. They concluded that the natural unemployment rate influenced the actual unemployment rate. Estrada, Hernando, and Salido (2000) calculated the NAIRU estimation for the Spanish economy with the Phillips curve-based SVAR approach. The important distinction in their study is to obtain safe point estimates for NAIRU. According to the findings of the study, a rapid increase was observed in NAIRU over the period of 1981-1985, the rate of increase slowed in the following cycle and then closely followed the observed unemployment rate. The NAIRU estimate for Spain in 1999 was approximately 14%. In Laubach (2001), NAIRU was considered as an invisible stochastic process and was estimated for the G7 countries from the Phillips curve using state-space models. Unlike other studies, unemployment was examined in a separate model. The unemployment gap was examined through an autoregressive process. According to the findings of the study, due to the uncertainty in NAIRU, the Phillips curve probably cannot accurately explain the joint movement in unemployment and inflation. In Hjelm (2003), using the annual data of the period 1950-2001, NAIRU obtained the output gap and structural budget balance estimation with the same model SVAR approach for the Swedish economy. This study improved Apel and Jansson (1999a and 1999b) to observe the NAIRU and output gap in the same model with the unobserved components method and included the structural budget balance to the model. The NAIRU projection of 2004 for the Swedish economy was estimated at 3.8% with the dummy variable defined for years, whereas there was an excessive change in the unemployment rate and 4.3% without dummy variable. Hogan and Zhao (2006) is the expansion of Laubach (2001) along with the SVAR approach. In the study, they made the NAIRU estimate for the US economy using the SVAR approach, assuming that inflation and unemployment rates reacted to each other. With the SVAR approach, they estimated core inflation and NAIRU simultaneously. The findings
suggested that the NAIRU declined rapidly towards the end of the 1990s and the long-run vertical Phillips curve shifted backward. In Kaya and Yavan (2007), the Phillips equation, which contains the expectations that form the basis of NAIRU, was estimated using two-stage least squares with the lagged values of exchange rates, interests, and wages as independent variables. This approach enables the Phillips equation to be defined as the reduced equation of a structural model in which exchange rates, interests, and wages are among the endogenous variables. It has a more flexible structure than the methods based on the standard production function. In the study, the NAIRU estimation was conducted using the quarterly data obtained over the period between 1988-2006. NAIRU estimates were around 8% and 6.5% between the first quarters of 1991-1994 and between 8% and 10% for the first quarters of 2000-2005. Yaşar (2008) estimated the NAIRU series with quarterly and annual data over the period between 1991-2006 and applied HP filter with Elmeskov (1993) method based on the production function method. With annual data, it is observed that NAIRU decreased from 8.5% to 8% between 1991-1994 and increased from approximately 8% to 10% over the period from 2000 to 2005. In the findings section of the study, it is stated that the annual and quarterly estimates contain similar results. In Kalbasi and Ash-tary (2011), the impacts of monetary policy on the NAIRU in the Iranian economy were examined via the SVAR approach. In the findings of the study, it was concluded that monetary policy had minor impacts on the NAIRU and unemployment rate due to various deficiencies in the labor market. With the SVAR approach, the NAIRU estimate was around 12.5% in 2010. There is very comprehensive literature on unemployment approaches. Since the aim of the study is not to make a wide literature review in theoretical scope, only the basic studies that are considered important are included here. Upon examining the related literature, it can be seen that the unemployment hysteresis was tested with unit root tests. However, the obtained results vary depending on the performed unit root test, the selected country sample, and the time interval. In this regard, the studies can be categorized according to the type of unit root tests used as follows.

The first group of studies used unit root tests based on standard time-series analysis. For instance, Blanchard and Summers (1986) considered a masterpiece in the unemployment hysteresis literature, using unit root tests of the DF and ADF (Dickey and Fuller, 1979; 1981), over the period of 1953-1984 for France, Germany, the UK and the USA. The authors concluded that there was an unemployment hysteresis for all countries except for the USA. Stockhammer and Sturn
(2011) found that there were strong hysteresis effects for Australia and Canada, and weak hysteresis effects for most European countries and Japan, using various unit root tests, especially the ADF for 16 OECD countries. The results achieved for the USA strongly rejected the hysteresis hypothesis. Another study in this group is Gomes and Silva (2008). The study, which tested the unemployment hysteresis for Austria with unit root tests developed by Dickey-Fuller (1979) and Stock-Watson (1986), obtained results confirming the hysteresis effect.

The studies in the second group use unit root tests based on time-series analysis, which takes into account the structural breaks. For example, Arestis and Mariscal (1999) tested the unemployment hysteresis hypothesis for 26 OECD countries performing unit root tests allowing two breaks. The obtained results revealed no unemployment hysteresis for 22 countries. Arestis and Mariscal (2000) examined the unemployment hysteresis hypothesis in 22 OECD countries. Obtained results asserted that the unit root hypothesis was rejected for 9 countries, not for 10 countries, and evidence for possible trend stagnation was obtained for 3 countries.

The studies in the third group include traditional panel unit root tests that do not take into account structural breaks. For example, Sephton (2009) examined the unemployment hysteresis via individual and panel LM unit root tests for the 50 states and the Colombian Region. Obtained results provided evidence to support the unemployment hysteresis for most states in the USA. Lee et al. (2010) investigated the unemployment hysteresis for 9 East Asian countries with a panel LM unit root test. Findings supported the hysteresis effect.

The studies in the fourth and last group deal with the subject with nonlinear techniques and integration analyses with breaks. Craigwell et al. (2011) tested the unemployment hysteresis for a group of Central European countries, with unit root tests (Lee and Strazicich, 2003; Kapetanios, 2003) that take into account structural breaks, linear externality, and integration with breaks. The obtained results revealed that the hysteresis was valid. Lee (2010) investigated the unemployment hysteresis for 29 OECD countries using the nonlinear unit root test. The findings supported the natural unemployment rate hypothesis for 23 OECD countries.
III. BRICS Countries

Brazil

Brazil is the largest and most diverse industrial center in Latin America and the Caribbean region. Brazil has worldwide comparative advantages in the productions of agricultural products (coffee, soy, sugarcane, cocoa, rice, cocoa, corn, orange, cotton, wheat, tobacco), live animal products (meat, chicken meat), wood products (paper, pulp), metal products (iron-steel and aluminum) and leather. Although it is seen among the top 20 exporting countries, it cannot be said that Brazil has reached its current position in the world economy easily. Brazil has encountered many economic problems such as high inflation and income inequality but managed to survive those periods with sound macroeconomic policy implementations during the 1990s. Today, it is mentioned among the major economies in the world.

Russia

In recent years, Russia continues to strengthen its economy with the increase in its effectiveness in foreign policy, the commercial agreements made and the contribution of international associations to which it is a member. Russia, one of the world’s leading countries in petroleum and natural gas exports, sells primarily missile systems which have reached large figures in total. The country, one of the world’s leading economies, is the second-largest petroleum producer in the world after Saudi Arabia. Russia also has half of the coal reserves in the world. While Russia tries to strengthen the functioning of the market economy, it also pursues protectionist policies.

India

India ranks 7th in the world with a surface area of 3,287,590 km² and ranks 2nd with a population of approximately 1 billion 250 million. India has been also the second-fastest-growing country following China in recent years. Especially the economic growth and development trend, which has been achieved in recent years, has attracted the attention of countries to India. In terms of the GNP values, India is the 5th economy in the world following the EU, the USA, China, and Japan. Nevertheless, despite the great economic potential of India, there are also difficulties arising from having a large population. On the other hand, a significant
portion of the population of India still does not have access to basic utility services such as water and electricity. Moreover, in compliance with the rapid economic growth, foreign debt is rising as well as the current account deficit. Another problem with growth is that increased prosperity cannot be distributed equally. Rural areas cannot get enough shares from economic development. Poverty makes its existence felt like the most important problem in the economy. On the contrary, approximately 300 million-percentiles have middle- and upper-middle incomes.

**China**

The reform process that began in China by 1978 with the rapid liberalization in the agricultural sector and continued throughout the 1980s with the reform of the industrial sector. Market-oriented reforms and outward policies underpin China’s eye-catching economic performance. China’s foreign trade statistics reveal the magnitude of China’s benefits from the globalization process and indicate that China may be the world’s largest exporter in the near future if the current trends are sustained. In this context, China’s membership of the World Trade Organization in 2001 and pro-private sector amendments made in the Constitution in 2004 indicate the Chinese government’s determination to maintain a competitive market economy.

**South Africa**

Upon considering the change that the South African economy has undergone since the 1970s, one of the most important issues encountered is unemployment. In South Africa, which has the strongest and disciplined union movement in the African continent, unions play an active role in the labor market and employment policies in the country. In South Africa, which is the largest economy of the African continent in terms of economic power and development level, the industry and mining-based market economy are in force. Nonetheless, South Africa is the country with the highest income inequality in the world (WDI, 2014). With its rich mineral resources and croplands, it is seen that the South African economy, which is dominated by the mining and agriculture sector, has changed significantly in the last forty years and the secondary sectors have become more dominant in the economy.
IV. Methodology

Unit root tests are used to differentiate between the theories that explicate the behavior of unemployment rates. The hysteresis hypothesis is formulated as a unit root process. The disapproval of the null hypothesis in the unit root test supports the natural rate hypothesis if the structural breaks are excluded in the specification, and the structuralist approach if the structural breaks are not excluded (Romero-Avila and Usabiaga, 2008).

It is known that traditional unit root tests (such as ADF) based on time-series analysis have very low power in small samples against the alternative of stationarity. Two different approaches have been developed to solve this problem. The first approach is to use panel unit root tests that take into account both the time dimension and the cross-section size of the data. The second approach is to include the structural breaks proposed by Perron (1989) in the unit root test. If there are structural breaks and they are not modeled, the results are likely to be false, whether or not the null hypothesis involves stationarity.

In this regard, following Perron, the researchers realized that structural breaks should also be taken into consideration. For example, Zivot and Andrews (1992) proposed a unit root test (ZA test) that takes into account the only endogenously determined break. Later on, Lumsdaine and Papell (1997) improved the ZA test to allow two breaks in level and slope (LP test). On the other hand, Lee and Strazicich (2003) suggested that in case of breaks and unit root, the same result occurs as in single-break tests. In this study, based on the explanations mentioned, both structural breaks and panel data are used. Therefore, Lee and Strazicich (2003) and Im et al. (2005, 2010) LM (Lagrange Multiplier) unit root tests developed are applied.

V. Empirical Findings

The number of lagged extended terms in this study is determined to start from a maximum of 8 ($k = 8$). Accordingly, the 1.645 asymptotic normal value at the level of 10% is compared with the $t$-statistic of the last lagged term with the first difference. After determining the optimal $k$, breaks are determined at which the endogenous two breaks LM $t$-test statistics are minimum. In this way, every probable combinations of 2 breakpoints are examined during the interval of $[0.1T, 0.97]$. Here, $T$ denotes the sample size. However, in the analysis of unemployment
hysteresis, only the constant is included in the deterministic elements of the model used, while the trend is excluded and only level breaks are taken into account. As stated by Cameraro et al. (2008), it must be noticed that the disapproval of the hysteresis hypothesis in relation to the deterministic specification of the tests indicates that the unemployment rate follows a stable path around the natural rate. Therefore, the authors in question argue that the most appropriate deterministic specification in the test of unemployment hysteresis is the specification containing the fixed term. Because, if the trend is included, the specification will disguise the fact that the unemployment rate may indicate a long transition between changing natural rates. In addition, Cameraro et al. (2008) also stated that it is not appropriate to include trends by looking at the graphs of the unemployment series of countries. In this study, the results of both Model A, which allows only level breaking, and Model C, which allows breaking at level and slope are given for comparison purposes. Nevertheless, based on the results of Model A, inferences are made based on the studies in the mentioned article (Lee et al., 2009; Lee et al., 2010). Moreover, individual and panel LM unit root tests, which did not take structural breaks into consideration to compare first, were also applied and their results are presented in Table 1.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Individual Lagrange Multiplier Unit Root Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>-2.496 [7]</td>
</tr>
<tr>
<td>Russia</td>
<td>-1.758 [6]</td>
</tr>
<tr>
<td>India</td>
<td>-2.573 [0]</td>
</tr>
<tr>
<td>China</td>
<td>-1.552 [3]</td>
</tr>
<tr>
<td>South Africa</td>
<td>-1.674 [0]</td>
</tr>
<tr>
<td>Turkey</td>
<td>-2.573 [0]</td>
</tr>
<tr>
<td>Panel Lagrange Multiplier Unit Root Statistic</td>
<td>-0.964</td>
</tr>
</tbody>
</table>

Notes: The numbers in square brackets are the optimal number of lagged first difference terms included in the unit root test to correct autocorrelation. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Critical values for the SP test at the level of 1%, 5% and 10% are -3.85, -3.08 and -2.65, respectively. Critical values of panel Lagrange Multiplier test statistics, which do not take into account breaks, are -2.452, -1.728 and -1.316 for the 1%, 5% and 10% levels, respectively.

Upon taking structural breaks into consideration, the SP test indicates the existence of the natural unemployment rate for all countries.
At the level of the unemployment series that allowed two breaks, the unemployment series were determined to be stationary. The panel LM test, which allows merely two-level breaks at level, revealed that the structural approach is valid. Upon considering the dates of the breaks, it can be seen that the first break occurred in the period covering the first and second petroleum crises (1972-1982). It is noteworthy that the second break occurred following the year 1990. The 1990-1992 Gulf War, the 1997-98 Asian Crisis, the 1998-99 Russian Crisis, which were experienced in this period, have led to significant breakdowns at the level of the unemployment series of BRICS countries. Table 3 provides the

Table 2: Individual and Panel Lagrange Multiplier Unit Root Test Results for Model A with Two Breaks)

<table>
<thead>
<tr>
<th>Countries</th>
<th>Individual Lagrange Multiplier Unit Root Statistics</th>
<th>Dates of Breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>-3.206 **</td>
<td>1974, 1981</td>
</tr>
<tr>
<td>Russia</td>
<td>-4.002 **</td>
<td>1971, 2006</td>
</tr>
<tr>
<td>India</td>
<td>-2.794 [*]</td>
<td>1981, 1988</td>
</tr>
<tr>
<td>China</td>
<td>-2.593 [?]</td>
<td>1990, 2006</td>
</tr>
<tr>
<td>Turkey</td>
<td>-3.992***</td>
<td>1971, 2000</td>
</tr>
<tr>
<td>Panel Lagrange Multiplier Test Statistic</td>
<td>-30.376****</td>
<td></td>
</tr>
</tbody>
</table>

Notes: The numbers in square brackets are the optimal number of lagged first difference terms included in the unit root test to correct autocorrelation. **, * indicate significance at the 1%, 5% and 10% levels, respectively. Critical values for the SP test at the level of 1%, 5% and 10% are -3.85, -3.08 and -2.65, respectively.

Critical Values (Model C)

<table>
<thead>
<tr>
<th></th>
<th>0.2</th>
<th>0.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>-6.28, -5.37, -5.48</td>
<td>-6.30, -5.62, -5.15</td>
</tr>
<tr>
<td>0.4</td>
<td>-6.25, -5.38, -5.72</td>
<td>-6.32, -5.77, -5.41</td>
</tr>
<tr>
<td>0.6</td>
<td>-6.41, -5.81, -5.42</td>
<td></td>
</tr>
</tbody>
</table>

Notes: **, * indicate significance at the 1%, 5% and 10% levels, respectively.
estimation results of Model C, which allows two breaks at both level and slope. It is concluded that there is no unemployment hysteresis for all BRICS countries, if breaks are allowed at both the level and the slope of the unemployment series. In addition, the panel LM test rejects the hysteresis null hypothesis at all levels of significance for the BRICS panel.

Conclusion

As a result, the results of Model C indicate results that support the structural approach for the BRICS country panel, while Model A supports the hysteresis approach. However, based on the relevant literature, it is necessary to rely on the results, as Model A has a more accurate specification to test the hysteresis hypothesis. Therefore, it can be said that the unemployment series are not under the influence of hysteresis for the majority of BRICS countries in the sample. But panel LM tests, which provide results for the entire BRICS panel, support the structural approach. The point that should not be forgotten here is that the null hypothesis that all series contains a unit root, as suggested by Karlsson and Lothgren (2000), can only be rejected because there are only a few stationary series. Therefore, rather than the results of panel LM tests, it is essential to rely on the results of individual LM tests. However, the results of Model C, which allows two breaks both at the level and the slope of the unemployment series, provided evidence to support the structural approach both on country and panel basis. Consequently, based on the results of Model A, it can be said that the hysteresis effect is not valid for all BRICS countries in the sample. This reveals that the unemployment data of BRICS countries contain a unit root, do not have mean-reverting tendency and shocks in the labor market have permanent impacts on the unemployment series.

References


THE RELATIONSHIP BETWEEN ECONOMIC COMPLEXITY AND UNEMPLOYMENT RATE

İbrahim OZAYTURK1

Introduction

Studies in economics in recent years show that economic growth and unemployment are indirectly related to the economic complexity index of countries. In terms of their current production structures, these countries produce and export labor-intensive products with low income elasticity. However, the increasing of value-added of these products to the national economy is quite low. In addition, since these sectors have limited knowledge, skills and productivity levels, the spread effects to other sectors remain still very low. In this respect, it can be foreseen that the countries that have a plan to transform their production structure from low-yield products to high-yield products will grow faster compared to the countries that do not perform structural transformation. (Hausmann et al., 2007). According to the classical foreign trade theory, structural transformation emerges as a result of comparative advantage. According to Heckscher-Ohlin’s theory, the factor density of the country is the determinant of the structural transformation (Hausmann & Klinger, 2009). According to these theories, it does not matter what is produced or exported to overseas counties. It is more important how much products are produced and how much money or returns has got from products. In other words, it is more important for countries what kind of content they are sold out for other countries rather than how much product is produced and how much product is sold out (Rodrik, 2006). Therefore, the index of economic complexity, which is known as an indicator of the efficiency of a country’s output and the high content of its information content, is at the forefront for countries that produce advanced technology and higher product diversity.

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The aim of this study is to explain the effects of the economic complexity index which shows how much technological content the economy can produce and the relationship with unemployment rate through export. In this respect, first of all, economic complexity index, how this index is calculated and the commodity groups subject to trade of this index will be emphasized. Afterwards, similar studies will be included and the last section will be related to export and unemployment.

**Economic Complexity Index (Eci)**

In the mercantilist period, the precious metals such as gold and silver were kept in the country and the land came to the forefront with the Physiocrats and the importance of trade with the classics caused the free trade to progress with the industrial revolution. It can be said that the industrial revolution has played an ignorant role in the importance of foreign trade. Besides, it is known that the history of the modern economy which started with Adam Smith and the specialization of the countries that started with David Ricardo will be reason of increasing of the country's trade and the economic development over time. Towards the end of the 20th century, trade volumes between countries have started to increase and getting better. In parallel with the developments in communication and transportation technologies, it is becoming more evident that only the production factors and final goods produced by countries do not contribute much to the national economies after a certain point. With this point, the importance thing for the countries have become generally what they produced and how much knowledge and experience they used for their production rather than finding a place in trade world and the excess amount of the products they produced. These contributions have enabled the product to become a sophisticated product and to be subject to more convenient international trade, economic and social development of the countries, and as a result, going down of unemployment rates.

With these all thing, a new sentence emerges for international trade literature which is sophisticated product. The sophistication of the products means that the products produced with using more knowledge and skills. Hasumann et al. (2006) started to calculate the values of using knowledge and skills in the related products by using the method that they called economic complexity and they put forward with the first scientific article in 2007 about economics complexity. Under the leadership of Richard Hausmann and César Hidalgo (2011), the Atlas of Economic Complexity, prepared at the Harvard International Development
Center, aimed to measure the accumulation of knowledge in the production process of countries. In this context, Economic Complexity Index (ECI) was prepared with 129 countries and knowledge in production is categorized on the basis of a society’s ability to produce certain products, experience and general knowledge. In the atlas; it is stated that countries with high number of ECI value have long years of knowledge in producing diversified and complex products and also technical knowledge obtained from production. One measure of knowledge in society is the products it produces. The acquired knowledge and innovations provide these countries with a sustainable growth potential. The more knowledge the country has about the production process, the higher its per capita income is expected to be. According to this report; the most complex products, chemicals and machinery; the least complex products are raw materials, also called primary goods, and simple agricultural products. Hausmann and Hidalgo (2009) put forward this index and information about the complex products are defined by themselves as follows. It is the order of values that show the compositions of the productive productions of the countries and reveal the knowledge and skills in these products. In addition to this definition by the creators of the index, Saleh et al. (2017) tried to make a definition by trying to find answers to the question of how much information is used in an economy. According to them, the economic complexity measures the amount of information that can be obtained in the economy and accordingly can be determined in economic growth.

Likewise, in the general definition of economic complexity, it is a title that explains to us how much information and technology a country uses in its products. It enables countries that can produce high-tech products and have the capacity and competence to produce these products, by using these advantages and also they can sell their products with higher added value within the international commercial network to which they are connected. It is seen that the countries with high economic complexity index are more advantageous in the international trade network compared to the countries with low index in related products, and thus they can sell their products at higher prices easily, rather than engaging in international competition. At this point, countries’ investments in technology and knowledge can contribute positively to the strengthening and development of their foreign trade and economic structures. In addition, economic complexity is defined as indirectly measuring average productive information distributed to individuals and institutions of a country. In other words, complex economies are countries that can combine large amounts of productive
knowledge to produce sophisticated products. In contrast, simple economies can only produce less diverse and simple products based on limited productive knowledge. Unfortunately, productive information is not directly capable of being produced. Therefore, we can measure economic complexity indirectly from the products made by countries. The reason of that economic complexity emerges and embodies the products that a country can produce. Moreover, the economic complexity index, which shows the product diversity and information intensity in the export compositions of the countries, is an important indicator to show that countries can exist in international competition and make this competition sustainable (Şeker, 2019).

The most general definition that can be made on the basis of all these definitions is as follows; countries with high economic complexity index in international trade are more advantageous in terms of exports compared to other countries with low economic complexity index. Similar to David Ricardo’s comparative superiority theory, which takes Adam Smith’s theory of absolute superiority one step further, it is found that a country produces higher yields and income than products produced that such products are related to exports by using information and technology. Again, with a similar idea to that of Ricardo’s theory, it is a fact that the production of products that use less information and technology will not provide much advantage, and therefore the production will not bring any benefit and production can be a waste of resources. For this reason, it is obvious that it would make more sense to import cheap way rather than production. It is not known whether economic complexity was predicted by Hausmann and Hidalgo (2009), but it is a fact that it covers a huge research gap. Hidalgo and Hausmann (2009) also based their explanations on the concept of economic complexity on Smith’s idea of division of labor and specialization. Based on Adam Smith’s view that the specialization of economic agents in different areas would increase economic efficiency, the authors reminded that the boundaries of the division of labor were determined by the market and that the division of labor and specialization could be achieved more easily, the development and prosperity depended on the complexity of numerous individual activities affecting the economy.

From this point of view, the authors make a distinction between “complex” and “simple” economies (Hausmann et al. 2018). Complex economies are economies that are able to combine large interrelated information through large human networks to produce a variety of knowledge-intensive products. Simple
economies, on the other hand, are economies that have more productive knowledge and produce simple products that require a smaller network of interaction. Knowledge, skilled labor and other production factors used in the production process can only be used in the production of close and similar goods. (Arıcıoğlu, Coşkun & Tunçer, 2017). The more diverse and unorthodox products a country produces, the more export markets are expected to be competitive in high value-added products. So, the economic complexity is really important. If the economic complexity index reflects the level of knowledge and production of the countries, the economic complexity index is expected to be linked to the wealth level of the countries. In addition, there is a strong relationship between the ECI and GDP per capita. Strikingly, as the only information used in calculating the economic complexity index, the ways in which products are made with relative superiority are tried. According to the complexity approach, the level of knowledge established in a society is not based on the total knowledge level of individuals. Rather, it depends on the diversity of knowledge among individuals and on the ability to exchange this variety of information. This occurs in a complex interaction network, and in complex structures the total value is greater than the sum of the individual characteristics. This is what distinguishes modern society from traditional society. What is characteristic of modern societies is not the fact that everyone has more information, but the ability to collectively use the large volume of information that everyone has a small part of. In this sense, economic complexity is also closely related to the welfare levels of countries. Countries with a higher level of economic complexity tend to grow at a data-income level faster than countries with a much lower level of economic complexity. In this sense, economic complexity is more than a sign or expression of prosperity, it is the driving force. (Hausmann et al., 2018). As the calculation of economics complexity could find easily on some sources, it may be useful to give an index covering the past 5 years and covering 5 countries. Table 1 gives us the 5 countries with the highest economic complexity index and the production efficiency of these countries. As it is known, the export figures of the countries with high economic complexity rates are also increasing. This brings down the unemployment rate.
In the literature review, it is seen that there are different studies on economic complexity and the relationship with unemployment is handled in different aspects. The studies and the results can be listed as follows. The definition made by Adam et al. (2019) is called the economic complexity index which is used to measure the amount of information and technology usage in the products that countries produced in general terms. To explain this situation, they are based on electronic products produced by countries. In this study, it is concluded that producing highly sophisticated products brings less unemployment and positively affects employment in another sentence.

Another study which was conducted to establish the theoretical infrastructure of economic complexity was tried to reach the relationship between economic complexity and unemployment by using growth data. The first of these studies is Hausmann et al. (2011) belongs to Atlas of Economic Complexity. In the relevant study, all countries included in the data set are included in the model. As a result of the study, it was concluded that economic complexity contributed positively to growth and as a result there was a negative relationship with unemployment. Another study was conducted by Poncet and Waldemar (2013). In this study, the effect of economic complexity of 200 Chinese cities on growth is examined. As a result of the study covering the years 1997-2009, it concluded that economic complexity had a positive effect on unemployment, in other words, it decreased the unemployment rates. Bhorat et al. (2019) investigated the relationship between economic complexity and unemployment rate and discussed the case from South Africa. They concluded that economic complexity had a positive effect on the increase of the labor force in this country in the long term and that this was the result of economic growth.
Ann Bartel et al. (2007) approached the subject from a slightly different angle and examined the effects of information technologies on productivity increase. They looked at the effect of producing more technological products on productivity, increase in production and increase in product quality. As a result of the research, they concluded that producing more technological products is an increase in the quantity and quality of the product produced and therefore the reason for preferring the product. McMillan et al. (2014) tried to explain the increase in productivity by taking into consideration the redirection of the workforce from less productive to more productive sectors. As a result of the study involving Latin American, African and Asian countries, it was concluded that Latin American and African countries failed to direct their labor force to productive sectors, while Asian countries overcame the situation and achieved an increase in productivity.

Hidalgo (2009), has made a research that was between 1962-2000 and the sample countries were Brazil, Indonesia, Turkey, Thailand, South Korea, Singapore and China. By the result that South Korea, Singapore and China have increased their economic complexity. However, Brazil, Indonesia and Turkey, has not yet reached the desired level concluded that the structure of production to the manufacture of sophisticated products even though they are in that situation, although the change effort. However, although Brazil, Indonesia and Turkey, have increased their efforts in building production for international market, sophisticated product has not yet reached the desired level for the production. Hartmann et al. (2018), on the other hand, attributed income injustice to economic complexity. The findings provide information about the production of the income of an economy and the distribution of this income in a fair way. It concludes that the countries above the economic complexity index are in the lower ranks of the unjust distribution of income.

**Economic Complexity And Unemployment Rate**

The increase in the economic complexity that described in the previous sections is an important factor that increases the competitiveness and demand ratio of the products produced in a country for international markets. Increasing of complexity is due to the using of higher technology in the products that is produced. Recently, countries have gained importance in research and development in order to be forever in international trade. High-tech products that result from this kind of research and development enable countries to find a place
in international competition. On the other hand, in order to talk about the effects of economic complexity on the labor market or on unemployment, it will be useful to define unemployment in general terms. There are different types of definitions of unemployment from different economic schools. Although these definitions are similar to each other within the framework of their general principles, they can be distinguished by being bound to a number of conditions. In terms of dictionary, unemployment is the person who does not have a job to work for a wage at a certain date. However, according to some authors, a person must be actively looking for a job in order to be accepted as unemployed. According to some authors, in order for a person to be accepted as unemployed, a person should not only be looking for a job but also be capable and capable of doing that job. According to the Keynesian view, unemployment is the excess of labor resulting from the failure of coordination of the market economy. On the other hand, according to the classical view, unemployment is the job search process in which people involved in production work strive for a better employer-worker meeting. Unemployment, which is actually a social problem, can arise for a variety of reasons, and manifests itself in a variety of ways. In countries with high economic complexity index, producing high-tech products can have different effects on different labor market.

Producing high-tech products affects to countries both labor markets positively and negatively, in other words, producing high-tech products can be considered as advantageous and disadvantageous for the labor force. These advantages could be emerged different ways for counties and provide several advantages for countries employment rates. Since the product produced with the high economic index is expected to be in high demand in foreign markets, it is expected that new production sites will be created, new business lines will be formed in related products and more investments will be made in these business lines. These business lines create new labor requirements for the products subject to export and increase the demand for related product of labor. Therefore, additional employment provided by countries with high economic complexity index for each product produced using information and technology will reduce the unemployment rate of the country concerned and create new labor force. If information and technology are used effectively for each product produced, this will create new employment for each sector and increase the need for labor in the relevant sector. This need for labor will be covered by a trained labor force and will help to bring down the unemployment rate in the country. In addition, the need for
The development of foreign trade in open economies, the increase in the labor force working in the fields related to foreign trade and carrying out export-import transactions and processes can also be considered as a positive effect of economic complexity. In addition to the positive impact of exports, which increase with the use of information and technology on the economy of the country, it causes an increase in the trained workforce carrying out these transactions. The employment of well-equipped personnel who will conduct the export process in a healthy way will increase. In addition, the introduction of money into the country along with exports may lead to a healthier financial system and more money to enter the system. This may cause the financial system to become even stronger and the market to find the desired loan in an easier and cheaper way. This may lead to an increase in investments and new employment in sectors other than foreign trade. In this way, new jobs will be created and the unemployment level will be lowered. Considering all of these, it is a fact that countries with high economic complexity index have an advantage in competition and selling products in the international market and can use this knowledge and technology effectively to turn this competition into an advantage. It can be said that this provides an opportunity for countries to reduce unemployment rates and create new business lines, employment increases with economic development, and economic development is faster and easier for countries that are producing sophisticated products. All of these can be demonstrated by various methods or can be supported by accurate and reliable data. On the other hand, despite the economic complexity had several positive effects on unemployment rate for country's labor force, some negative aspects also could be counted for labor market. The first example may have given that the more unskilled labor force will become unemployed since producing high technology products requires high educated and high skilled employers. Therefore, unskilled person will not be in the producing process because of person who does not have enough educated level and experienced background for producing of goods.

The second example could be given from producer side. The producer creates the labor-capital combination so as to produce the lowest cost. The fact that the development of the economic complex entered the production process at a very rapid pace started the automation period in production and naturally reduced the
use of labor and the level of employment decreased and technological unemployment emerged. Economic complexity and therefore the use of more knowledge and skills in production explains a significant part of the problem of unemployment (Ataman, 1998). Advocates of this thesis argue that substituting machinery for labor will increase unemployment, but these authors are concerned that the cost of computing technology will rapidly decrease and labor cost will continue to increase (Orhan et al., 2014). In other words, the developments created by economic complexity and the priority of knowledge in production increase labor costs for enterprises. Although economic complexity increases labor costs in terms of enterprises, there is also a cost reduction effect in the part related to globalization. The development of information technologies plays a key role in the rapid development of production in the globalization process. Along with sharp decreases in communication costs, parallel landings in transportation costs enable production costs to be minimized by re-shifting the production system to low-cost regions. This kind of development, foreign investments will be directed towards developing countries directly (Orhan & Savuk, 2014).

The most important result of small-scale production in terms of labor is the contraction of employment. For one thing, new technologies are handing over to many robots that were previously hand-held on human machines. Software-capable, reprogrammed robots can handle many routine or standard tasks without human intervention. In fact, the main purpose of computerized production systems is to save production from human intervention (Ozaki, 1992). In addition, the high level of automation, which is described as the third industrial revolution, has led to the emergence of factories capable of operating only a few qualified technicians. As a result of new approaches to the problem of unemployment, automation is the most important factor causing changes in the labor market. Automation affects the factors that determine both labor supply and labor demand. The way it affects labor demand arises as less demand for labor as a result of increasing or emerging economic complexity. Less manpower will be needed to produce in the next century though automation in industry. So the value of labor will no longer be determined in terms of productivity, there are machines that replace the arm strength (Ataman, 1998).
Economic Complexity And International Trade

The importance of free trade along with the classics view and the production of goods for international markets have led to the differentiation of the countries’ production. High value-added products are an indicator of differentiation at this point, and are also key to achieving prosperity growth in a country. It is very important that the product sold in the world is qualified and non-price competitive. Producing high value-added goods brings more income to countries and increases their welfare levels. The fact that producer countries aim higher in terms of quality and price in the products they sell to the world markets, necessitates them to produce high value added products compared to other manufacturers.

The economic complexity index value measures how diverse and widespread the export basket of a country is. The widespread production by many countries indicates that the product is ordinary. It can be interpreted that as the ordinariness of the product increases, its quality decreases. Therefore; The high value of economic complexity index also shows the potential of countries to sell its products with high added value (Akın & Güneş, 2018).

The Economic Complexity Index, prepared by Hausmann and Hidalgo, provides information on the extent to which countries differentiate their products and produce goods with high added value. This high value shows that countries produce products by using more knowledge and skills, and the possibility of the product being preferred by other countries at some point. It is a fact that when the ordinary of the produced product increases, the quality of that product decreases and the chances of being preferred also decrease. On the contrary, as the percentage of knowledge and skills used in the manufactured product increases, the price flexibility of that product in international markets will increase. It is clear that this index, which was prepared by Hausmann and Hidalgo (2009), has an important place in explaining the export potential of countries. Here it is useful to make the following definition. When international trade is discussed, it should be remembered that the countries that have an open economy exchange with each other. When two or more countries are taken into consideration, send the product produced to another country is an exporter, while the exporters are deemed to have made the importation. Trade between these countries is also called foreign trade of countries. At this point, the economic complexity index is expected to be high in order to choose the product produced by the exporting country.
The high level of economic complexity index can also be measured through patent applications by countries. This type of measurement is only one of the ways. Before describing the contributions of patents, it is useful to give a definition of the patent. Patents are the documents that enable individuals to “produce, use, sell or import technologies for a period of time” (Dereli & Durmuşoğlu, 2007). The patent document shows that the inventor has the right to use his opinion, explain, marketing and authorize others to use it (Eren & Kılıç, 2016). In line with these definitions, the number of patents owned by countries shows the number of inventions and inventions made within the country and reflects the importance they attach to research and development (Şeker, 2019). The number of patents also reflects the innovative sides of those countries and gives information about the knowledge and experience used in production with this innovation (Ang et al., 2015). In addition to the surplus of patent applications, another way to increase the index of economic complexity is to produce production costs at an appropriate level for international markets. And it is also necessary that products produced with high technology and the qualified labor and R & D expenditures required for this should be at reasonable levels. First of all, it is useful to define of R & D. R & D is defined as systematic and creative studies about the emergence of new products and production processes (Koçakoğlu & Bayraktar, 2019). R & D studies include the studies to produce new products that will enable the development of science and technology (TOBB, 2004). In today’s world where globalization and competition is intense, countries can only export high quality products when they can produce at an affordable price (Özer & Çiftçi, 2009). Developed and developing countries do not only produce innovations made as a result of R & D activities, but also export them to the domestic market. Addressing the foreign market through exports also reduces the unit costs of R & D investments and this encourages R & D activities (Göçer, 2013). Information and communication technologies create time and cost advantages by accelerating all kinds of information flow required for production, and enable the production of goods and services at a lower cost in a shorter time and increase productivity and demand (Bongo, 2005). How the economic complexity is important for exporting countries emerged from this point onwards? It is seen that the countries that invest in R & D at the required rate have reached the technological competencies and provided competitive advantages in the international markets, have established strong places for themselves and obtained permanent customers. On the other hand, in addition to the benefits provided by R & D, the following can be stated. It should be noted that R & D is a benefit of economic complexity to
products. Developed countries that export R & D intensive industrial products maintain their trade balance or give lots of surplus. The reason for this may be the fact that the demand for advanced technology products in the international markets has higher income elasticity than other products. Assuming that income elasticity of demand is decisive, it can be said that the share of advanced technology products in international trade will increase more during expansion periods than in the contraction periods of the world economy (Çelebi, 2002).

Economic complexity also increases the quality of the product produced and helps countries to gain advantage in international trade. The aim of the technical innovations and advancements of advanced countries with advanced technology in areas such as microelectronics is to improve quality, reduce product costs and develop new products (Freeman, 1989). In this way, developed countries are gaining advantage in international markets by producing better quality and cheaper goods. On the other hand, as emphasized in the technological deficit theory, new products produced are exported to developing countries that do not have this innovation before technological innovation reaches other countries (Karlık, 1991).

Another point is that direct investments are particularly important for countries with a capital deficit as they increase both export and production and employment capacity in the countries. Many studies have also used direct investment inflows as data to explain high-tech product exports due to economic complexity (Güneş & Akın, 2019).

In this study, it is stated that countries with high economic complexity index use more information on the products they produce many times and this information differentiates the product and provides an advantage to countries in foreign trade economically and brings competitive advantage. This information provides knowledge economy for countries. With the knowledge economy, the borders disappear and the products have the chance to enter the markets on a global scale. In addition, it is possible to produce new products by obtaining new information via internet which has an important place in this economy (Yumuşak & Özgür 2007). The ability to produce new products and enter the markets on a global scale affects the production, exports and hence the imports of other countries (Yücel, 2018). As a consequence of all these factors, exporting high-medium or high-tech products is important for countries in terms of achieving sustainable competitive performance in international markets. When the exports of developed countries are examined, it is seen that high technology products have a
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significant importance in exports (Sungur, Aydin, & Eren, 2016). If the share of high-tech exports is high, the welfare level of the country rises, competitiveness increases and the country reaches the level of having an international word (Çapik & Kaygasız, 2018). Exporting high-tech products means high value-added products, which is also key to achieving sustainable welfare growth in a country (Ioannidis & Schreyer, 1997). Due to economic complexity, the share of technology-intensive products in global foreign trade is rapidly increasing. The export value of the world’s high-tech products increased from $1,158 billion in 2000 to $1,947 billion in 2016 (Worldbank, 2018).

Conclusion

In this study, the importance of economic complexity, unemployment, international trade, export and technological infrastructure has been paid special attention and attention has been given to them. In recent years, the economic complexity index is an indicator of how competitive countries are in world trade, and the fact that these data are based on a realistic basis has increased the interest in the index. According to the results of this study, the economic complexity index gives information in terms of how much technology is used in the production of countries, and how much they apply to knowledge and skills. It is seen that the countries applying for knowledge and skills have high indices and are more successful in producing value added products. Countries with high economic complexity index are more competitive in international trade than other countries with low index. The countries that use knowledge and skills more effectively in their products are more successful in exports. They also find themselves more comfortable customers in international markets, more comfortable in marketing their products and less competitive in price of their products. There are also cost advantages. In addition, it is concluded that the high investment in R & D of the countries with high economic complexity index in terms of quality enables countries to produce better quality products and therefore to be more effective in international markets. In addition, the economic complexity index provides information on the unemployment levels of countries. It should be noted that, since the countries with high economic complexity index are ahead of the other countries with low index, the educated and experienced labor force has more opportunities to find a job if compared with countries that have lower index. On the contrary, in countries with a high index of economic complexity, the participation of unskilled labor in business life is just as difficult. At this point, the height of the
index increases the employment opportunities of educated and skilled labor force, while decreasing the opportunity of unskilled labor force finding employment.

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THE RELATIONSHIP BETWEEN ECONOMIC COMPLEXITY AND UNEMPLOYMENT RATE

İbrahim ÖZAYTURK


LABOR MARKET REGULATIONS AND UNEMPLOYMENT

Özlem ÖZTÜRK ÇETENAK

Introduction

In each country, a legal and institutional infrastructure has been established to ensure the minimum standard of living of the population. In many countries, this infrastructure is in the interest of sub-legal branches such as labor law, collective relations law and social security law. Labor laws, laws on collective labor relations, drafting, adopting and implementing collective labor agreements, organizing labor unions and industrial actions of workers and employers layouts. Social security laws regulate the social rights of individuals in conditions such as old age, disability, death, illness, and unemployment. Also, labor market regulations standardize wages, benefits, and what types of employment contracts can be made. It also sets limits for working hours and working conditions, prohibits certain employment-related practices and provides protection for employees. The rationale behind these regulations stems from the various flaws of the labor market. Some of these flaws include discrimination, lack of information, the lack of equal power of employers and workers in the market, and the inability of the market to eliminate risks related to employment. However, regulations on the labor market may lead to a decrease in productivity. Regulations can affect the profitability and efficiency of companies. If the cost of implementing these regulations is too high, companies may choose to don’t obey business laws.

In this study first, the development and institutionalization process of labor markets will be explained. Then the theoretical framework for labor markets will be addressed and the conceptual framework on regulation will be drawn. Finally, the literature about the relationship between labor market regulations and unemployment will be examined.

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Development Of Labor Markets In The Historical Process

A well-functioning labor market is the cornerstone of a rich economy. labor markets play an important role in the creation of income and output and factor distribution. These markets are also one of the main factors’ markets of the economy. Due to its important role in the economy, it has also been the subject of many studies.

The history of labor markets goes back a long way. In the historical process, new jobs and therefore professions have emerged and work areas have developed. However, until national states are established, it is not possible to talk about the existence of the labor market in today’s sense. First of all, the first condition for the individual to gain the status of workers is that he or she has basic rights and freedoms. The working class in the feudal period in Europe consists of slaves or serfs. During this period, the work is not consensual and working is not an income-paid action. For a real labor market to emerge, multiple employers are needed who want to attract paid workers and enter into employment contracts with them. In other words, in the labor market, workers can choose between different employers and negotiate their wages. The emergence of such labor markets coincides with the establishment of national states.

As a result of the transition from feudal life to a lifestyle based on money, From the 13th century onwards the landowners started to see their lands as goods with monetary value. As a result of the monetization of economic life, landowners began to use their land in activities that would bring more income. For example, The “Enclosure Movement” was a push in the 18th and 19th centuries to take land that had formerly been owned in common use, and change it to privately owned land, usually with fences around it. To remove the peasant from his land has created a new working class who was landless, deprived of traditional sources of income and weak (Heilbroner, 1968).

The industrial revolution changed the production process and led to the emergence of two different classes. On the one hand, the workers who offer their labor; on the other hand, owners of capital goods, i.e. capitalists. With the industrial revolution, the production process changed, paid working status was born and as a result, worker-employer relations began to develop. The shares of labor and capital factors from production are in proportion to their contribution to production. While the owners of the capital receive a return through profits;
workers receive—agreed with the employer—wage (Deane 1988). First workers’ working conditions were bad and living conditions were quite poor. The capitalist system owes its bad reputation to these conditions of the aforementioned period. The first workers of capitalism, which were cut off from the land and consisted of rough labor, had to work long hours with very low wages. And among these workers, there are even children between the ages of five and six. These workers, whose working hours last up to 16-18 hours, have hardly had time to rest. This period, when many people died from work accidents, led to major labor actions in Europe. Rapid industrialization has led to a change in worker-employer relations. Since the industrial revolution, it has always been discussed how the total revenue as a result of the production activity will be shared among those who produce it. This distributional relationship turns into a power conflict, where the capitalist and the worker confront. Both sides want to get more shares from the total revenue. Once the share of the wage in the total income is determined, the remaining will be profit. The entrepreneur’s profit is the portion that remains after deducting the share from the total income to the wage. The increasing number of the working class with industrialization has turned the question of “how many shares of the production participants will get from the total income” into a “distribution” problem. While the number of proletarian labor increased in the early years of the industrial revolution, the conflict of interest between workers and employers caused grouping among those with common interests. Associations of workers representing a larger group are the first examples of today’s trade unions. The idea that a struggle together would provide greater benefit, initiated unionization. Economic, political and social developments leading to unionization took place for the first time in the United Kingdom.

In 1800, thousands of union-registered workers in the UK were convicted by the law with the charge of trying to raise wages. In France and Germany, trade unionists were treated as rebels or criminals. The development of trade unions in America was slower than in Europe. The reasons for this delay are the belief in the idea of individualism by workers and employers in the United States, the employment of immigrants as workers in heavy industries and, the efforts of employers against unionization. The first turning point in modern labor law was the British Health and Morals of Apprentices Act of 1802. Similar legislation for the protection of young people was adopted in Zurich in 1815 and France in 1841. In 1848, the first legal limitation of adult working hours was adopted by the Swiss canton of Glarus House. Before the October Revolution in 1917, there
was almost no labor legislation in Russia. The first major progress was to amend the Factory Act of 1922 to enact the contracts adopted in the first session of the International Labor Conference in Washington in 1919. Sickness insurance and worker’s compensation were spearheaded by Germany in 1883 and 1884. At a time when established trade unions emerged in Europe, there were only skilled workers in the United States. The widespread emergence of trade unions in the United States coincides with the mid-1930s (Heilbroner, 1968).

Workers in the 19th century, have to struggle hard and long to have today’s fundamental rights around the world during the 19th century. Mandatory arbitration in industrial disputes was initiated in New Zealand in the 1890s. In India, working with children aged 7 to 12 years was limited to nine hours a day in 1881 and 10 hours a day to adult men in textile factories in 1911. In Japan, basic regulations were introduced to work in mines in 1890, but a proposed factory law for 30 years was discussed before it was adopted in 1911. Labor legislation in Latin America began in Argentina in the early years of the century and gained strong momentum from the Mexican Revolution, which ended in 1917, just as in North America. this trend was generalized only under the influence of the Great Depression. Progress in labor legislation in Africa has gained importance since the 1940s.

**Theoretical Framework**

The rules governing working life have emerged after the industrial revolution to protect the rights of paid workers. In this context, legal arrangements have been made to protect workers. The relations between worker and employer have been established within the framework of the principle of contract freedom in line with the paradigm of “Laissez Faire Laissez-Passer”. However, the contracting system was unable to protect the worker and it was a necessity to protect and improve the economic and social rights of workers when poverty began in Europe. This requirement ultimately led to the emergence of labor law and the concept of the social state began to develop (İşikli 1996).

According to representatives of the Classical School such as Smith, Ricardo, Malthus, Mill, anyone who wants to work at the current wage level can find a job. According to the rule known as “Say Law”, ‘each supply creates its demand’, there is no excess demand or supply in the market, thus, simultaneous balance in the
goods market and labor market is achieved. On the other hand, the rules of free competition are a mechanism that automatically enables full employment. The classical view has seen the problem of unemployment as a problem stemming from high wages in cases where free competition is prevented from functioning, and they have explained the problem of unemployment after the emergence of trade unions. In other words, if people agree to work at lower wages, they will be able to find a job. Therefore, they have concluded that if there is unemployment in the economy, this is voluntary unemployment. The main problem at this point is the determination of the wage. In the classical view, the wage is determined under the conditions of free competition, so any factor that may affect the determination of wages from the outside will disrupt the classical balance.

Karl Marx, who adopted the labor theory of value like the classics, handled the situation of labor from a different perspective. Based on the labor theory of value, Marx argued that at the end of the capitalist process, wealth would be collected in certain hands and workers would become absolutely and relatively impoverished. This will lead to class conflict. Increased misery, oppression, slavery, humiliation and exploitation strengthen the sense of solidarity among workers and encourage rebellion. The production forces of capitalism conflict with the production relations of capitalism and the relations of production are rapidly changed. In this case, According to Marx, workers will make a revolution and take ownership of the means of production. The public property will abolish private property and workers' exploitation will cease. This stage is the stage of socialism. Karl Marx came to a completely different conclusion from them using the classical school's analysis tools. According to him, no matter how well-intentioned the capitalist is, the internal dynamics of the capitalist system cause the value created by the worker to enter the pocket of the capitalist. In such a scheme, it is not possible to create a fair wage.

The classical theory, was insufficient to explain labor markets, as the external factors affecting wage formation became more and more evident every day and these concepts of the new situation of the market were embodied by Keynes's General Theory published in 1936. According to Keynes, full employment can only be achieved through government policies. Keynes pointed to a reluctant unemployment problem by incorporating regulations such as collective bargaining and legal subsistence wages into labor market analysis, which emerged in certain forms up to that time, but were neglected or neglected due to its contradiction to liberal
doctrine. With Keynes, the problem of unemployment is now defined as not being able to work voluntarily, but not being able to find work even at the current wage level even though they are willing to work. According to Keynes, wages are strict in falling because there is a lower limit set by law. Collective agreements and the presence of trade unions were also included in the analysis by Keynes in determining wages (Ataman, 1999). Keynes’ policies were implemented after the second world war. The post-1945 period was the period when trade unions visibly demonstrated their existence and institutionalization was established in labor markets around the world.

When the oil crisis of 1973 was added to the high inflation and unemployment problems that started in the mid-1960s in the European economies, a period of stagflation began. Keynesian policies began to be questioned and criticized with the current economic literature. The developments after the first oil shock required the solution of an unemployment problem that did not accelerate inflation. Inflation and the problem of unemployment are not independent and the two are interacting with each other. In other words, there is a competition between unemployment prevention policies and inflation prevention policies. In this case, the target should be optimal employment, not full employment. And optimal employment may not always be full employment (Ataman, 1999). Increasing competition conditions with the accelerating globalization process after 1980, increasing the supply-side economic outlook, which argues that wage stickiness and regulations that complicate market functioning lead to underemployment, the quality of labor market regulations has become more important. During this period, the aim of achieving a competitive advantage in terms of labor costs by going to deregulation is highlighted (Chang, 2003). In the early 1990s, the number of regulations decreased. It seems possible to explain the “open door approach” of such a clear increase and decrease in the number of arrangements. According to this approach, future regulations of each new regulation make future regulation more necessary (Addison and Hirsch, 1997).

When the labor law regulations made in OECD countries between 1980 and 2009 are examined, it is seen that most regulations are made on occupational work safety and health. Under the second place of regulations on employment policy and employment promotion, the aim may be to ease the pressure on unemployment rates due to increased labor force participation rates. The third area with the most regulations is training, professional guidance and skills acquisition
arrangements (Ghose et. all, 2008). One of the most important developments that can be said for today’s labor market is the end of the industrial society and the information society phase has begun. Today, production is not based solely on labor, it benefits from machines. The element of labor in production has not been excluded, only its role has changed. Now, instead of a classical worker, there is a need for the knowledge worker who dominates the machines. Increased pressures as a result of multinational corporations and unrestricted capital movements are the biggest obstacle for national states to protect their social structures.

Under the name of globalization, capital directed towards developing countries as a result of various legal regulations and heavy social security, taxes, high labor cost and environmental protection in their own countries, forced to deregulate these countries by imposing the governments. With this deregulation, they take the state out of the labor market and make it unable to provide even the basic elements of being human such as social security, minimum wage, and protectionism (Görücü, 2006). Developments in the labor market have also led to a significant change in the understanding of the state. In today’s world, the state is not the one that manages the labor market, but the state that plans manpower resources following the needs of the economy.

Labor Market Regulations

The need for the labor market to be regulated by the state arises because the labor market rarely operates effectively. Market flaws such as asymmetric knowledge, differences between private and social benefits, lack of bargaining power and lack of competition lead to increased welfare of the employer at the expense of the loss of welfare of employees. The reason for this welfare transfer is that the employer has more bargaining power in the labor market than the worker.

The most common flaws in labor markets are the difficulties employers have in monitoring workers’ efforts or skills in full, and the inability to accurately assess employees’ contribution to the company’s productivity (and therefore know what their fees should be). Knowledge problems also complicate the harmony between employees and vacancies, especially when skills are important. Another flaw comes from market power: if employers dominate their business relationships, wages can be very low, and if labor prevails, wages can be too high. Finally, market mechanisms cannot provide adequate insurance against the risk of unemployment given
the total nature of such a risk (IMF, 2003). Labor market regulation defines interventions by governments in terms of quantity, quality and prices for the protection of the workforce for the state (Akalin, 2002: 83). Botego et al. examined labor market regulations in 4 main topics.

- Basic employment rights framework: These are basic employer-employee policies such as anti-discrimination laws, occupational health, and safety laws, conditions for contributing to pension funds, policies governing maternity leave, payroll taxes, and minimum wage. These policies aim to govern the relationship.

- Employment and dismissal policies: These include employment contracts and policies that control the reliance on workers in the form of part-time, non-permanent or temporary workers more than permanent workers. The number of hours worked per week and the policies that determine the conditions that employers can lay off workers are also included in this category.

- Policies on unionization: These policies enable employees to better represent themselves in negotiations with employers. This category is the government's support for unionization and/or the approval and encouragement of collective bargaining mechanisms.

- Direct government provision: These policies include benefits such as social insurance funds and disability and unemployment benefits, pensions and access to job search tools and vocational training programs. These policies are designed to improve social equality, reduce labor market fragility and help reduce temporary employment.

Labor market regulations vary considerably between countries. Flexible regulations for the labor market mean that market forces are allowed more permission for labor market issues such as setting wages, creating conditions for hiring and firing. In the relevant theoretical literature, Karanassou and Snower (1998) rejected the notion that cyclical unemployment and structural unemployment were largely independent of each other and focused on the relationship sought between the two types of unemployment. They acknowledged that their unemployment movement spawned mainly as a result of the interaction between labor market shocks and the delayed correction process. In this context, they stated that each shock had the effect of unemployment as a chain reaction and that it caused another delay and extended it from the present to the near future. They called it
the chain reaction theory of unemployment. The relevant empirical literature also shows that stricter labor market regulations can hinder the job creation process and therefore lead to higher unemployment (Bernal-Verdugo, et al., 2012).

In terms of the units regulating the labor market, regulations can be made by five different bodies (Regini, 2000). These: i.) Laws ii.) Government administrative activities iii.) Collective bargaining iv.) Social parties contributing to the formation and shaping of policies related to the labor market v.) Strong or weak networks restricting the behavior of labor market actors.

Empirical studies indicate that the unemployment rate has increased in highly regulated labor markets. However, the lack of regulation, especially in markets where labor supply is high, results in low wages. Low wages mean a reduction in the income of the working class, which makes up a large proportion of the population in many countries. This reduction brings with it many different macro-economic problems arising from lack of total demand, especially injustice in income distribution. For this reason, labor markets are regulated for many reasons such as guaranteeing the income of the worker within a certain period, improving working conditions, combating poverty, improving the quality of labor supply. Empirical studies outlined above on labor market regulations have often concluded that regulations lead to higher unemployment rates. In particular, strict market regulations deter the employer to create jobs. Another problem that arises in markets where there are strict regulations is the widespread employment of unregistered workers. Although regulations on the labor market have negative effects on employment, these regulations are implemented in almost every country.

Public interest in labor markets is not limited to classic business and worker matching or worker employment. The public authority draws the boundaries of the labor market through public employment institutions, which is the visible hand in the labor market and affects labor markets in various ways through legal and institutional regulations. Public interference in labor markets may include protective or restrictive measures depending on the situation and may differ for the intended purpose. Although the methods differ, the intervention aims to obtain several results that cannot be achieved by the functioning of the labor market itself (Biçerli, 2011).

Regulations are a social phenomenon and are based because unemployment affects not only the unemployed individual but the whole society. One of the main
reasons for public intervention in labor markets is to explain externality. When the unemployed individual is employed and unemployment ends, it will contribute not only to him but also to society through positive externalities. Unemployment, on the other hand, will lead to inefficient use of resources and negative externalities such as increased crime rates and drug use. In this context, the underlying reasons for the state’s intervention in the labor market can be grouped as follows (Tuna & Yalçıntaş, 1999; Sayın, 2002):

- **Humanitarian, religious and health-related causes:** Poor working conditions, especially the harsh employment of persons unsuitable for their physical structure, the threat of epidemic diseases due to work and environmental reasons to threaten the whole of society, reactions of active religious institutions to these events.

- **Military Reasons:** The threat of the state’s manpower depleting due to the negativity in working conditions during the war.

- **Economic Reasons:** Forcing the workforce to work above normal to make more profits will not lead to an increase in production. On the contrary the negative impact of the workforce cause problems in the whole economy.

- **Political Reasons:** Concerns that heavy work conditions and poor working relations after the industrial revolution will strengthen the emerging socialist ideas and this will lead to the collapse of the system.

- **The pressure of the working class:** Organizing the working class against the state (or capital or other political power parties) as a political force.

For the reasons listed above, countries carry out the policies they have set for regulating labor markets through various institutions within the legal framework they set. The objectives of these institutions are as follows (Görücü, 2006):

- Filling the open jobs in the labor market as soon as possible and with the most appropriate workforce,

- Regulation of the labor market in such a way as to determine the current and future labor demands and needs and to ensure the realization of the labor supply following these needs,

- To carry out appropriate programs and studies to create new employment opportunities in the labor market,
• To help those who enter the labor market for the first time and those who are unemployed.
• Preparation and implementation of special programs for the adaptation of the working or unemployed, having problems adapting to the labor market,
• Vocational training, vocational guidance, providing vocational courses to the unemployed and job seekers, providing services on adaptation to work and working life,
• Providing consultancy services for employers,
• Incentive practices for creating or protecting employment,
• Management of monetary resources that will provide employment.

Studies investigating regulations on the labor market use different indicators of regulations or create their own data sets. Variables related to labor market regulations differ according to the way they intervene in the market or the variety of legal/institutional instruments. The most widely used indicator representing labor market regulations is the Labor Market Regulatory Index. The index is published by the Fraser Institute. The most prominent labor market regulations are minimum wages, layoff arrangements, central wage determination, expansion of trade union contracts to include non-participating parties, and compulsory military practices. The labor market regulation index is designed to measure the extent to which these constraints exist. High scores in evaluating the components of the labor market mean that the conditions of hiring and firing in a country and wages are determined by market forces and that there is no compulsory military service. The index is calculated by taking the arithmetic average of the six sub-indices listed below.

• Hiring regulations and minimum wage
• Hiring and firing regulations
• Centralized collective bargaining
• Hours Regulations
• Mandated cost of worker dismissal
• Conscription
Analyses of labor market regulations are based on two complementary approaches. The first group of studies directly looking at the relationship between unemployment and labor market institutions. The second group of studies is based on simulations carried out with the IMF’s new Global Economic Model (GEM) and consists of macroeconomic models including detailed descriptions of labor and goods market defects (Laxton and Pesenti, 2003). The common findings of both approaches are as follows:

- Comprehensive and competitive reforms can bring significant gains. Both approaches suggest that well-designed labor reforms can lead to an output gain of about 5% and a drop in the unemployment rate by about 3%.
- Reforms need to be comprehensive; partial reforms may be less effective, especially when the labor market is not competitive.
- When labor markets are more competitive, the economy reacts more quickly and smoothly to changes in interest rates. This facilitates the task of the monetary authorities.

Studies examining the relationship between unemployment and labor market regulations try to answer two basic questions: i) How do regulations well explain the changes in the phenomenon of unemployment? ii) Which labor market regulation is the most successful?

Many studies in the literature provide evidence of highly regulated labor markets rising unemployment rates. It has been found that more unionization is associated with higher unemployment. High layoff costs or strict labor standards often lead to higher average unemployment. Labor taxes tend to increase unemployment, including direct taxes on household stipends and social security contributions. If trade unions have strong enough bargaining power, higher labor market taxes are more likely to be absorbed by employers and allow market mechanisms to function fully on employment will have a smaller effect than the one given. Reductions in unemployment benefits and the relaxation of regulations on specific term employment contracts have found that some OECD countries play an important role in reducing unemployment rates. Payments such as severance pay lead to increased unemployment. Scarpetta (1996) analyzed the data of OECD
member countries and demonstrated one of the pioneering studies on this issue. The findings of Scarpetta’s study include:

- High unemployment benefits are likely to lead to higher unemployment levels and reduce the rate of labor market compliance after an external shock. In some OECD countries, the increase in the replacement rates in the last two decades is estimated to have led to an average increase of 1 to 3 percentage points in structural unemployment.
- Tight employment regulations are likely to significantly increase balance unemployment rates. These regulations have a positive impact on young people and long-term unemployment.
- As previous studies have shown, the bargaining power of the worker appears to be associated with higher unemployment, even though the impact is weak.
- Active labor market programs (ALMPs) appear to harm unemployment.

The complementarity between labor taxes and the nature of collective arrangements examined by Daveri and Tabellini (1997). Their analysis relates to 14 countries during the period 1965-1991. They find a correlation between the negative influence of labor taxes on labor market performance and the nature of workers’ organization. Decentralized or centralized countries perform better in terms of lower unemployment rates, regardless of the level of labor tax. S. Nickell (1997) used data from western European and North American countries from 1983 to 1996 to conclude that strict regulations on the protection of employment had no significant impact on total unemployment. However, regulations have a statistically significant and negative effect on long-term unemployment.

J. Elmeskov et al. (1998) investigated the data of OECD member countries with the OLS Random Effects Model between 1983-1995. They extend the previous analysis considering previous institutional developments and testing for potential interactions between policies or institutional factors. The main conclusion is that the accomplishment of successful countries may be owed to reforms controlled by insiders. In particular, the tightening of eligibility requirements and the reduction of unemployment benefits and the facilitation of fixed-term contracts may have a decisive effect. The authors created a new indicator that characterizes the wage-setting system and summarizes degrees of centralization and coordination. In countries with a moderate degree of centralization coordination between actors can be particularly important. Elmeskov et al. also provide evidence for the
interaction effects hypothesis. First, the average tax swap and employment protection regulation push the structural unemployment rate to a higher level in countries with corporatism at the intermediation level. Furthermore, in countries with relatively high levels of active labor market spending, unemployment benefits are likely to have a higher impact. While the degree of protection of employment is not significant, the impact of unemployment benefits is expected to be higher in countries with high employment protection, while the bargaining power of workers is assumed to be greater. As a result, according to the results of the analysis, there is a positive relationship between strict protection of employment and unemployment. Di Tella and Culloch (1999) analyzed data from OECD member states from 1984-1990 using the Fixed Effects Model. According to the results of the study, increased flexibility in the labor market increases labor force participation along with employment. Using the Nickell and Layard (1999) Random Effects Model, he investigated the impact of the degree of rigidity in maintaining employment in OECD member countries on short-term unemployment. According to the study findings, the degree of rigidity in maintaining employment does not affect short-term unemployment and has a positive effect on long-term unemployment, but it does not make sense.

Belot and van Ours (2000) used data from eighteen OECD countries for the period 1960-1995. In the analysis, the relationship between the unemployment rate and the labor market institutional variables such as tax rate, substitution rate, employment protection, union density, union coverage, bargain coordination was investigated. The analysis shows that the interaction effects are important. For example, the Replacement rate increases unemployment if labor taxes are reduced while trade union coverage and bargaining coordination are high and union density and employment protection are low. The result of the study is two-way. First, for some countries, the interaction effects of institutions in the market are more important than direct effects. Second, financial incentives determine the direction in which the unemployment rate moves for most countries. If financial incentives such as tax deductions are applied, unemployment decreases and unemployment increases if financial incentives are weakened. After all, there is a clear correlation between unemployment and specific combinations of labor market reforms. Blanchard and Wolfers (2000) investigated the causes of unemployment in Europe in their work. According to the results of the study, the increase in the real interest rate increases unemployment by reducing the demand for investment and labor. There is poor evidence that high real interest rates are
associated with high unemployment in industrial countries. The real interest rate is likely to be lower in the future than soon. Institutions are also slowly becoming employment-friendly. The analysis results show that a more favorable macroeconomic environment and improvement in institutions should lead to a significant decrease in unemployment. Saavedro and Torero (2000) in their analysis of Peru concluded that the impact of job security provisions on employment was negative. Botero et al (2004). Using examples of 85 countries and labor regulation data from 1997, they found that stricter employment laws were associated with higher unemployment rates, especially among young people.

Another group of studies on the flexibility of the labor market found that higher labor market flexibility was associated with lower unemployment. Bande and Karanassou (2009) investigated regional unemployment rate differences in the labor market in Spain and found that regional labor market flexibility had an impact on the unemployment rate.

Many studies using different analysis methods have also concluded that flexible labor market conditions reduce unemployment. Feldman (2009) analyzed the effects of labor market regulations on unemployment in the world in 2000-2003 using data from 73 economies. According to regression results, tighter regulation generally increases unemployment. Tightening of the rules of recruitment and dismissal and the existence of compulsory military service are regulations with the highest negative effects. Other consequences of the study are that central collective bargaining increases women’s unemployment and regulations affect young people more. The minimum wage or unemployment rate had no significant effects on unemployment. In their work, Python and Rycx (2018) assessed the effects of labor market regulations on unemployment for European countries and concluded that policies for market liberalization generally reduced unemployment. Bassanini and Duval (2006) used the data of OECD countries to explain the determinants of unemployment. According to the analysis results, on average, changes in policies and institutions have announced about two-thirds of non-cyclical unemployment changes over the past two decades. In particular, high and long-term unemployment benefits, high tax wedges, and anti-competitive product market regulation (PMR) have been found to increase total unemployment. Finally, while policies and institutions seem to play an important role in shaping the unemployment patterns, macroeconomic conditions are also important. Negative total factor efficiency shocks, deterioration in foreign trade levels, increases
in long-term real interest rates or negative labor demand shocks have been found to increase unemployment.

Another group of studies claims that there is no correlation between labor market regulations and unemployment. Baker et al. (2002), found that there is no negative or positive correlation between the many institutional variables in labor markets and the level of unemployment. According to the results of the study, it is very difficult to determine the effects of various types of deregulation on unemployment and is negligibly weak. Moreover, such effects are more about labor force participation than employment. Deakin et al. (2014) using the data of the six OECD countries in their analysis. They suggest that labor laws, in general, do not lead to higher unemployment and that some regulations may have the effect of reducing it. Ahmed and Aljane (2014) analyzed the relationship between labor market flexibility and unemployment. The main result of the dynamic panel forecast is that the labor regulation indicator used has no statistically significant relationship with the unemployment rate. However, there is a direct link between layoff and hiring regulations and unemployment. Furthermore, the regulation has not had a negative impact on total unemployment.

Conclusion

In general, it is accepted that the labor market will not function well without an appropriate mix of regulations, taxes, and subsidies affecting the relationship between “appropriate institutions”, i.e. workers and employers. But what are the “appropriate” institutions? To what extent do “ideal” labor market institutions reflect country-specific characteristics and preferences? What are the consequences of having defective institutions and what are the gains in correcting them? These questions are still among the most discussed topics in the literature.

Increasing competition conditions due to the acceleration of globalization after the 1980s necessitated the reduction of labor costs. On the other hand, the change in the sectoral structure of employment also necessitated new regulations. The rapid deregulation process, which started in the 1980-2000 period, slowed down in the 2000s. The most common types of regulation are atypical employment, ease of application to fixed-time employment contracts, deregulations on temporary employment agencies’ application area and temporary employment practices. In parallel with these developments, many empirical studies have concluded that the
high level of regulation of labor markets leads to an increase in unemployment. Hiring - firing, compensation, etc. strict regulations discourage employers from hiring. Another problem created by strict regulations is the widespread use of informal workers. However, financial support such as unemployment insurance, health and poverty benefits make individuals prefer not to work.

There are many studies in the literature that prove that labor market regulations increase unemployment. These studies conducted for different countries or groups of countries argue that more flexible markets are more successful in creating employment and therefore the state should avoid strict market regulations. However, the lack of regulation, especially in markets with high labor supply, leads to low wages and unfavorable working conditions. Therefore, labor markets are regulated for reasons such as guaranteeing the income of the worker, fighting poverty, improving the quality of labor supply, and matching work and workers. A small number of studies have concluded that there is no relationship between labor market regulations and unemployment. These studies claim that unemployment is determined by other macroeconomic variables and that the effect of regulations is weak or negligible. There is a different reason for each country's unemployment problem. Therefore, first of all, problems of labor markets should be identified and arrangements should be made for these problems.

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THE DYNAMIC EFFECT OF GLOBALIZATION ON UNEMPLOYMENT RATES IN DEVELOPING COUNTRIES

Faruk MIKE1

1. Introduction

In recent years, the impact of economic globalization on the employment opportunities in developing countries has been extensively discussed by researchers. The common view is that trade liberalization, foreign direct investment and technology transfers, which are the main indicators of economic globalization, increase the economic growth and thus create the new employment opportunities. However, some recent studies have shown that such an effect is not always consistent with the real economic conditions. Accordingly, trade liberalization and foreign direct investment can also have the negative effects on employment, especially in countries that are based on labour intensive production and do not have a competitive market structure. This creates a contradiction about the relationship between the economic globalization and the unemployment rates.

This study aims to analyse the impact of economic globalization on unemployment rates for 23 developing countries by using dynamic panel data method. The analyses will be carried out by testing the two different models frequently used in the empirical literature. The first of these takes into account the trade liberalization and the foreign direct investment as the main indicators of economic globalization and examines the relationship between these parameters and unemployment rates. However, there is an important criticism against this approach. According to Dreher (2006), these parameters are not sufficient to explain the all economic globalization process alone. Instead of this, it is more appropriate to use the Economic Globalization Index (EGI) which is a more comprehensive

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indicator. Therefore, secondly, the relationship between the economic globalization index and unemployment rates will be also investigated in the study.

In this sense, this study makes two main contributions to the literature. Firstly, this paper examines the two types of unemployment models together for the first time for developing countries and therefore it will be possible to compare the findings from different models. Secondly, the study tries to explain the unemployment rate trends in developing countries in the face of global economic shocks (positive and negative) in the recent years. The impacts of these shocks on unemployment rates are generally neglected for developing countries by the researchers since the unemployment rates are considered to be one of the chronic macroeconomic problems for these countries. For this reason, the effects of the global economic crises that faced in recent years (especially in 2008 that started in the United States and then spread to European countries) were mostly examined for developed countries such as Spain, Italy and so on. This study aims to eliminate this deficiency in the literature.

The rest of the paper is as follows: The definition, types and processes of globalization are explained in the second section. The third section defines the basic theoretical relationships between the economic dimension of globalization and unemployment rates. The fourth section consists of literature review. The fifth section describes the data and the econometric methodology. The sixth section presents the empirical results from both two models of economic globalization. The final section is the conclusion.

2. Globalization: Definition, Types and Processes

Globalization refers to a complex process with far-reaching effects. In this context, the studies reveal a number of different dimensions of globalization since the 1970s (Robinson, 2007: 125). The main distinction is especially made in three areas: economic, social and political globalizations.

2 In addition to these three distinctions, there are also two important dimensions of globalization, namely migration and cultural globalization. The cultural dimension of globalization acts with the assumption of a transnational “the idea of global culture”. On the other hand, the migration dimension refers to the international movement of individuals, identities and societies across the countries (Robinson, 2007: 125).
The economic dimension of globalization implies that economic factors such as goods, services, and capital can move freely in the international area and that the progress of the integration levels of national economies. The economic globalization also includes international labor mobility and technology transfers (International Monetary Fund, 2008: 2). However, the social dimension of globalization defines the effects of globalization on human life (or society) and working conditions. The social globalization includes important components such as identity, culture, social commitment, and social inclusion or exclusion (Gunter and Hoeven, 2004: 8). Finally, the political dimension of globalization explains the political changes in the world from the classical imperial formations to the global organizational structure (Modelski and Devezas, 2007: 310).

It is widely accepted that the modern globalization process (economic globalization) took place three stages in the historical context. The first stage of globalization covers the period from 1870 to 1914. This period refers to a process such as advancing transportation facilities and reducing trade barriers. These developments have significantly increased the international movements of goods, capital, and labor across the countries. However, the second stage covers the period from 1950 to 1980 and focuses on integration between the rich countries such as Germany, France, Japan, the United Kingdom, and the United States. In this period, developed countries increased their commercial relationship each other within the framework of the General Agreement on Tariffs and Trade (GATT), whereas developing countries remained isolated from capital flows and mostly based on primary commodity trade. This caused to increase in the economic gap between developed and developing countries. Finally, the third stage of globalization covers the period from the 1980s to the present. The most important feature of this period is undoubtedly the rapid progress in transportation and communication technologies. In addition, foreign trade and investments have significant progress due to the effective roles of multinational companies on a global scale (World Bank, 2002: 3-4). This study considers the third stage of economic dimensions.

3. Economic Globalization and Unemployment

The economic dimension of globalization contains the three main indicators such as cross-border mobility of goods and services, international financial capital flows, and technology transfers (Shangquan, 2000: 1). These factors can have the direct and the indirect effects on the labour markets in developing countries.
THE DYNAMIC EFFECT OF GLOBALIZATION ON UNEMPLOYMENT RATES IN DEVELOPING COUNTRIES

Faruk MIKE

The impact of the economic globalization on the labour markets is generally explained with the two different approaches in the literature. The positive view suggests that if investment and production are encouraged in appropriate sectors in developing countries (such as agriculture and textiles), this will contribute to increase in labour demand in these countries. In this way, it can be created the new employment opportunities especially for women who are living in rural areas and can be also provided an increase in labour income. On the other hand, the negative view states that the some practices (the removal of trade barriers and the privatization of state enterprises) that will be implemented by developing countries to gain competitive advantage may increase the unemployment rates. According to this view, the local enterprises cannot compete against the foreign enterprises which are based on the technology intensive production and therefore this causes the import dependency of the countries rather than creating new employment opportunities. In addition to this, the macroeconomic fluctuations arising from short term capital flows may also have negative effects on job security in these countries (Rama, 2003: 1).

Specifically, it is useful to discuss the effects of the main determinants of the economic globalization process on economic growth and unemployment rates in developing countries. These effects are of mixed character. First of all, trade liberalization can have the positive and the negative effects on employment rates and wages in these countries. These can differ in terms of the income level of the countries and/or comparative advantage over certain products. Secondly, foreign direct investment is generally considered to have a positive effect on economic growth and employment. However, this situation may also have a strong exclusion effect because the local enterprises that are based on labour intensive production may be adversely affected by foreign enterprises that are based on capital intensive production. Finally, technology and skill transfers potentially are expected to increase the labour productivity in the local economy. However, this may be the case in the presence of local companies that can absorb new technologies to their production processes and respond to new demands (World Commission on the Social Dimension of Globalization, 2004: 38-39). Therefore, the effects of the main determinants of economic globalization on the local economy may not always point to the same conclusion.
4. Literature Review

The effect of globalization on the unemployment rates is examined in two parts in the empirical literature. The first of these takes into account the trade liberalization and the foreign direct investment as the main indicators of economic globalization and investigates the relationship between these parameters and unemployment rates. For example, Seyf (2000) examined the job creation capacity of foreign direct investment by linear and nonlinear regression methods for four European Union countries, namely Germany, France, Spain and the United Kingdom. The findings suggest that foreign direct investment does not have any significant impact on job creation for these countries. Jenkins (2006) examined the direct and indirect effects of foreign direct investment on unemployment rates for Vietnam. The results reveal that both direct and indirect impacts were limited in job creation capacity for this country. Zeb, Qiang and Sharif (2014) examined the impact of foreign direct investment on unemployment rate in Pakistan by using Ordinary Least Squares (OLS) method over the period from 1995 to 2011. The findings show that foreign direct investment plays a significant role in unemployment reduction in Pakistan. Specifically, a unit increase in foreign direct investment leads to 2.75 units decrease in unemployment for the country.

On the other hand, Dutt, Mitra and Ranjan (2009) examined the relationship between international trade and unemployment rates with the distinction of Heckscher-Ohlin (H-O) and Ricardian’s comparative advantage theory. The cross-sectional analysis test results indicate the strong and robust findings for the Ricardian estimation, which expresses the negative relationship between unemployment and trade openness. On the other hand, the panel data test results show that trade liberalization has an unemployment-increasing effect in the short term. In addition to this, the authors found that an unemployment-reducing effect leads to new steady-state equilibrium in the long term. Ogunrinola and Osabuohien (2010) examined the effect of trade openness and the annual income of customs and excise duties on unemployment level in the manufacturing sector in Nigeria over the period from 1990 to 2006. The results show that there is a positive relationship between global competitiveness and unemployment level in the country. The study also states that infrastructure expenditures for this sector will contribute to labour productivity in Nigeria. Felbermayr, Prat and Schmerer (2011) examined the effect of trade openness on unemployment rates with the panel data and the cross-sectional analyses. The panel data analysis covers 20 OECD
countries for the period from 1980 to 2003, whereas the cross-sectional analysis covers 62 countries for the period from 1990 to 2006. The results show that trade openness has a decreasing effect on unemployment rates. Meidani and Zahibi (2011) investigated the dynamic effect of globalization on unemployment rates in Iran by using Johansen-Juselius cointegration analysis over the period from 1971 to 2006. The authors use the trade intensity index (ratio of total export and imports to GDP) as a proxy of globalization indicator in the study. The results reveal that globalization has a negative and significant effect on unemployment rate in Iran. Also, the value of Error Correction Model (ECM) coefficient implies that approximately 95% of the unemployment rate adjustment occurs after two years. Hasan, Mitra, Ranjan, and Ahsan (2012) examined the relationship between trade liberalization and unemployment rate for India by state-level and industry-level distinctions. The findings shows that trade reforms do not have any increasing effects on unemployment rates.

Secondly, some studies take into account the economic, political and social dimensions of globalization (published by KOF globalization index) and try to explain the relationship between these distinctions and unemployment rates. For example, Awad and Youssof (2016) examined the impact of the economic globalization index on unemployment rates for Malaysia by using the Autoregressive Distributed Lag Bound (ARDL) method over the period from 1980 to 2014. The findings indicate that the economic globalization has a reducing effect on Malaysia’s unemployment rates in the long run. Daly, Ullah, Rauf and Khan (2017) investigated the relationship between economic, political and social globalization indices and unemployment rates for Pakistan by using the ARDL method over the period from 1980 to 2013. The results obtained show that political and social integrations have an increasing effect on expected unemployment rate in the long run, whereas economic integration has a reducing effect on unemployment rate for this country. Gozgor (2017) examined the impact of economic, political and social globalization on structural unemployment for 87 countries by using OLS and Two-Stage Least Squares (2SLS) estimations over the period from 1991 to 2014. The findings show that economic, social and political globalization has a negative and statistically insignificant effect on structural unemployment rates for these countries. Adamu, Kaliappan, Bani and Nor (2018) examined the impact of globalization on unemployment for 35 Sub-Saharan African countries by using the Generalized Method of Moments (GMM) method over the period from 2007 to 2014. The results show that only political globalization
had a decreasing effect on unemployment rates. Furthermore, the study reveals that economic growth and labour market regulations had a negative impact on unemployment rates, whereas wage rates and inflation had an increasing effect on unemployment rates. Siddiqa, Hussain, Qasim and Javed (2018) examined the economic, political, and social dimensions of globalization on unemployment rates and economic growth for developing countries by using fixed effect and Driscoll and Kraay analyses over the period from 2003 to 2013. The results show that the economic and the political globalizations have significant impact on the reduction of unemployment, whereas social globalization has an increasing effect on unemployment rates for these countries. In addition to this, these three types of dimension have a positive and significant effect on economic growth for developing countries.

Finally, a few studies take into account both the main indicators (trade liberalization and foreign direct investment) and the globalization index together and empirically investigate the relationship between these variables and unemployment rates. For example, using these two models, Malik, Chaudhry and Javed (2011) examined the effect of economic globalization on unemployment rates in Pakistan through Johansen cointegration and Error Correction Model analyses over the period from 1973 to 2009. The findings suggest that foreign direct investment, worker remittances and economic globalization have increasing effect on employment opportunities both in short run and in long run. On the other hand, trade openness and social and political globalizations have negative effects on employment for this country. Gozgor (2014) investigated the impact of four different measures of trade openness and globalisation on unemployment rates in seven developed economies (G7), namely Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The data covered the different period for each country in the range of 1960 and 2011. The Least Square Dummy Variable (LSDV) test results show that all four measures of trade openness (nominal openness, real openness, the globalization index, and the KOF globalization index) significantly reduce the equilibrium unemployment rate in the G7 economies.

5. Data and Methodology

This study examines the impact of economic globalization on unemployment rates for 23 developing countries over the period from 1990 to 2016. The countries included in the study are determined from the classification of United Nations
The dynamic effect of globalization on unemployment rates in developing countries

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Conference on Trade and Development (UNCTAD). These countries are Algeria, Barbados, Chile, China, Colombia, Costa Rica, Ecuador, Hong Kong, Indonesia, Korea, Macao, Malaysia, Mauritius, Mexico, Morocco, Peru, the Philippines, Singapore, South Africa, Sri Lanka, Thailand, Turkey and Uruguay, respectively.

The analyses are carried out within the framework of two different models considering the distinction in the international literature as mentioned above. This distinction is mainly based on the criticisms of Dreher (2006)’s study and can be grouped under five parts: (a) Individual consideration of the sub-dimensions of globalization (trade liberalization and foreign direct investment) may be insufficient to explain the overall impact of globalization. (b) The sub-dimensions of globalization may be related to each other and therefore modelling these dimensions separately may cause collinearity problems. (c) Failure to include non-primary sub-dimensions in the model when performing analysis may reduce the reliability of the estimated coefficients. (d) The economic effects of the sub-dimensions of globalization can take place at different degrees. (e) Failure to use a general measurement tool in explaining the overall effects of globalization may create a significant deficiency in findings.

In accordance with this information, the models to be applied in the study are given in Equation 1 and 2, respectively. In terms of model preference, it has been benefited from the studies of Awad and Yousof (2016), Daly, Ullah, Rauf and Khan (2017) and Gozgor (2017).

\[
\ln(UNEMP_{it}) = \beta_0 \ln(UNEMP_{it-1}) + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(FDI_{it}) + \beta_3 \ln(TRADE_{it}) + \varepsilon_{it} \quad (1)
\]

\[
\ln(UNEMP_{it}) = \beta_0 \ln(UNEMP_{it-1}) + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(EGI_{it}) + \beta_3 \ln(POP_{it}) + \beta_4 \ln(PROD_{it}) + \varepsilon_{it} \quad (2)
\]

UNEMP is the unemployment rate, GDP is the real gross domestic product per capita, FDI is the foreign direct investment stock per capita, TRADE is the trade openness (or trade liberalization), EGI is the economic globalization index, POP is the total population, and PROD is the real output per worker as a proxy of labour productivity. In addition, \( \beta_0, \beta_1, \beta_2, \beta_3, \) and \( \beta_4 \) are the elasticities of the coefficient and \( \varepsilon_{it} \) is the error term. The unemployment rate series was obtained from the International Monetary Fund (IMF) – International Financial Statistics (IFS) database, and the foreign direct investment series came from the United Nations Conference on Trade and Development database. For the economic globalization
The analyses are performed by the Generalized Moments Method developed by Arellano and Bond (1991). Economic relations include dynamics of adjustment processes in general. It is very important to consider the lagged values of variables as explanatory factors when examining economic relations, since the economic behaviour in a given period is influenced by past experience and behaviour patterns. This dynamic structure is frequently used in panel data models. The panel data model where the lagged values of the dependent variable take place as the independent variable is expressed in Equation 3 (Tatoğlu, 2013: 65; Baltagi, 2005: 135).

\[ y_{it} = \delta y_{i,t-1} + \beta x_{it} + u_{it} \quad i = 1, ..., N; \quad t = 1, ..., T \]  

(3)

where \( \delta \) is the scalar, \( x_{it} \) and \( \beta \) are 1xK and Kx1, respectively. It is assumed that \( u_{it} \) follows a one-way error component model and is defined as in Equation 4.

\[ u_{it} = \mu_{it} + v_{it} \]  

(4)

where \( \mu_{it} \sim \text{IID}(0, \sigma_{\mu}^2) \) and \( v_{it} \sim \text{IID}(0, \sigma_{v}^2) \) independent of each other and among themselves. Panel data models defined in Equation 3 and 4 are characterized by two persistence sources over time. The autocorrelation occurs due to the presence of lagged dependent variable among the regressions and individual effects characterize heterogeneity among the units. Some basic problems arise with the addition of the lagged dependent variable to the model as an independent variable. \( y_{it} \) is a function of \( \mu_{it} \) and therefore \( y_{it-1} \) is a function of \( \mu_{it} \). For this reason, \( y_{it-1} \), which is the explanatory variable in Equation 3, is correlated to the error term. This makes the OLS estimator biased and inconsistent, even if \( v_{it} \) are not serially correlated (Baltagi, 2005: 135).

Anderson and Hsiao (1981) suggested using first difference transformations to exclude individual effects from the model. Since the error terms of the first difference model often have negative autocorrelation, it is appropriate to use the GMM

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3 http://www.kof.ethz.ch/globalisation/.
6. Empirical Results

Table 1 shows the results for Model 1 in Equation 1. As mentioned above, this model investigates the impact of the main indicators of the economic globalization (foreign direct investment and trade liberalization) on unemployment rates for developing countries. The findings show that the coefficients obtained for real gross domestic product per capita (GDP) and trade liberalization (TRADE) parameters are negative and statistically significant. Accordingly, a 1% increase in real gross domestic product per capita and trade liberalization reduce unemployment rates by 0.44% and 0.28%, respectively. On the other hand, the coefficient for the foreign direct investment stock per capita (FDI) is positive and statistically insignificant. Finally, a lagged value of the dependent variable [UNEMP(-1)] has a positive and statistically significant coefficient. This reveals that unemployment rates are significantly affected by past values.
Table 1: The Analysis Results for Model 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnUNEMP(-1)</td>
<td>0.607*</td>
<td>0.085</td>
<td>7.153</td>
<td>0.000</td>
</tr>
<tr>
<td>lnGDP</td>
<td>-0.436*</td>
<td>0.139</td>
<td>-3.140</td>
<td>0.001</td>
</tr>
<tr>
<td>lnFDI</td>
<td>0.078</td>
<td>0.060</td>
<td>-1.306</td>
<td>0.192</td>
</tr>
<tr>
<td>lnTRADE</td>
<td>-0.276*</td>
<td>0.058</td>
<td>-4.722</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Descriptive Statistics

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wald Test</td>
<td>422.164</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Sargan Test</td>
<td>21.351</td>
<td>(0.317)</td>
</tr>
</tbody>
</table>

Note: *, indicates the significance of coefficients at the level of 1%. Values in parentheses represent probability estimation.

Table 1 also provides descriptive statistics for Model 1. First, the Wald test was used to test the significance of the model as a whole. The Wald test results indicate that the model is generally significant. Second, the Sargan test was used to determine whether the variables in the model were applied or not. In other words, the Sargan test is used to test the validity of excessive identification constraints. According to the Sargan test results, the basic hypothesis cannot be rejected and it is decided that the instrument variables are valid. Finally, the Arellano and Bond test was used to analyse for the presence of autocorrelation between the series. In order to investigate the presence of autocorrelation in the model discussed, it is sufficient to consider the presence of second order autocorrelation [AR(2)]. Although the first order autocorrelation [AR(1)] is not important, the second order autocorrelation [AR(2)] should not be in the model in order for the Generalized Moments Estimators to be effective. The results show that there is no autocorrelation problem in the model.

The findings in Table 1 indicate some important implications for developing economies. First of all, it can be said that the most important effect on unemployment rates is due to the past values of the unemployment rates. In other words, previous unemployment rates have a negative effect on current unemployment rates. Secondly, economic growth is the most important parameter in reducing unemployment rates in these countries. Thirdly, trade liberalization does not have a negative impact on employment opportunities contrary to expectations. Finally,
THE DYNAMIC EFFECT OF GLOBALIZATION ON UNEMPLOYMENT RATES IN DEVELOPING COUNTRIES

Faruk MIKE

It is estimated that the foreign direct investment flows to these countries are not significantly enough to create new employment opportunities.

On the other hand, Table 2 shows the results for Model 2 in Equation 2. In particular, it is argued by opposing views that Model 1 is not sufficient to explain the reasons for unemployment rate in a country. According to this view, both foreign direct investment and trade liberalization are not sufficient to explain the economic globalization process alone and a more comprehensive parameter, the Economic Globalization Index, should be used instead of these parameters.

Table 2: The Analysis Results for Model 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>lnUNEMP(-1)</td>
<td>0.761*</td>
<td>0.050</td>
<td>15.089</td>
<td>0.000</td>
</tr>
<tr>
<td>lnGDP</td>
<td>-1.327**</td>
<td>0.517</td>
<td>-2.565</td>
<td>0.011</td>
</tr>
<tr>
<td>EGI</td>
<td>-0.008*</td>
<td>0.002</td>
<td>-4.956</td>
<td>0.000</td>
</tr>
<tr>
<td>lnPOP</td>
<td>1.314*</td>
<td>0.194</td>
<td>6.768</td>
<td>0.000</td>
</tr>
<tr>
<td>lnPROD</td>
<td>0.711</td>
<td>0.494</td>
<td>1.439</td>
<td>0.151</td>
</tr>
</tbody>
</table>

Descriptive Statistics

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wald Test</td>
<td>1796.073 (0.000)</td>
<td>AR(1) -2.773 (0.006)</td>
</tr>
<tr>
<td>Sargan Test</td>
<td>21.103 (0.274)</td>
<td>AR(2) -1.035 (0.301)</td>
</tr>
</tbody>
</table>

Note: * and ** indicate the significance of coefficients at the level of 1% and 5%, respectively. Values in parentheses represent probability estimation.

The findings for Model 2 are similar to those for Model 1. Accordingly, real gross domestic product per capita (GDP) and economic globalization index (EGI) have negative and statistically significant effects on unemployment rates. A 1% increase in real gross domestic product per capita reduces unemployment rates by approximately 1.33%. The economic globalization index, on the other hand, has a very small and decreasing effect on unemployment rates. In contrast, a lagged value of unemployment rates [UNEMP(-1)] and total population (POP) have a positive and statistically significant effect on unemployment rates. A 1% increase in the total population increases unemployment rates by approximately 1.31%. Finally, the coefficient obtained for labour productivity (PROD) is positive, but is not statistically significant.
Table 2 also provides descriptive statistics for Model 2. The Wald test result indicates that the model is generally significant. The Sargan test results revealed that the instrument variables were valid. The autocorrelation test [AR(2)] results show that there is no autocorrelation problem in the model.

The findings in Table 2 again point to some important implications for developing economies. Firstly, the real gross domestic product per capita has a most important impact on unemployment rates. The increase in real income per capita significantly reduces unemployment rates. Secondly, the economic globalization index has a decreasing effect on unemployment rates. These results reveal the positive effect of the globalization process on unemployment rates. Thirdly, it is noteworthy that population growth has a serious negative effect on unemployment rates. Similarly, fourthly, the past values of unemployment rates have the negative effect on unemployment rates. Finally, it is understood that labour productivity has no effect on unemployment rates.

7. Conclusion

In recent years, the impact of the economic globalization on the basic macroeconomic variables in developing countries has been frequently discussed. One of the most important macroeconomic parameters in question is undoubtedly unemployment rates. In general, the impact of economic globalization on unemployment is shaped around two different approaches. According to the positive view, trade liberalization, foreign direct investment and technology transfers increase employment opportunities in developing countries. In other words, investments to be made in sectors where countries have comparative advantage can significantly reduce unemployment rates. This is also a very successful process in terms of encouraging female labour force, especially lives in rural areas, to employment. However, the negative view states that the globalization can increase unemployment rates in countries with a non-competitive economic system and based on labour intensive production. Approaches developed around these two opposing views leave the impact of the economic globalization on unemployment rates are inconclusive.

This study aimed to investigate the effect of globalization on the unemployment rates in order to explain this contradiction. In this context, the dynamic panel data analysis was applied for 23 developing countries over the period from 1990
to 2016. The analyses were performed with the Generalized Moments Method developed by Arellano and Bond (1991). For this purpose, two different models which are frequently used in the empirical literature were tested in this study. The first of these models (Model 1) examines the relationship between the main indicators of the economic globalization (trade liberalization and foreign direct investment) and unemployment rates. The second model (Model 2) examines the relationship between the economic globalization index (published by the KOF globalization index) and unemployment rates. In this way, it is possible to use both models instead of a single model frequently used in the literature and to compare the findings to be obtained from these models.

When the results obtained from both two models are evaluated together, the main conclusion is that the economic globalization process has a positive effect on unemployment rates for developing countries. The coefficients for trade liberalization and economic globalization index are negative and statistically significant. Only a statistically insignificant coefficient was obtained for foreign direct investment, which is one of the basic elements of the economic globalization process. This is thought to be related to the new tax policy implemented by the United States in recent years. It is known that US based multinational companies have started to transfer their investments from foreign countries to their own countries due to their tax policy. Therefore, the foreign direct investment shares of developing countries have been decreasing in recent years.

On the other hand, it is remarkable that the main macroeconomic variables included in the models as well as economic globalization parameters point out to very important findings for developing countries. In particular, real gross domestic product income per capita has a negative and statistically significant coefficient in both two models. In other words, the increase in real gross domestic product per capita in developing countries significantly reduces the unemployment rates. In contrast, total population growth and past values of unemployment are the main reasons to increase unemployment rates in these countries.

As a result, developing countries should continue to implement economic globalization policies effectively, whereas these countries are struggling with the unemployment problem. These countries should try to attract more trade and capital flows in order to increase the competitiveness of local firms, labour productivity
and innovations. In this way, it is thought that the countries can provide more important improvement in economic growth and employment opportunities.

References


SECTION II

EXCHANGE RATE
GLOBAL COMPETITION AND EXCHANGE RATE DETERMINATION

Yelda Bugay TEKGÜL

Introduction

Some developed countries in the world economy acquire current account surpluses, whereas some incur current account deficits. Table 1 presents the national income per capita, which is one of the important welfare indicators of the countries, and the current account status, which is an important indicator of their relations with the outside world as of 2019. It is observed that among the countries with common development levels, there are those who incur current account deficits as well as those who acquire surpluses. World trade and capital movements exhibit an out-of-balance view on a global scale. In the first phase, it can be expected that developed countries would acquire surpluses, and developing countries would incur deficits. Undoubtedly, the current account surplus or deficit may differ due to reasons and results in terms of countries. However, standard foreign trade theories (SFTT) seem to insist on the Notion that such deficit or surplus would constitute a balance by eliminating these deficits or surpluses in the long-run with the economic consequences they generate. On the other hand, per capita GDP, which is one of the important welfare indicators of a country, also varies significantly. For instance, the US economy, which is the largest economy in the world, has the largest current account deficit and achieves the highest per capita income. However, China, with the second-largest economy in the world, has a current account surplus, and a per capita income much lower than the USA (see Table 1).

1 Asst. Prof. Dr., Çukurova University, FEAS- Department of Economics, Orcid no: 0000-0002-3800-5427
2 The concept of “balance” is frequently discussed in economic theory. What is meant here involves the difference among the rates of change of economic magnitudes.
GLOBAL COMPETITION AND EXCHANGE RATE DETERMINATION

Yelda Bugay TEKGÜL

<table>
<thead>
<tr>
<th>Countries</th>
<th>Surplus</th>
<th>Per Capita Income</th>
<th>Countries</th>
<th>Deficit</th>
<th>Per Capita Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>141,335</td>
<td>10,200</td>
<td>USA</td>
<td>498,350</td>
<td>65,280</td>
</tr>
<tr>
<td>Germany</td>
<td>274,504</td>
<td>46,250</td>
<td>United Kingdom</td>
<td>106,885</td>
<td>42,300</td>
</tr>
<tr>
<td>Italy</td>
<td>58,933</td>
<td>33,180</td>
<td>Brazil</td>
<td>49,451</td>
<td>8,717</td>
</tr>
<tr>
<td>Japan</td>
<td>184,539</td>
<td>40,240</td>
<td>Canada</td>
<td>35,409</td>
<td>46,197</td>
</tr>
<tr>
<td>Kuwait</td>
<td>33,788</td>
<td>32,030</td>
<td>France</td>
<td>18,548</td>
<td>40,493</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>64,607</td>
<td>11,585</td>
<td>Chili</td>
<td>9,157</td>
<td>14,896</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>49,842</td>
<td>23,139</td>
<td>Argentina</td>
<td>3,461</td>
<td>10,006</td>
</tr>
<tr>
<td>Singapur</td>
<td>63,139</td>
<td>65,233</td>
<td>Mexico</td>
<td>2,443</td>
<td>9,863</td>
</tr>
</tbody>
</table>

Source: Data.imf.org/regular.aspx?key=62805740 Access Date 07.19.2020

SFTT asserted that financial and trade liberalization leads to advanced commercial relations, acceleration of economic growth, swifter technological change, and allocation of nation’s resources to efficient exportable goods. The structure of the neoclassical (Orthodox) theory underlies all these results. The view put forward as an economic policy suggests that the best option of economic development is to open the country to world markets; to remove foreign trade protectionism, to open financial markets, and to privatize public enterprises (Shaikh, 2016: 495-496). It is well-known that the economic policy extensions of these views are conducted by global institutions such as the IMF and the World Bank. Despite this, serious criticism is on the rise from these organizations.3 There is evidence that financial liberalization has historically made the real exchange rate dependent on the volatility of short-term capital flows. This situation connects the domestic interest rate to the international capital markets, thus making it burdensome for the interest rate to be a variable of domestic growth policies (Rodrik, 2001: 23).

The competition-based theoretical explanation of international trade is based on Ricardo’s work entitled Principle of Comparative Advantages. Based on the example of a country with a more developed capital and a less developed country,

Ricardo argued that the export revenues of the country with developed capital would exceed the import expenditures, in turn, it results in the inflow of funds and the money supply would increase. In the country with less efficient capital, on the contrary, the money supply decreases. In theory, the increase in the money supply would boost prices and costs in the developed country, while decreasing them in a less developed country. Thus, while the cost advantage of the developed country decreases, the other country would better-off. As a result, the imbalance in foreign trade would cease to exist.  

As can be seen clearly from Table 1, today’s economies present a different view from Ricardo’s views. Therefore, in explaining global competition, approaches based on Ricardo’s views are criticized and new views are put forward. Since Ricardo’s views are based on a price (cost)-oriented analysis, the criticisms are realized through the determination of the exchange rate. Therefore, the first part of this book chapter is devoted to examining two neoclassical-based exchange rate determination models, the first being the monetary approach model and the second the portfolio balance approach model. In the second part, alternative exchange rate determination approaches are discussed. In the last part, criticism of Ricardo’s principle of comparative advantage, which represents the neoclassical spirit that is widely used in explaining global competition, is emphasized.

### 1. Standard Exchange Rate Models

By the end of WWII, capital has become the main subject of international transactions with an increasing speed. Despite the motivation of the Bretton Woods system established in the post-war period to control capital flows, the Eurodollar market began to emerge by the end of the 1950s, and the European money market played a crucial role in determining the exchange rate until the end of the Bretton Woods system.

Throughout the period from 1973 until today, capital mobility, which increased for various reasons, has been playing a dominant role in determining the exchange rate. Nonetheless, organizations such as the IMF and WB continue to rely on two theoretical explanations that are examined below.  

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4 In this analysis, it is seen that Ricardo is in favor of the “quantity theory of Money”.

5 Harvey (1996) is utilized in explaining these models.
1.1. Monetary Approach Model

The *monetary approach* model used in determining the exchange rate is a model directly derived from the *monetarist approach*. The model includes 3 basic assumptions:

i. Prices and wages are perfectly elastic.

ii. Money demand is stable.

iii. PPP is valid all the time.

The first two assumptions are crucial, the third assumption is of vital importance in determining the exchange rate. The following equation is generally estimated in applied studies:

\[ s = (m-m^*) + \varphi(y^*-y) + (k^*-k) + \vartheta(1-i^*) \]  

Among the notations in Equation 1, \( s \) denotes the exchange rate, \( m \) denotes the money supply, \( y \) denotes real income, \( k \) denotes the ratio of the desired money balances to nominal income, \( \varphi \) denotes the income elasticity of the money demand, and \( \vartheta \) denotes the interest elasticity of the money demand. The asterisk indicates foreign country variables (the variables are in logarithmic form). Equation 1 indicates the monetary exchange rate model determined by purchasing power parity.\(^6\) In this model, the fact that variables move together between countries would also bring up the validity of the *law of one price*.

Interest rate \((i)\), one of the variables in the model, is determined in international financial markets depending on the capital flows in the real world, apart from the assumptions of this model. Nevertheless, in the monetarist Equation 1, the interest rate is tied to the cash demand, thus affecting the price level, hence, the exchange rate. In fact, the rise in the domestic interest rate renders the domestic assets alluring to foreigners in the international capital market and the national currency is appreciated. However, such an outcome is not predicted in the monetary model. Instead, an increase in the domestic interest rate decreases the demand for cash assets and creates a surplus in the money supply. Thus, domestic

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6 PPP, in its most general definition, is an approach that suggests the changes in exchange rates between the currencies of the two countries within a certain period are determined according to the difference in the relative price levels of the two countries. In the relative PPP approach, it is asserted that the higher the inflation rate in a country compared to the foreign country, the higher the exchange rate should be.
prices rise and the national currency is depreciated. The outcome predicted by the monetary model does not fit in the real world. As a result, the monetarist model does not attribute a role to capital movements in determining the exchange rate. Although the model lacks strong empirical support, it remains popular (by carrying on the neoclassical tradition) due to its pro-free-market feature.

1.2. Portfolio Balance Model

In the Portfolio Balance Model, international capital flows are deemed necessary in determining the exchange rate. In this model, investors prefer three types of assets: national bonds, foreign bonds, and domestic currency. As an important assumption, there is no substitution between national bonds and foreign bonds. Therefore, interest rates may differ. In the simple version of this model, a small country model, in which the citizens of this country can hold foreign assets whereas the foreigners are not allowed to hold any assets, is used. In this case, nominal assets can be expressed as follows:

\[ W = M + B + SF \]  

\( W \) denotes the net financial asset of the private sector, \( M \) denotes the money supply, \( B \) denotes the value of national bonds, \( F \) denotes the value of foreign assets held domestically, and \( S \) denotes the exchange rate. The demand for each component of national assets is defined as follows: \( r \) denotes the yield on national bonds, \( r^* \) denotes the yield on foreign bonds. Signs represent the direction of the effect on the dependent variable.

\[ M = m(r, r^*) \]  

\[ B = b(r, r^*) \]  

\[ F = f(r, r^*) \]

This model can be considered as a more advanced model in comparison to the monetary approach model. It primarily concentrates on profit maximization in the capital market and investors’ portfolio selection. Another advantage of this model involves a causality from the interest rate toward the exchange rate by focusing on
the asset market in accordance with the real world. For instance, when the interest rate is reduced by implementing monetary policy, investors would purchase foreign bonds, and the price of foreign currency would increase. The changes to be made by the investors in the portfolio decisions in the model may occur due to the decisions to be taken by the government and the current account imbalances. When a current account surplus occurs in the country, such surplus can be used to purchase foreign bonds and the foreign currency is depreciated. The foreign currency depreciation would eliminate the current account surplus. The change in portfolio decisions is due to both the government policies and the current account imbalances.

Changes in the players’ expectations regarding the foreign exchange market cause frequent and rapid changes in portfolio decisions. This model failed to acquire specific integrity that includes expectations and the result of changes in expectations. Empirical studies could not indicate that this model was powerful. Nonetheless, unlike the monetarist model, it provides an explanation for the exchange rate volatility by allowing overshooting of the exchange rate and trade imbalances.

2. An Alternative Approach of Real Exchange Rate Determination

Both models described above reflect the spirit of neoclassical economic understanding. The situation presented in Table 1 seems far from reflecting a balance in terms of both individual welfare and current account, representing the world’s important developed economies. There is an imbalance in the world economy that is not compatible with the predictions of Ricardo’s “Principle of Comparative Advantages”. A Ricardian understanding of competition, which claims that the exchange rate would achieve balance in foreign trade, does not find a counterpart at the global level and in the real world. Therefore, alternative exchange rate determination models have become widespread in the economics literature. The Post-Keynesian approach from the heterodox views emerged in the late 1970s in comprehending the dynamics of the exchange rate volatility in the international financial and monetary system (IMFS) that came to existence following

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7 If the prices in the goods market cannot temporarily provide the necessary harmony in the short term and, an exchange rate overshooting may occur. An imbalance in the current account would be automatically offset when the exchange rate reverts to its balance level in the long-run.

8 This result may occur even if there is no policy decision or an imbalance in the current account.
the Bretton Woods system. Post-Keynesian approach to exchange rates (Davidson, 1998; Dow, 1999; Harvey, 1991, 1996, 2006, 2007, 2009, 2017) is based on the view that capital movements play an independent and active role in the economy and it constitutes the basis of the explanations for the determination of exchange rates. Therefore, in this part, the determination of exchange rates is examined within the framework of an alternative approach.

### 2.1. Exchange Rates and Trade Imbalances

One of the serious problems related to the SFTT is that it bases export and import equality in the long-run on the price mechanism (Purchasing Power Parity-PPP) and Ricardo’s “Comparative Advantages Principle”. The traditional approach argues that trade among countries would generally achieve balance in the long-run. According to this approach; Exchange rates would reflect the relative domestic prices at the equilibrium point where foreign exchange supply and demand are equalized, and automatic movements in the exchange rate would automatically maintain such balance. In the short-run, deviations in the equilibrium exchange rate would be followed by foreign trade deficits. This principle of neoclassical trade theory would determine which country be more competitive than another. Therefore, if the exchange rate can be managed well enough to achieve and sustain such competition, it would also be able to maintain foreign trade balance. It is assumed that real exchange rates eliminate competition differences in the long-run. Nonetheless, it should be noted that while historical data provide evidence of the persistence of trade imbalances (although different systems such as a managed, fixed, and flexible exchange rate have been implemented), the two principles of foreign trade balance are frequently adopted by economic policymakers (Hernández, 2010: 55-56).

The view that capital movements have an independent and active role in the country’s economy in determining the exchange rate constitutes the basis of Post-Keynesian theoretical explanations and distinguishes this view from traditional economics (Harvey, 2003: 131). In this context, their work aims to explain the actual decision-making process in foreign exchange markets (Ramos and Prates, 2018: 2). In this regard, Schulmeister’s (1988, 2009a, 2009b) studies also aim to explain the actual decision-making process within foreign exchange markets in a similar way to Harvey. Since the 1980s, Schulmeister has been analyzing the pattern of exchange rate movements from both the inductive and microstructural
approaches and emphasized that exchange rates do not follow a random movement, but on technical trading systems (spots and derivatives) that have become increasingly important in the foreign exchange market following the 1990s (Schulmeister 2009b). Accordingly, the exchange rate dynamics arise from the interaction of strategies and models used by ‘chartist traders’ (who decide to trade only based on information contained in past prices). Schulmeister asserted that traditionally traders have two types of expectations regarding exchange rate movements, and the short-term exchange rates are more influenced by political and economic news, whereas the medium-term exchange rates are more inclined to be affected by growth rates, interest differentials among countries, and relative inflation. According to Schulmeister, while foreign exchange trading has experienced a great change within the last two decades, the daily volume of the foreign exchange market has exceeded the world trade volume by approximately forty times and portfolio investments by almost sixty times, and therefore, direct speculation by banks, multinational companies, and other unexpected agents would begin to dominate the market (Schulmeister, 1988: 344). Harvey, on the other hand, based his opinions on Schulmeister’s analysis of money markets, but in many of his studies, he especially concentrated on the “mental model” and the behavior of “pro-trade” agents, taking into account the changes in macroeconomic variables while creating exchange rate expectations. Harvey’s expectation formation analysis includes Keynesian insights as well as the views of behavioral economists used to explain the forecasting-regulation approaches to the foreign exchange market.

According to Harvey’s (2009) “mental model”, agents’ predictions about regulating expectations are based on three layers:

i. The demand for foreign currency depends on net exports, net foreign direct investment and net portfolio foreign investment;

ii. These are affected by expected domestic and external inflation differences, expected relative macroeconomic growth, expected relative interest rates, and expected liquidity.

iii. Investors keep a list of indicators (such as GDP growth, unemployment rates, etc.) upon establishing expectations for changes in these factors.

9 “Technical analysis” is a broader concept that does not have to be limited to trade. In technical currency trading within the foreign exchange market, investors focus on charts and tables. They monitor the index charts for signs of convergence / divergence that may indicate profitable buy and sell signals.
Harvey (2009) explains the determinants of the exchange rate in the developed mental model with five exchange rate determinants examined by Schulmeister (2009a), besides portfolio investments made based on exchange rate estimates. These consist of volatility, herd psychology, technical analysis, trade barriers, and cash inflows. According to Harvey, the main debate is all about the reasons for trade imbalances. Do these imbalances occur due to differences in absolute advantage, or as a result of the autonomous portfolio, capital flows when exchange rates diverge from balanced trading levels? (Harvey, 2017: 1).

2.2. The Relationship Between Capital Flows & Speculative Movements and the Foreign Exchange Market

Within the framework of the heterodox Post Keynesian approach, capital flows are the main determinants of the exchange rate. Financial capital flows are driven by forecasts in an uncertain speculative market. The value of the exchange rate affects trade flows. The most prominent feature of exchange rates is that they exhibit huge volatility and are chronically set below, or above their value. Volatility appears as a deterrent element by including a new cost factor to international trade. Setting a foreign exchange rate above or below its value means that trade imbalances may persist for very long time without achieving balance automatically. The relationship between the volatility of exchange rates and the overvaluation/undervaluation of exchange rates is illustrated in Figure 1. The daily exchange rate transactions is much higher than what is required for international trade. Therefore, the autocorrection mechanism usually does not function. Because there is a demand for foreign exchange far beyond the demand merely for international goods and services, and the exchange rate, which ensures the trade balance level, cannot be guaranteed not to change (Harvey, 1995: 493-94).

Harvey (1999) discussed the types of demand for foreign exchange and emphasized the relatively essential role of portfolio investments, which is essentially based on speculation. Investors’ expectations regarding asset price movements would determine the exchange rate volatility and the current prices of these assets (Harvey, 1999: 201). According to Andrade and Prates, there are historically two fundamental points underlying such volatility: Firstly, interest rates and asset prices are exposed to both huge volatility in the short-run and significant changes in the long-run, generating higher volatility in exchange rates. Secondly, financial imbalances have a high degree of a spillover effect from the basepoint of the system toward markets and countries that have nothing to do with the main concern (Andrade & Prates, 2013:10).
The exchange rate volatility is an outcome of the current market structure. Trade flows are inclined to have higher stability than capital flows, especially in the short-run. The most apparent reason for this is the ease with which an international supplier of goods or services may alter the structure of a financial portfolio in comparison to altering its source. As capital flows grow, so does the size and volatility of the demand for foreign exchange. Therefore, if the size increases, the probability of the emergence of the volatility features would also rise. If the foreign currency has the desired properties as an asset, then the currency prices would be much more volatile, increasing the opportunities for speculation on this asset. In this case, upon assuming that there may be individuals who wish to benefit from possible profits, the volume of speculative activities would also increase (Mottif, 1983 as cited in Harvey, 1995: 495). According to Harvey, the increase in the volume of speculative movements result in several consequences, each of which leads to three positive feedbacks that make the role of speculation even more important (see Figure 1).
First of all, the rise in the speculative activities' volume directly causes an increase in the imbalance and size of the demand for foreign currency and, thus stimulates the growth of volatility. Secondly, the rising importance of speculative movements would lead to a circumstance in which there is no anchor for exchange rates independent of these speculative powers. Therefore as speculators purchase and sell in pursuit of an unknown future balance, the exchange rate volatility would increase even further. The third feedback begins with the impact of increasing speculation volume on foreign exchange activities. With the decrease in the profitability of banks' traditional operations, the increasing speculative activity volume has gradually shifted the focus of these operations of financial institutions toward foreign exchange speculation. The shift in this focus causes the rise of speculative purchases and sales with the profit motive in case of any volatility in the foreign exchange market. If the asset prices are tightly linked to exchange rate volatility, such volatility renders portfolio investment one of the main targets. The fact that exchange rates depend on investors' pursuit of capital gain in the short-run explains the exchange rate volatility during the post-Bretton Woods period. Accordingly, rapidly changing predictions regarding future foreign exchange price movements cause spot prices to change instantly. The reasons behind the rapid change in forecasts concentrate on 6 points: the speculative nature of the foreign exchange market from an alternative perspective, the lack of a real anchor in determining money values, the subculture of foreign exchange buyers and sellers, the way individuals make decisions, the uncertainty, and the impact of herd psychology (Harvey, 1999: 206).

3. Criticism of the Standard Foreign Trade Theories

The competition that emerges in a national economy occurs in the form of firms cutting their prices by reducing their costs and expanding their market share in a way that casts out their competitors. In this process, there is no guaranteed way for one firm to lower its costs more than another. This motivation constitutes the basis of the capitalist production and competition process. Therefore,
it is inevitable for some companies to go bankrupt. The equivalent of this process experienced in a national economy during international trade is that countries with more efficient production and lower wage levels have a higher chance of success.\footnote{This approach constitutes the basis of Adam Smith’s “Principle of Absolute Advantages”. This principle is applied in the same manner in competition within the country and in international competition.} Smith argued that capital pursues the profit motive regardless of the line of business in which it operates (Smith, 1973: 474). Making production for either domestic or foreign markets does not mitigate the profit motive. Ricardo, like Smith, started out from individual firms that seek profits in various countries.

When international trade is made between less developed and more developed countries, there would be an outflow of capital from the less developed country (net importer) to the developed country (net exporter) and a trade imbalance would arise (in favor of the net exporter). Then, as the national currency supply in the net exporting country increases, prices and costs would rise and the imbalance would disappear.\footnote{A causality between price level and money supply is predicted.} This mechanism continues to function as long as the imbalance persists. Regardless of the initial differences in effectiveness, the two countries eventually become equally competitive. In this situation, free trade creates the result that a low-efficiency (high-cost) country does not need to correct this adverse condition (Shaikh, 1980: 205).\footnote{The process works the same for flexible or fixed exchange rate (see Shaikh, 2016)} Ricardo transformed absolute cost advantages into relative cost advantages in foreign trade and continued the process with the same mechanism. Companies operating in countries should specialize in products with the lowest cost in case cost differences, and leave the production of other products to their competitors in other countries. It is assumed that individual firms that are in pursuit of profits throughout the whole process manage a process that would result in all countries better-off in international trade. The first of the most important criticisms toward this analysis is seen in the reduction of the balance of payments only to the balance of trade. Because the flow of goods is separated from financial flows in this analysis. Money is seen only as a medium of circulation. Whereas funding capital is intrinsically dependent on the trade of goods (borrowing in the case of deficit, or vice versa). In the real world, absolute costs determine foreign trade, not relative costs. Countries with less competitive capital constantly run deficits and fill this gap with debt (Shaikh, 2016: 504-509).
In fact, according to the competition theory, which originates from Keynes and Marx, the international competitiveness of an industry or country is mainly based on absolute production technology and labor productivity. Accordingly, it is the competitive position of the country that determines the exchange rate. It is argued that the differences between real production costs determine international trade conditions, and hence, exchange rates (Milberg, 1994). Upon considering the views of Anwar Shaikh and R. Antonopoulos, it is seen that they modeled competition as a function of the “vertically integrated cost of labor of the producer”. The lower these costs, the more likely a country would acquire a trade surplus. Such an advantage does not automatically wear off over time (Shaikh and Antonopoulos, 1998). Post-Keynesians have adopted this approach partially and agreed that the less expensive the labor force in a country, the more trade surplus the country would acquire (Harvey, 2017: 12).

In the alternative approach that Hernández presented in his study as of 2010, he claims that money flows caused by trade imbalances would not fulfill the balance as in the quantity theory of money and that such balance would be achieved through the exchange rates proposed by Marx, Keynes, and Harrod (Hernández, 2010: 57). It means that absolute cost advantages would not disappear with money flows and the theory of absolute advantages persists.

It also means that free trade would further increase the trade imbalance, which automatically includes capital flows.

Therefore, a country incurring a trade deficit would become an international debtor. One of the points that Hernández underlined regarding exchange rates in the same study is that, similar to Shaikh and Antonopoulos (1998), the long-term real exchange rates would be determined by vertical real unit labor cost ratios in the tradable sectors of the producing countries. Secondly, the trade deficits or surpluses are not anomalies of the competitively operating market system. Thirdly, the devaluation would not have a permanent influence on the trade balance unless the devaluation is accompanied by a significant change in national real wages or productivity, in other words, production costs.

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14 This means that neither absolute nor relative purchasing power parity would apply in general.
Conclusion

The globalization of the world economy emphasizes the importance of international competition. The phenomenon of international competition is explained with some standard views in terms of economic theory. These views also constitute a theoretical basis for organizations such as IMF and WB that steer world trade. The theoretical framework on which the standard views are based relies on the “Principle of Comparative Advantages” put forward by David Ricardo and binds international competition to costs defined by the exchange rate. This theory is represented by the Monetary Approach Model and Portfolio Balance Model, on which organizations such as the IMF and WB are based. The theoretical claim put forward is that free competition would offset foreign trade (current account) with its long-term effect on the exchange rate. The predictions of this theoretical view are incompatible with the data of the world economy. As can be seen in Table 1, there are serious differences in the current account deficits/surpluses of the economies that are predominant in the world economy. Also, per capita national income values, which are among the basic welfare indicators of these countries, differ from each other. Therefore, standard (orthodox) theoretical views do not seem to comply with real-world data, in terms of predicting and explaining global competition. Such inconsistency in which standard theories face the real world brings forth alternative exchange rate determination models (Post-Keynesian explanations, in general) and Ricardo’s views are criticized. These criticisms concentrate on the need to prioritize capital flows, production technologies, and unit labor costs between countries, rather than explaining the exchange rate with the relative demand for and supply of foreign currency. Consequently, there are arguments that, instead of the classical views that dominate the determination of exchange rates, the exchange rates are largely determined by the demand for foreign exchange stemming from international investors’ efforts to adjust their portfolios, and permanent imbalance of payments arise due to the rise in capital flows dominating the market.

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LOGISTICS-TRADE PERFORMANCE NEXUS: EVIDENCE FROM A LARGE SAMPLE OF COUNTRIES

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Abstract

This chapter empirically analyzes a six-year (2007, 2010, 2012, 2014, 2016, 2018) dataset of exports, imports, and logistics performance metrics of 133 countries to assess the relationships between international trade performance and logistics performance. Unlike the former studies, we group countries into 53 trade-surplus countries (TSCs) and 80 trade-deficit countries (TDCs) based on their average trade balance over the period of interest. We extend export and import functions by including foreign direct investment inflows and the World Bank’s overall international logistics performance index together with the widely-examined predictors of the trade such as exchange rate, domestic income, and foreign income. Findings coherently reveal that improved logistics tend to promote both exports and imports for all country groups. Additional results contradict some predictions of the conventional theory on the exchange rate, domestic income, and foreign income adjustment patterns of the trade balance. Overall evidence suggests that countries, particularly TDCs, need to invest in logistics and promote production and productivity in export sectors to increase the values and volumes of exports as well as their domestically produced contents which consequently help in curbing the import dependency and trade deficit.

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1. Introduction

It is a well-documented fact that international trade provides multifaceted contributions in terms of productivity, income growth, economic development, technological diffusion, and employment for open economies (Edwards, 1993; Matusz, 1996; Barro and Sala-i-Martin, 1997; Alcalá and Ciccone, 2004; Thirlwall, 2006; Awokuse, 2008; Sannassee et al., 2014). Consistently, there has been a vast literature about the channels through which trade performance of especially developing countries can be improved with a specific reference to the sequential export-led growth success of some East Asian countries which the World Bank (WB, 1993) first described as the ‘East Asian miracle’. Within the political economy approach, exchange rate policies and changes in relative prices of exports and imports have attracted a huge interest regarding the Marshall-Lerner condition (Goldstein and Khan, 1978; Dong, 2017) and the J-curve adjustment process (Magee, 1973; Bahmani-Oskooee and Hegerty, 2010) where domestic and foreign income and exchange rate are the core determinants of a country’s trade performance. However, with the increasing financial integration, vertical specialization, intra-industry trade, and global supply chains participation together with the global adoption of free-floating exchange rate regimes, the effect of exchange rate have become inconclusive (Rose, 1990; Kharroubi, 2011; Dong, 2017) and the J-curve adjustment pattern has become even more ambiguous (Bahmani-Oskooee and Hegerty, 2010; Tandon, 2014).

Besides such widely-recognized determinants of international trade performance as globalization and/or openness, macroeconomic indicators, productivity, competitiveness, and resource abundance, a growing body of international trade literature has been investigating the logistics effects on international trade performances of countries (Arvis et al., 2018). This research strand goes back to the theory which links the rising international trade to declining international transportation costs (Limão and Venables, 2001; Hummels, 2007) and arises a question for studies: Do better logistics services in countries reduce their trade costs and raise their exports? (Behar et al., 2011). As the integration of countries into global supply
chains has increased, the relationships between logistics performance and trade facilitation have recently received attention from researchers, policy-makers, and trade practitioners (Hausman et al., 2013; Mangan and Lalwani, 2016; Gani, 2017). Previous studies in the relevant literature on the predictors of countries’ trade performance have rarely considered the impacts of logistics performance because of the limited availability of country-specific and internationally-comparable metrics of logistics performance. However, recently some unique initiatives such as the World Bank’s Logistics Performance Index (LPI) have been providing international composite metrics for logistic performance which has increased the number of empirical studies investigating the logistics-trade performance nexus at sector-specific, country-specific, and cross-country levels (Korinek and Sourdin, 2011; Felipe and Kumar, 2012; Kabak et al., 2019).

The relevant cross-country studies mostly classify countries by income and/or development levels. To contribute to the developing literature, this study examines how logistics performance affects imports and exports for a large sample of countries including 53 trade-surplus countries (TSCs) and 80 trade-deficit countries (TDCs) using a slightly unbalanced dataset of the years 2007, 2010, 2012, 2014, 2016, 2018. In the rest of the study, section 2 explains logistics and logistics performance based on the World Bank’s international LPI measures. Section 3 briefly presents an overview of the relevant literature. Section 4 is devoted to the empirical framework which introduces variables, data, model, and methodology and reports the results, respectively. The study concludes with a short discussion of some policy implications based on the key findings.

3 TSCs included in the sample are “Algeria, Angola, Argentina, Austria, Bahrain, Belgium, Bolivia, Chile, China, Cote d’Ivoire, Czech Republic, Denmark, Estonia, Finland, Gabon, Germany, Hungary, Iceland, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Kuwait, Libya, Luxembourg, Malaysia, Malta, Netherlands, New Zealand, Nigeria, Norway, Oman, Paraguay, Peru, Poland, Qatar, Russian Federation, Saudi Arabia, Singapore, Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland, Thailand, United Arab Emirates, Uzbekistan, Zambia”. The TDCs sample includes “Afghanistan, Albania, Armenia, Australia, Bahamas, Bangladesh, Belarus, Benin, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Chad, Colombia, Comoros, Costa Rica, Croatia, Cyprus, Dominican Republic, Ecuador, Egypt, El Salvador, France, Gambia, Georgia, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Jamaica, Jordan, Kenya, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Lithuania, Madagascar, Mali, Mauritania, Mauritius, Mexico, Mongolia, Myanmar, Namibia, Nepal, Niger, Pakistan, Panama, Philippines, Portugal, Romania, Rwanda, Senegal, Serbia, Sierra Leone, South Africa, Sri Lanka, Tajikistan, Togo, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Vietnam, Zimbabwe”.

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2. Logistics and Logistics Performance

As a narrow notion, logistics is simply about an operational process of transport of goods and services from the first location they are produced to the final destination they are consumed. Logistics services have micro-level and macro-level roles in domestic and international trade and, thus, in the socio-economic development and global competitiveness of a country. In the diamond model of Porter (1990), one of the key pillars determining the competitiveness of a country’s industry in international markets is infrastructure including advanced transportation, logistics services, and telecommunications. As the diamond model depicts, the success of companies, industries, and countries requires efficient logistics. The rationale behind this prediction is the microeconomic role of logistics in making a company competitively advantaged in the dynamic world market beyond its static comparative advantage of factor endowment. The competitiveness of companies spreads within and between industries leading to an increase in nationwide competitiveness. The availability of logistics services in a country enables companies to compete with their counterparts in international markets and to involve more efficiently in global supply chains. Considering the cost-cutting effects, many countries have been investing in logistics to facilitate trade potential and performance of local companies. Besides, in today’s murky business environment, global supply chains have been becoming more and more complex. Some geographically disadvantaged countries endeavor to link global supply chains while those that are currently engaging in global supply chains face risks associated with uncertainty and instability. In both cases, the availability of logistics services is a key factor for tackling with these challenges (Hausman et al., 2013; Arvis et al., 2018).

In line with the increased understanding of the crucial contribution of logistics and transport services to international trade and investment relations, both scholars and business practitioners have become more interested in the conceptualization and measurement of logistics performance of countries (Marti et al., 2017; Arvis et al., 2018). These measures help in comparing countries’ logistics performances and explaining why some countries have more improved logistics than others. The World Bank’s LPI metric is a unique benchmarking tool that provides a reliable comparison of global advances in logistics based on time, cost, and punctuality. The World Bank’s LPI database provides both domestic and international metrics.
The international LPI (hereinafter LPI unless otherwise specified) reflects a country’s logistics performance based on the efficiency of the customs procedures, quality of infrastructure and logistics services, ease of arranging shipments which are competitively priced, capability to track and trace consignments, and punctuality of shipments. The LPI comes from a survey pool of logistics professionals who evaluate and score logistics services in the foreign countries in which they operate. The LPI ranges from 1 (the lowest logistics performance) to 5 (the highest logistics performance) (WB WDI, 2020). The list of best performers and the gap between high- and low-income countries in LPI did not change much from the first edition in 2007 to the sixth edition in 2018. High-income countries especially those from the European Union (EU) are among the best performers. Figure 1 exhibits clearly that high-income countries outperform low-income countries in terms of the overall LPI while Figure 2 is illustrating neither exports nor imports are strongly correlated with the LPI in 2018. Thus, a regression analysis is required to explore the causal relationships between LPI and trade performance.

![Figure 1. Per Capita GDP and Overall LPI in The World, 2018 (153 countries)](image-url)
As a composite notion, logistics has wide-range definitions in both academic and professional arenas. Integrating the varied definitions and adopting the LPI approach of the World Bank, we can broadly define logistics as the overall availability of materials, technologies, facilities, services, utilities, information, and transport systems to start and operate a business and manage the production, packaging, storage, distribution, control, and recycling of goods and services both within and between countries. Therefore, logistic performance is an evaluation of these qualifications in terms of quantity, quality, time, efficacy, cost, ease, and reachability. As described by Mangan and Lalwani (2016), logistics and logistics performance capture “getting the right product in the right way in the right quantity and right quality in the right place at the right time for the right customer at the right cost” where the attribution ‘right’ may change dynamically over time and between countries.

3. Literature Directions: An Overview

Studies in the literature on the logistics-trade performance nexus have used different analytical approaches and provided strong cross-country evidence that the availability and quality of logistics services facilitate both exports and imports. This well-evidenced bidirectional link practically indicates that low-quality logistics services hinder trade performance by impeding the efficient use of both time and money. Empirical studies in the relevant literature can be distinguished...
between those adopting a cross-country approach and those with a country-specific approach while the number of studies in the latter group is relatively much lower due to the unavailability of long-period logistics data of individual countries. Given the well-documented logistics contribution in trade facilitation, some studies distinguish between the impacts of specific improvements in logistics performance. A study of Hausman et al. (2013) indicated that the relative importance of time-saving and cost-cutting effects as well as availability, reliability, and complexity characteristics of logistics performance depended on the bilateral trade conditions. Their findings imply that such trade conditions as the distance between trade partners and changeable cross-border duties alter transportation costs and thus affect bilateral trade performance. The previous studies have shown that such country characteristics as the development phase, income level, location, and membership of international organizations matter for trade facilitation effects of logistics. Consistently, cross-country studies can be reorganized into two groups as those classifying countries by income and/or development levels (e.g. Korinek and Sourdin, 2011; Gani, 2017; Çelebi (2019)) and those considering the membership of regional economic integration and/or international organizations (e.g. Felipe and Kumar, 2012; Puertas et al., 2014; Lai et al., 2019).

Korinek and Sourdin (2011) analyzed the impact of trade logistics in low-, middle-, and high-income countries using several indicators obtained from the World Bank’s LPI and Doing Business metrics as well as the infrastructure component of the World Economic Forum’s Global Competitiveness Index. Their results from the estimations of gravity models revealed that higher-quality trade logistics significantly enhanced trade, particularly exports, for all countries. They highlight that developing and least developed countries may get more benefits from increased trade flows promoted through logistics investments. Gani (2017) estimated export and import equations in conjunction with logistics performance using logistics data from a sample of 60 countries including both developed and developing countries with different income levels and found trade, more significantly exports, associated positively with logistics performance. Adopting an income-level approach, Çelebi (2019) found that low-income and lower-middle-income countries got relatively more benefits from the improvement of their logistics services since logistics quality increased their exports more than their imports whereas better logistics performance tended to arise imports more than exports in the upper-middle-income and high-income countries.
Within the regional aspect, in the case of Central Asian countries, Felipe and Kumar (2012) estimated a gravity model and found that trade facilitation which they assessed based on the LPI and its dimensions, tended to increase trade gains. Their findings showed that the highest contribution to total trade came from the improvement in infrastructure, followed by logistics and efficiency of the customs and other border agencies. Marti et al. (2014) used a gravity model to examine the effects of procedures, costs, and infrastructure aspects of the LPI on trade experience in emerging economies grouped regionally. Their findings confirmed that improvements in all aspects stimulated trade flows of countries especially in Africa, South America, and Eastern Europe. Luttermann et al. (2020) found a significant positive relationship between logistics performance and trade as well as foreign direct investment for 20 Asian countries. Regional studies seem to have a specific interest in East Asian countries because of their relatively higher performance in both logistics and trade compared to other developing regions. A recent study of Lai et al. (2019) found that advancement in transport logistics stimulated both regional and global trade for the Association of Southeast Asian Nations (ASEAN) countries. The EU region is an example of regional economic integration linked with advanced logistics networks. Gravity model estimations of Puertas et al. (2014) revealed that LPI components were important for especially exporting EU countries.

As previously stated, a better performance in local logistics improves international competitiveness. On the other hand, upgrading different drivers of competitiveness such as infrastructure, technology, and education may also support logistics performance. Kabak et al. (2019) analyzed this mutual interaction between the competitiveness and logistics performance adopting a mixed methodology on a dataset from the LPI and the World Economic Forum’s global competitiveness pillars. Their results support the two-way interaction that global competitiveness pillars particularly business sophistication, financial market development, infrastructure, and good market efficiency as well as higher education and training considerably improve the logistics performance which also tends to strengthen the competitiveness especially the market size pillar. Besides, several studies point out some possible weaknesses in the LPI methodology based on its unlikeliness to capture all complex system of logistics (Rezaei et al., 2018) and the possible subjectivity of the global LPI surveys which may embody personal judgments and produce biased assessments (Beysenbaev and Dus, 2020). Relying on the LPI metric which reflects the overall logistics performance of countries, we estimate export
and import functions with a specific focus on the influences of logistic performance using a short panel dataset of a large sample of countries. The study differs from previous research by adopting a trade-balance approach.

4. Empirical Framework

4.1. Variables and Data

Our trade performance indicators, i.e. dependent variables, are total exports and imports of goods and services. Both indicators are expressed as a percentage of Gross Domestic Product (GDP). The logistics performance indicator is represented by the Overall International Logistics Performance Index (OLPI). The World Bank’s LPI database (WB WDI, 2020) provides OLPI together with its six components: i) “ability to track and trace consignments (LPI-TRACK)”, ii) “competence and quality of logistics services (LPI-LOGS)”, iii) “ease of arranging competitively priced shipments (LPI-SHIP)”, iv) “efficiency of customs clearance process (LPI-CUST)”, v) “frequency with which shipments reach consignee within scheduled or expected time (LPI-TIME)”, and vi) “quality of trade and transport-related infrastructure (LPI-INFR)”. These indices reflect logistics professionals’ perception of the logistics aspects on a rating ranging from 1 (lowest) to 5 (highest) on the surveys conducted by the World Bank in partnership with academic and international institutions and private companies and individuals engaged in international logistics. Scores are averaged across all respondents. Some studies include each of the OLPI and its dimensions separately. However, in our case, as pairwise correlations in Table 1 show, the OLPI can be somewhat used interchangeably with its sub-dimensions since they are highly correlated. Therefore, we represent the logistics performance by the OLPI. By doing so, we also hindered serious multicollinearity problem which would produce unstable regression results.
Table 1. Correlations among World Bank’s LPI Metrics (133 countries, 2007-2018)

<table>
<thead>
<tr>
<th></th>
<th>OLPI</th>
<th>LPI-TRACK</th>
<th>LPI-LOGS</th>
<th>LPI-SHIP</th>
<th>LPI-CUST</th>
<th>LPI-TIME</th>
<th>LPI-INFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLPI</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPI-TRACK</td>
<td>0.97</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPI-LOGS</td>
<td>0.98</td>
<td>0.94</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPI-SHIP</td>
<td>0.94</td>
<td>0.88</td>
<td>0.90</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPI-CUST</td>
<td>0.96</td>
<td>0.90</td>
<td>0.93</td>
<td>0.90</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPI-TIME</td>
<td>0.94</td>
<td>0.90</td>
<td>0.89</td>
<td>0.85</td>
<td>0.86</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LPI-INFR</td>
<td>0.97</td>
<td>0.92</td>
<td>0.95</td>
<td>0.88</td>
<td>0.95</td>
<td>0.88</td>
<td>1</td>
</tr>
</tbody>
</table>

Variables are described in Table 2. The Real Effective Exchange Rate (REER) dataset is obtained from UNCTAD (2020) while the others are computed from the World Bank’s World Development Indicators (WB WDI, 2020).

Table 2. Variables, Descriptions, and Measurements

<table>
<thead>
<tr>
<th></th>
<th>Dependent variables</th>
<th>Explanatory variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export</td>
<td>Exports of goods and services (% of GDP).</td>
<td>REER Real effective exchange rate index (GDP deflator based), (2005=100). One-year lagged.</td>
</tr>
<tr>
<td>Import</td>
<td>Imports of goods and services (% of GDP).</td>
<td>DInc Domestic income. Annual growth of GDP per capita (%). For import functions only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FInc Foreign income. The OECD (except relevant member country) average of annual growth of GDP per capita (%). For export functions only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FDIInf Foreign Direct Investment (FDI). Net inflows (% of GDP).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OLPI Overall International Logistics Performance Index.</td>
</tr>
</tbody>
</table>

The study uses a time-discrete annual panel dataset of 133 countries distinguished between TSCs and TDCs. Timespan is necessarily restricted by the limited availability of LPI metrics which are currently available for six years (2007, 2010, 2012, 2014, 2016, 2018). Country classification is based on these six years’ average trade deficits (export-import). Because of several years with missing data for some countries’ OLPI series, the dataset is arranged as slightly unbalanced. Countries with more than one missing data point are excluded from the sample.
Several descriptive statistics reported in Table 3 show that TSCs, on average, have higher OLPI than TDCs. Both TSCs and TDCs have similar import share in their GDP implying that TDCs have trade deficits due to relatively lower exports rather than higher imports compared to TSCs.

<table>
<thead>
<tr>
<th>Table 3. Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export</td>
</tr>
<tr>
<td>Trade surplus countries-TSCs (53 countries, N: 310)</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Max.</td>
</tr>
<tr>
<td>Min.</td>
</tr>
<tr>
<td>Std. dev.</td>
</tr>
<tr>
<td>Trade deficit countries-TDCs (80 countries, N: 461)</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Max.</td>
</tr>
<tr>
<td>Min.</td>
</tr>
<tr>
<td>Std. dev.</td>
</tr>
</tbody>
</table>

Note: Descriptive statistics are represented on the common-sample basis for a better comparison.

Additionally, the bilateral correlations in Table 4 show that although import and export are strongly correlated in both country groups, the correlation is much higher in TSCs. It can be seen from Table 4 that both exports and imports are not correlated considerably with their presumed predictors.

| Table 4. Pairwise Correlations between Import, Export and Their Predictors |
|-----------------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|
| Variables | All sample (N:771) | TSCs (N:310) | TDCs (N:461) | All sample (N:771) | TSCs (N:310) | TDCs (N:461) |
| Correlations between Export and other variables | Correlations between Import and other variables |
| Import | 0.83 | 0.96 | 0.71 | Export | 0.83 | 0.96 | 0.71 |
| REER | -0.15 | -0.19 | -0.09 | REER | -0.10 | -0.21 | 0.03 |
| DInc | 0.06 | 0.04 | 0.17 | DInc | 0.03 | 0.00 | 0.13 |
| FInc | -0.02 | -0.02 | -0.03 | FInc | -0.02 | -0.03 | -0.02 |
| FDIInf | 0.22 | 0.42 | 0.18 | FDIInf | 0.27 | 0.44 | 0.19 |
| OLPI | 0.37 | 0.31 | 0.11 | OLPI | 0.13 | 0.34 | -0.22 |
4.2. Model and Method

In the empirical part, we estimate export and import functions using panel regression models in Equation 1 and Equation 2, respectively. These functions build on the approaches of Goldstein and Khan (1978) and Rose (1990) as well as their derived specifications within the theoretical development of the Marshall-Lerner condition which we extended by including net FDI inflows and OLPI. Moreover, for controlling the presence of the J-curve adjustment pattern introduced by Magee (1973) we include the REER series as one-year lagged \((t-1)\).

\[
\log(Export)_{c,t} = \alpha_0 + \alpha_1 \log(REER)_{c,t-1} + \alpha_2 \log(DInc)_{c,t} + \alpha_3 FDIInf_{c,t} + \alpha_4 \log(OLPI)_{c,t} + e_{c,t} \tag{1}
\]

\[
\log(Import)_{c,t} = \beta_0 + \beta_1 \log(REER)_{c,t-1} + \beta_2 DInc_{c,t} + \beta_3 FDIInf_{c,t} + \beta_4 \log(OLPI)_{c,t} + u_{c,t} \tag{2}
\]

where all variables are as previously explained in Table 2. In these linear equations, \(c (c=1,\ldots,133=C)\) and \(t (t=2007, 2010, 2012, 2014, 2016, 2018=T=6)\) are the cross-section units (countries) and temporal units (years), while \(\alpha_0\) and \(\beta_0\) are country-specific constant effects of regressions. The composite random errors, \(e\) and \(u\), contain both cross-section and time influences of all other factors excluded in the models. Finally, \(\alpha_1,\ldots,\alpha_4\) and \(\beta_1,\ldots,\beta_4\) parameters are the coefficients we respectively estimate for all sample (global panel), TSCs, and TDCs. Since the numbers of cross-section units of all panels are larger than those of temporal units, the study has a short panel structure. Variables except domestic income \((DInc)\) and net FDI inflows \((FDIInf)\) are in the logarithmic form \((\log)\) which enables us to interpret estimated coefficients as elasticities. Within a panel data framework, linear regressions can be estimated through the fixed effects and random effects models. Both models can be either one-way (cross-section effects or time effects) or two-way (cross-section effects and time effects). Based on the statistics of the F-test, Lagrange multiplier tests, and Hausman test, we found that one-way (cross-section) fixed effects models were fitting the data characteristics of all panel clusters better than alternative model specifications. Consequently, we estimated panel regression models of export and import functions using the country-weighed generalized least squares estimators which tolerate possible heteroskedastic and correlated errors to some degree.

4.3. Empirical Results

In Table 5, the regression results\(^4\) show that both exports and imports are positively associated with OLPI for all panel groups while the estimated OLPI elas-

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\(^4\) Data and unreported results are available from the authors upon request.
ticity of export is statistically insignificant (p>0.10) in TSCs. Increasing logistics performance raises imports more than exports in all country groups while the difference in export (0.13) and import (0.14) elasticities is not much for TDCs. Some additional findings tend to contradict the theoretical expectations: An increase in REER reduces exports more than imports for all groups. The import-reducing impact of REER is the lowest and statistically insignificant for TDCs. Furthermore, foreign income is negatively associated with exports for all panels whereas domestic income tends to increase imports significantly for only TDCs. Even their impacts are inconsiderably slight in magnitude, net FDI inflows seem to prevent the improvement of export performance in the global panel while they reduce imports in the global panel and TSCs.

Table 5. Regression Results of Estimated Export and Import Functions

<table>
<thead>
<tr>
<th>Parameters, Variables</th>
<th>Global panel (N:771)</th>
<th>TSCs (N:310)</th>
<th>TDCs (N:461)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated coefficients (α) of export function (logExport)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>α₀: Constant</td>
<td>5.25 <a href="0.00">0.16</a>***</td>
<td>5.79 <a href="0.00">0.30</a>***</td>
<td>5.06 <a href="0.00">0.23</a>***</td>
</tr>
<tr>
<td>α₁: log(REER) t-1</td>
<td>-0.39 <a href="0.00">0.03</a>***</td>
<td>-0.43<a href="0.00">0.06</a>***</td>
<td>-0.39 <a href="0.00">0.05</a>***</td>
</tr>
<tr>
<td>α₂: log(FInc)</td>
<td>-0.04 <a href="0.00">0.01</a>***</td>
<td>-0.03<a href="0.00">0.01</a>***</td>
<td>-0.05 <a href="0.00">0.01</a>***</td>
</tr>
<tr>
<td>α₃: FDIInf</td>
<td>-0.00 <a href="0.03">0.00</a>**</td>
<td>-0.00 <a href="0.24">0.00</a></td>
<td>-0.00 <a href="0.35">0.00</a></td>
</tr>
<tr>
<td>α₄: log(OLPI)</td>
<td>0.15 <a href="0.01">0.06</a>***</td>
<td>0.10 <a href="0.38">0.11</a></td>
<td>0.13 <a href="0.08">0.08</a>*</td>
</tr>
<tr>
<td>Weighted statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²; Adj. R²</td>
<td>0.99; 0.98</td>
<td>0.98; 0.98</td>
<td>0.96; 0.96</td>
</tr>
<tr>
<td>F-st.</td>
<td>369.14 (0.00)***</td>
<td>262.91 (0.00)***</td>
<td>120.36 (0.00)***</td>
</tr>
<tr>
<td>Durbin-Watson st.</td>
<td>1.43</td>
<td>1.42</td>
<td>1.38</td>
</tr>
</tbody>
</table>

| Estimated coefficients (β) of import function (logImport) | | | |
| β₀: Constant | 4.54 [0.15](0.00)*** | 4.73 [0.28](0.00)*** | 3.65 [0.17](0.00)*** |
| β₁: log(REER) t-1 | -0.17 [0.03](0.00)*** | -0.28 [0.06](0.00)*** | -0.03 [0.03](0.41) |
| β₂: DInc | 0.00 [0.00](0.13) | -0.00 [0.00](0.25) | 0.01 [0.00](0.00)*** |
| β₃: FDIInf | -0.00 [0.00](0.05)** | -0.00 [0.00](0.03)** | 0.00 [0.00](0.93) |
| β₄: log(OLPI) | 0.20 [0.05](0.00)*** | 0.29 [0.08](0.00)*** | 0.14 [0.06](0.02)** |
| Weighted statistics | | | |
| R²; Adj. R² | 0.99; 0.98 | 0.99; 0.99 | 0.98; 0.98 |
| F-st. | 343.10 (0.00)*** | 378.53 (0.00)*** | 248.02 (0.00)*** |
| Durbin-Watson st. | 1.79 | 1.72 | 1.74 |

Note: ***, ** and * indicate statistical significance at .01, .05, and .10 levels, respectively. Standard errors are in [brackets] and probabilities are in (parentheses).
5. Conclusion

Using a short panel dataset of 133 countries classified into TSCs and TDCs by trade balance, this chapter estimated export and import functions with a specific interest in the effects of logistics performance on trade performance. Our findings revealed that logistics performance proxied by the OLPI was coherently leading to increases in both exports and imports of all countries regardless they have a trade deficit or trade surplus. For countries that have been facing a persistent trade deficit, investing in logistics is an efficient way to facilitate export but only a part of the solution to ease trade deficit and needs to be accompanied by other policy initiatives to stimulate export side of trade rather than just mitigating imports. Our study ambiguously showed that the adjustment patterns of the exchange rate, domestic income, and foreign income predicted by conventional wisdom were invalid, even controversial, in our case. Based on the estimated impacts of net FDI inflows, we can infer that recent multinational activities are mostly motivated by market size while their effects are inconclusive for TDCs. Therefore, especially TDCs need to promote productivity in export sectors to increase both exports and domestic value-added share. Furthermore, TDCs should promote the local production of imported goods and services as well as imported intermediates and capital goods to diminish import dependency and import penetration. This import-substitution may help in curbing trade deficit through increases in both the volumes and values of exports.

This empirical study provides new evidence from a recent dataset and contributes to the relevant body of literature on the logistics and trade performance nexus through its large sample and country classification based on the trade balance. Given the well-evidenced trade facilitation effect as well as productivity, economic growth, competitiveness, and employment contributions of logistics services, some countries especially those with large trade deficits underperform in logistics quality. Therefore, future empirical studies may explore the drivers and barriers of logistics performance with a specific reference to the logistic performance elasticity of exports in TDCs.
References


LOGISTICS-TRADE PERFORMANCE NEXUS: EVIDENCE FROM A LARGE SAMPLE OF COUNTRIES
Özge DEMİRAL, Mehmet DEMİRAL


8

ESTIMATION OF RELATIONSHIP BETWEEN INFLATION, FOREIGN EXCHANGE RATES AND OIL PRICES IN TURKEY

Bige Küçükefe1

1. Introduction

The mechanism through which foreign exchange rates and energy prices effect consumer price inflation (CPI) is well understood. Changes in cost of imported goods in terms of local currency due to exchange rate fluctuations or energy prices results in direct impact on CPI in an open economy. Price stability in many developing countries after 2000 is owed to implementation of exchange rate stabilization regimes in various forms (currency peg, currency board etc.) (Fetai et al, 2016). US dollar and Euro are the main trading currencies for international trade. Thus, any significant depreciation of local currency in developing countries against the major trading currencies results in higher inflation. Exchange rate has the effect of a change in local currency import prices due to a change in exchange rate between importing and exporting countries and thereby resulting effect (positive or negative) on inflation (Golberg and Knetter, 1997). Working on a panel data of 71 countries, Choudri and Hakura (2001) found a pass-through effect from exchange rates to prices.

As the main source of energy input for many products and industries, oil price is one of the important factors determining consumer prices. Turkey is an oil importer country with current account deficit (Kucukefe, 2019). Hence, understanding the relationship between CPI, foreign exchange rates and oil prices is crucial by policymakers. In this paper, I aim to develop a vector error correction model to estimate the relationship between these time series.

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In his seminal paper, Sims (1980) proposed the use of vector autoregressions (VARs) for macroeconomic studies and policy decisions. VAR models remain to be useful for many purposes ranging from forecasting to evaluating economic models (Christiano, 2012). VAR models require all the variables to be I(0) (stationary). However, many macroeconomic time series move together and are non-stationary due to market forces of demand and supply (Brooks, 2004) and differentiating them to obtain stationary data may not be desired for analysis purposes such as preserving the stochastic trend. Implausible relationships between variables may be discovered as evidenced by Yule (1926) concerning the “proportion of England marriages to all marriages and the mortality rate over the period 1866-1911” (Ventosa-Santautaria, 2009) when all the regressors are I(1) and not cointegrated. This phenomenon is called “Spurious Regression” and may lead to unusual statistical results.

Cointegration refers to long term relation between time series variables. Nonstationary time series are cointegrated if a linear combination of them is stationary (i.e. I(0)). Engler and Granger (1987) extended the relationships between cointegration and error correction models suggested by Granger (1981) and developed estimation procedures for co-movement of time series variables. The concept of cointegration is used to specify more realistic economic models and to better understand the long run relationships between macroeconomic and financial variables. The existence of cointegration among nonstationary time series variables is a precondition for estimating Vector Error Correction Models (VECM) (Damba et. al. 2019).

The existing literature on cointegration is rich. Incekara et. al. (2015) tested validity of Fisher Hypotesis (Fisher, 1930) by investigating long term link (cointegration) between nominal interest rates and inflation rates in Turkey and found that these two variables are cointegrated. Similarly, Nortey et al. (2015) reported a long-term relationship between inflation and exchange rates in Ghana by applying a cointegration test. Stern (2000) analyzed the causal relationship between GDP and energy in the USA by testing for cointegration. A panel cointegration and error correction model by Apergis and Payne (2009) indicated that cointegration is present between real GDP, energy consumption, the labor force, and real gross fixed capital formation in six Central American countries over the period 1980-2004.
An empirical study by Abdurehman and Hacilar (2016) assessed the relationship between exchange rate and inflation by using an ordinary least square (OLS) and a simple generalized autoregressive conditional heteroscedasticity model (GARCH) in Turkey. Their result attributed the deviation of power purchasing parity to factors such as transaction cost, government restriction and product specialization. Turhan et. al. (2014) investigated the role of oil prices in explaining the dynamics of selected emerging countries’ exchange rates between 2003 and 2010. The authors divided the time series data into three subsamples and obtained the corresponding impulse response functions. Their finding suggested an increasing relationship between oil prices and exchange rates after 2008 financial crisis. Similarly, Zivkov (2019) used a wavelet-based Markov switching approach to investigate how oil price changes affect CPI in Central and Eastern European countries and found a low transmission mechanism from oil prices to CPI except for the countries with more dependence on oil imports.

This paper aims to contribute the literature on the relationship between CPI, exchange rates and oil prices in Turkey by cointegration and VECM approaches for which there exists a research gap to the best knowledge of the author. The rest of the paper is organized as follows. Section 2 describes data and methodology. The results are presented and discussed in Section 3. The last section concludes.

2. DATA AND METHODOLOGY

2.1. Data

The dataset for this study covers monthly data from January 2005 to June 2020. The data for Turkish CPI and USD/TRY exchange rate data (monthly average) was obtained from the Central Bank of the Republic of Turkey (TCMB). Oil price data (West Texas Intermediate) was drawn from Federal Reserve Bank of St. Louis. Oil prices are converted to Turkish Lira (TRY) by using the USD/TRY exchange rate for the respective month. Consumer price index is calculated from monthly CPI data (Jan 2005=100). All variables in the dataset are normalized to their respective June 2005 levels so that starting value is 1.0 for all series.
2.2. Cointegration

By definition, the variables in a \( N \) dimensional process \( y_t \) are called \textit{cointegrated of order} \((d,b)\) if all components of \( y_t \) are \( I(d) \) and there exists a linear combination \( z_t := \beta' y_t \) such that \( z_t \) is \( I(d-b) \). For example, if all components of \( y_t \) are \( I(1) \) and \( z_t \) is \( I(0) \) (stationary), then \( y_t \) is cointegrated of order \((1,1)\), briefly, \( y_t \) - \text{CI}(1,1). The vector \( \beta \) is called a \textit{cointegration vector} (Lütkepohl, 2005).

A cointegration model variables may have a long-run relationship if there is a common stochastic trend among the variables. The existence of a such relationship is referred to as \textit{equilibrium}. Over time, the variables in the model return towards the equilibrium path even though they move away periodically.

2.3. Vector Error Correction Model

The deviation of a cointegrated variable from its equilibrium path may be modelled by using an error correction representation. Cointegrated multivariate time series have an error correction (VEC) representation and vice versa (Engle and Granger, 1987). If there is a cointegration relationship among variables, either a vector error correction model or autoregressive distributed lag (ARDL) model
(Zou, 2018) can be derived. ARDL has limitations with small sample data. A VEC model can be considered as a VAR model with cointegration constraints.

Assuming $y_i$ is N-dimensional stochastic time series and $y_{it} - I(1)$, $i = 1, 2, \ldots, N$; a VAR model with $p$ lags can be written as (ignoring trend component):

$$y_t = \mu + A_1 y_{t-1} + A_2 y_{t-2} + \ldots + A_p y_{t-p} + \varepsilon_t$$ (1)

where $\mu$ is a constant vector and $\varepsilon_t$ is the error term (iid). For (1), there always exist an error correction representation of the form:

$$\Delta y_t = a_0 + \Pi y_{t-1} + \sum_{i=1}^{k} \Gamma_i \Delta y_{t-i} + \varepsilon_t$$ (2)

where $\Delta$ is the difference operator, $a_0$ is a constant vector, $\Pi$ is the long run matrix, and $\Gamma$ is the vector of parameters representing the short-term relationships (Brooks, 2014). The cointegrating vectors $\alpha$ (speed adjustment towards long-run equilibrium) and $\beta$ (long-run parameter) are determined from $\Pi$ by decomposition ($\Pi = \alpha \beta$; where $r$: number of cointegrated relations). Restriction may be introduced on $\beta$ and $\alpha$ if required by model.

2.4. Johansen Cointegration Test

Engle-Granger and Johansen approaches are widely used for cointegration testing (Bilgili, 1998). Two-step procedure of the Engle-Granger approach involves checking the integration of order of both variables and estimating the long-run relationship between with the regression. If the estimation residuals are stationary, then the conclusion is made that the variables are cointegrated. On the other hand, the Engle-Granger procedure is not able to identify multiple cointegrating vectors besides other limitations such uncertainty of results under certain conditions and complications with two step procedure.

In a multivariate setting, cointegration testing amounts to determining the rank of $\Pi$ in (2) for which Johansen (1988) established a novel method in a maximum likelihood framework. The method suggests ordering the eigenvalues in ascending order ($\lambda_1 > \lambda_2 > \ldots > \lambda_r$) and testing the null hypothesis that there are at most $r$ cointegrating vectors.
3. RESULTS

3.1. Unit Root Tests

The Augmented Dickey-Fuller (ADF) test was applied to each series at levels and the first differences to check whether they have a unit root or are stationary. Testing included three different model types: (a) no constant and no trend, (b) constant, (c) trend. Table 1 presents the results which revealed USD/TRY and CPI are nonstationary in levels but stationary at first differences for all model types. Oil Price TRY series was stationary at first difference and non-stationary at level without constant and trend model type. In order to test the “stationary” finding for “Oil price TRY” at constant and trend model types, separate ADF test was performed by an alternative R library (tsseries) and the “Oil price TRY” series was found to be nonstationary (p-value=0.3579, lag order=5).

Table 1. Unit root test results for USD/TRY exchange rate, consumer price index, and TRY oil prices (Normalized values, January 2005 = 1)

<table>
<thead>
<tr>
<th></th>
<th>ADF test in Levels</th>
<th>ADF test in First Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>Constant</td>
</tr>
<tr>
<td>USD/TRY</td>
<td>2.7313</td>
<td>1.5662</td>
</tr>
<tr>
<td>CPI</td>
<td>6.7512</td>
<td>4.2814</td>
</tr>
<tr>
<td>Oil Price TRY</td>
<td>-0.6282</td>
<td>-2.6809*</td>
</tr>
</tbody>
</table>

Note: *, **, *** denote 10%, 5%, and 1% critical values respectively

3.2 VAR Model Lag Selection

Correctly selecting the lag order of a VAR model is required before performing Johansen cointegration test which is sensitive to lag selection. Table 2 shows the results of lag selection by the Akaike Information Criterion (AIC), Hannan-Quinn Information Criterion (HQ), Schwarz Bayesian Criterion (SBC), and Final Prediction Error (FPE). A lag length of 9 was selected from AIC and FPE criterion. Other criterions HQ and SBC suggested lag lengths of 4 and 3, respectively.
Table 2. Lag selection criteria for Johansen cointegration test

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>HQ</th>
<th>SBC</th>
<th>FPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-14.7729</td>
<td>-14.5519</td>
<td>-14.2282*</td>
<td>3.84E-07</td>
</tr>
<tr>
<td>5</td>
<td>-14.9148</td>
<td>-14.5613</td>
<td>-14.0434</td>
<td>3.34E-07</td>
</tr>
<tr>
<td>9</td>
<td>-15.0712*</td>
<td>-14.4525</td>
<td>-13.5461</td>
<td>2.87E-07*</td>
</tr>
<tr>
<td>11</td>
<td>-15.0335</td>
<td>-14.2822</td>
<td>-13.1816</td>
<td>3.00E-07</td>
</tr>
<tr>
<td>12</td>
<td>-14.9959</td>
<td>-14.1784</td>
<td>-12.9807</td>
<td>3.13E-07</td>
</tr>
</tbody>
</table>

* indicates the lag order selected by criterion. AIC: Akaike Information Criterion, SBC: Schwarz Bayesian Criterion, FPE: Final Prediction Error, HQ: Hannan-Quinn Information Criterion

3.3. Cointegration Test

I used ‘urca’ package in R software to perform Johansen cointegration test on the time series. Results of the Johansen test revealed the presence of one cointegrating equation in the long run at 1% significance level as shown in Table 3.

Johansen test has two variations which differ in terms of the alternative hypothesis. The maximum eigenvalue test examines whether the largest eigenvalue is zero relative to the alternative that the next largest eigenvalue is zero. Contrary to its name, Trace test is not based on the trace of Π matrix in (2). It tests whether the rank of Π is r for which the null hypothesis (Ho) is rank(Π) = r. For both variations of Johansen test with ‘long run’ option, the null hypothesis of r=0 was rejected at 1% significance level.

Table 3. Johansen cointegration test results for USD/TRY exchange rate, consumer price index, and TRY oil prices (Normalized values, January 2005 = 1)
ESTIMATION OF RELATIONSHIP BETWEEN INFLATION, FOREIGN EXCHANGE RATES AND OIL PRICES IN TURKEY

Bige Küçükefe

<table>
<thead>
<tr>
<th>Ho: Rank (r)</th>
<th>Eigenvalue</th>
<th>Trace Test</th>
<th>Maximum Eigen Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Statistic</td>
<td>Critical Values</td>
</tr>
<tr>
<td>r = 0</td>
<td>0.21943268</td>
<td>54.72***</td>
<td>28.71 31.52 37.22</td>
</tr>
<tr>
<td>r &lt;=1</td>
<td>0.04400274</td>
<td>10.87</td>
<td>15.66 17.95 23.52</td>
</tr>
<tr>
<td>r &lt;=2</td>
<td>0.01628320</td>
<td>2.91</td>
<td>6.5 8.18 11.65</td>
</tr>
</tbody>
</table>

*** denotes rejection of null hypothesis at 1% significance level.

### 3.4. VEC Model Estimation

Since the time series variables are found to be cointegrated by Johansen test, unrestricted VEC model can be estimated by using the output model of Johansen test with cointegration rank (r=1). From the OLS regression, cointegrating vector (β) and adjustment parameters (α) of the VECM were determined and are provided in Table 4.

Adjustment parameters α₁ (USD/TRY) and α₂ (Oil Price) are not statistically significant but α₂ (CPI) is significant at less than 0.001 level. Adjustment parameters determine the speed of return to long run equilibrium and estimated values satisfy the condition for long run stable relationship.

Table 4. Vector error correction estimates

<table>
<thead>
<tr>
<th>Cointegrating vector (β)</th>
<th>Adjustment Coefficients (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/TRY</td>
<td>CPI</td>
</tr>
<tr>
<td>1</td>
<td>-0.5989304</td>
</tr>
</tbody>
</table>

*** denotes less than 0.001 significance level.

Impulse response functions (IRF) were estimated by converting the VEC model to VAR as shown in Fig.1. The relation between variables is evident from the figures. CPI responds to USD/TRY shocks sharply within 3 periods. On the other hand the response is gradual for oil price shocks. Oil price TRY follows USD/TRY changes closely. Figure 1a and 1b depict the long-term relation between time series variables in accordance with findings from the cointegration test.
4. Conclusion

Many economic and financial time series are nonstationary and require transformation to make them stationary before feeding into VAR models. On the other hand, Vector error correction models (VECM) can use nonstationary time series if they are cointegrated (i.e. long-term relation). By using Johansen cointegration test on USD/TRY exchange rate, oil prices in TRY and consumer price index time series in Turkey covering 2005-2020 (nonstationary at level), I found that these variables are cointegrated with one stochastic process. Different from Engler-Granger approach, Johansen test can identify multiple stochastic processes underlying time series data. Hence, finding one cointegrating vector in this study reveals that there exists one stochastic process amongst USD/TRY, Oil price TRY, and consumer price index in Turkey.

The main contribution of this paper is to include three variables (USD/TRY, Oil price TRY, and CPI) instead of two variables (USD/TRY & CPI or Oil price & CPI) in a cointegration model for the purpose of estimating their relationship. I also identified one stochastic process among them. IRFs from VECM confirm the long-term relationship between the variables in accordance with the finding from Johansen cointegration test.

CPI responds sharply to USD/TRY shocks within 3 periods. However the response is gradual for oil price shocks. Oil price (TRY) follows USD/TRY changes closely.
ESTIMATION OF RELATIONSHIP BETWEEN INFLATION, FOREIGN EXCHANGE RATES AND OIL PRICES IN TURKEY

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References


REVISITING EXCHANGE RATE DYNAMICS FOR TURKEY

Bilgin BARİ1

Introduction

The exchange rate is a key variable that always keeps its importance for the Turkish economy. The subject is so important because it contains information about the economy’s structural characteristics. Exchange rate dynamics in the Turkish economy works like a spiral. The structural problems of the economy cause volatility or increase in exchange rates. These increases cause new macroeconomic problems such as inflation, foreign debt, and balance sheets of private sector. In the context of these structural problems, it is crucial to examine the exchange rate dynamics to develop policy recommendations. This study examines the exchange rate dynamics for the period of floating exchange rate regime in Turkey. November 2000 and February 2001 crises have revealed high costs on the Turkish economy. The economic policy aimed at combating inflation based on a fixed exchange rate collapsed in February 2001, and a floating exchange rate regime was adopted. The rapid rise of the suppressed exchange rate caused destructive effects on the economy. The four leading macroeconomic indicators in Figure 1 show how the exchange rate’s pressure has increased, and the economic ground that will create a currency crisis is formed.

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REVISITING EXCHANGE RATE DYNAMICS FOR TURKEY

Bilgin BARİ

Figure 1. Macroeconomic Indicators (1998-2003)

Source: EDDS, CBRT
Note: CAD/GDP: Current Account Deficit / Gross Domestic Product
M2 / INTRES: Broad Defined Money Supply / International Reserves
REER: Real Effective Exchange Rate
USD / TL: US Dollar / TL

Since 1999, when a new economic program was implemented to decrease inflation, TL started to appreciate and became overvalued in 2000. The overvalued TL caused the foreign trade balance to deteriorate through decreasing exports and increasing imports. With the effect of capital outflows, the current account deficit started to increase and reached its highest level in 2000. The CB foreign exchange reserves, which are used to stabilize the exchange rate, started to decrease since 1999, and this decrease accelerated in 2000 and 2001. In the face of speculative attacks, the inability to stop the decline in exchange rates and the decrease in foreign exchange reserves made it necessary to leave the exchange rate fluctuating. After the adoption of floating exchange rate regime, market dynamics enabled the exchange rate to find its equilibrium price, and economic indicators improved.

Due to the lack of a planned transition to the floating exchange rate regime and the realization of this transition after the foreign currency rush, an arduous process was experienced. It was approved to continue the floating exchange rate regime in the new economic program, which was implemented after the crises. In this context, the floating exchange rate regime will continue, exchange rates will
not be intervened in any way, only when there is excessive volatility, interventions will be made to buy or sell. The implementation of the inflation targeting regime with the floating exchange rate regime is one of the critical paradigm changes in economic policy. As stated in the annual monetary and exchange rate policy announcements announced since 2002, under this regime, exchange rates are not a policy tool or target and are determined by the supply and demand conditions in the market. Although there is no exchange rate level to be preserved in the floating exchange rate regime, having a strong foreign exchange reserve position contributes significantly to eliminating the adverse effects of foreign and domestic shocks that the economy may face and increasing confidence in the economy. In the floating exchange rate regime, the CBRT does not intervene in the foreign exchange market unless necessary. When the Central Bank thought that the foreign exchange market’s current volatility would increase, it intervened in volatility (Özatay, 2009). Under the floating exchange rate regime, the Central Bank can implement its monetary policy more flexibly than the fixed and predictable exchange rate regime and respond to the banking system’s Turkish Lira liquidity needs more flexibly and quickly. Also, as long as it is compatible with the inflation target, excessive volatility of money market interest rates can be prevented. Since the Central Bank does not keep a level of exchange to maintain, the foreign exchange reserves level is less important than fixed or predictable exchange rate regimes. Nevertheless, the Central Bank must have a strong foreign exchange reserve to eliminate foreign and domestic shocks’ harmful effects in developing economies such as Turkey (CBRT, 2007). The amount of reserves has an important role both in market interventions and on exchange rate expectations.

Exchange Rate Dynamics

Exchange rate interventions are also crucial for the Central Bank, which carries out an anti-inflationary monetary policy. The reason for this is that the exchange rate in Turkey has a significant impact on inflation. Figure 2 shows the course of the exchange rate and the fluctuations in the exchange rate during this period. Due to the frequent fluctuations in the international markets and the domestic market developments, high-rate fluctuations and rapid and sudden movements were observed in the foreign exchange market. In the upper panel of Figure 2, two different periods in the course of the exchange rate draw attention. We see that the exchange rate moved in a horizontal trend between 2001-2010. Since 2011, an upward trend has emerged. Therefore, it is vital to analyze the second sub-period. In the lower panel of Figure 2, fluctuations in exchange rates are explained using weekly data. The striking point here is that the fluctuations in the exchange
rate are high. Especially in some periods, we can see that sudden increases occur due to the effect of domestic and foreign shocks. However, we could say that the fluctuations experienced in the first period are effective in the horizontal course of the exchange rate, that is, supply-demand dynamics in the market operate in a way that ensures the exchange rate remains stable. In this period, the unfavorable impact on the economy and exchange rate stems from the global financial crisis. Later, with the effect of global liquidity conditions, the volatility decreased while the exchange rate declined. We can say that the second period’s fluctuation has decreased relatively, but the supply-demand process that will lead to the upward trend of the exchange rate has been realized. The sudden and sharp increase experienced in 2018 indicates that the market was rapidly affected by foreign and domestic developments. The magnitude of the rapid capital outflow determines the response of the exchange rate. If such rapid and intensive foreign exchange demand in the foreign exchange market in the short term cannot be met with sufficient supply, the pressure on the exchange rate increases.

Figure 2. Exchange Rate Dynamics

Source: EDDS, CBRT
Figure 3 shows the course of the real effective exchange rate index. The real effective exchange rate is calculated by taking the weighted geometrical average of the ratio of our country’s price level to the price levels of our trade partners. An index value of 100 indicates equality between the local currency and the trade partners’ currencies. An increase of the index above 100 indicates an appreciation in TL, and a decrease below 100 indicates a depreciation in TL.

![Figure 3. Real Effective Exchange Rate (2001-2020)](source: EDDS, CBRT)

It is more useful to examine the real effective exchange rate in two sub-periods. It is seen that TL appreciated in the first period. Since 2011, TL depreciated against other currencies. In the first period (2001-2010), leaving aside the negative impacts of the global crisis, a well-managed economic policy impacted the exchange rate, like other macroeconomic variables in the economy. The effect of global conditions on the exchange rate in this period is also affirmative. Turkish economy achieved a growth rate well above the historical average for the period 2002-2007 as noted in Ozatay (2009). There was a sharp decline in inflation and the real interest rate. Public debt and the budget deficit (as a ratio to GDP) fell below their end-2001 levels. The financial sector deepened and strengthened: The ratio of loans to GDP increased, the ratio of non-performing loans decreased, capital adequacy ratios increased. During the same period, some important institutional changes were made. With these changes, the Central Bank was made independent. Despite all these positive developments, the global crisis has affected...
Turkey’s economy sharply. During the recession that started in the second quarter of 2008, the fall of GDP was more in-depth than the lows observed in three recessions in the 1990-2001 period.

**Facts On Turkish Economy**

The adverse effects of structural problems and uncertainties in the economy on the exchange rate increased after 2010. Ozatay (2015) points out that there are two main interrelated reasons why the Turkish economy is fragile to external shocks. The first is that the savings rate is too low. The low savings rate is not enough to even finance low-level investments (current account deficit is high). As a result, the economy’s need to borrow from abroad increases, and the gap between foreign currency liabilities and assets is gradually widening. Therefore, the Turkish economy is becoming fragile against sudden jumps in the exchange rate. Ozmen (2015) compares Turkey with a group of countries in terms of current account balance-investment ratio and current account balance-savings ratio for the period 2002-2014. Turkey, along with Brazil, South Africa, Greece and Iceland, is in the region of high current account deficit-low savings rate and high current account deficit–low investment rate. Ozmen also compares the financing of the current account deficit with the net international investment position and emphasizes that the net international investment position has negatively increased (deficit). Figure 4 shows the ratio of the current account deficit to gross domestic product and the net international investment position. The difference between total financial assets and total financial liabilities in an international investment position is called a net international investment position. In other words this shows the net difference between Turkey’s receivables from abroad and Turkey’s debts abroad. The resulting net position can be a positive or negative value. An even more negative value of this difference indicates Turkey’s increasing foreign exchange demand and exchange rate risk.
In recent years, Turkey’s financial fragility has been increasing compared to previous years and other emerging market economies. Figure 5 refers that both the ratio of total foreign debt to GDP and short-term foreign debt has increased, and the ratio of both to net central bank foreign exchange reserves has increased. Ozmen (2015) remarks that the loan-to-deposit ratio and non-financial sector debt dollarization increase. He also underlines that the non-financial sector’s risk will eventually turn into the financial sector’s risk, and it will turn into the problem of the public sector.
In the floating exchange rate regime, the size of the central bank’s foreign exchange reserves (foreign exchange supply) is essential, especially in eliminating domestic and foreign shocks’ harmful effects on the exchange rate in developing countries. One of the internationally accepted standards\(^2\) for measuring foreign exchange reserves’ adequacy is comparing reserves with short-term foreign debts. Figure 5 shows that short-term foreign debt increased more after 2011 than the total reserves. As a result, increased risk perception could be followed up with CDS (Credit Default Swap) premiums. CDS are one of the macroeconomic indicators that affect foreign exchange market dynamics. The higher the CDS premium of a country or company, the higher the borrowing cost. CDS premium is determined instantly by supply and demand, just like exchange rates in the market. For this reason, it is considered as the most objective indicator in risk measurement. Figure 6 shows Turkey’s 5-year CDS premium. In the period of April 2010-September 2020, the CDS premium increases by as much as three times. This leads to an increase in demand for foreign currency, along with an increased perception of risk. Gurkaynak et al. (2015) state that domestic factors were very forceful in the TL’s depreciation in the post-2010 period. They examine the political implications and success of policymaking and the exchange rate response to them. The central bank’s reluctance to use interest rates as a policy tool, or its inability to withstand political pressures, primarily affects the exchange rate. The resulting policy uncertainty is also reflected in the CDS premium.

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\(^2\) Internationally accepted standards for measuring the adequacy of foreign exchange reserves (IMF (2001;2005;2011)):
- The ratio of reserves to imports
- The ratio of reserves to short-term foreign debt
- The ratio of the money supply to Central Bank reserves
- The ratio of reserves to 1-year foreign liabilities

---
Capital outflow from the country due to changing portfolio preferences of foreign investors increases the exchange rate demand. Another reason for the exchange rate demand is that domestic residents turn to foreign currency. One significant indicator of this is the share of foreign currency (FX) deposits in total deposits. Figure 7 shows that the rate of foreign currency deposits has increased in recent years, and this share has increased to more than 50%. Although this situation results from the increase in the exchange rate, it also causes an increase in the exchange rate. Figure 7 also indicates increased dollarization.

Empirical Literature

There are many theoretical approaches used to explain the exchange rate movements in the literature. The development of these approaches has shifted from static techniques to dynamic techniques. To analyze a dynamic market, such as the foreign exchange market, the effects of many variables must be taken into account. Although similar structural features in developing economies affect the exchange rate, different factors for each country may also affect the exchange rate. Kaplan and Yapraklı (2014) tested the factors affecting the exchange rate in the fragile 12 Developing Countries (Emerging Markets) using panel data analysis for the period 2000-2012. According to the analysis results, the exchange rate negatively affects variables such as current account deficit / GDP, gross public debt /
GDP, private sector domestic loan debt / GDP, and inflation rate. It has a positive effect on foreign exchange reserve / GDP and foreign debt/export variables. Moreover, they found that the exchange rate was affected by the foreign exchange reserve / GDP ratio.

Recent studies on the determination of the exchange rate in Turkey use different techniques and data sets. Güney (2015) examined the determinants of the nominal exchange rate in the context of monetary exchange rate models, using monthly data for the period of 1990:01-2014:03. Kalman filter method was used in the estimation of the models. While the decrease in the money supply gap and the expected inflation gap positively affect the exchange rate, the nominal exchange rate increases if the income and interest gap increase. Yurdakul (2016) used the variables of stock market index, CPI, industrial production index, M2-money supply, export, import, gold price and interest variables for the period of 2006M06-2015M12. According to the results of Engle-Granger and Johansen cointegration tests, a long-term equilibrium relationship could not be found between these variables and the exchange rate. Akınçi and Yılmaz (2016) pointed a strong relationship between exchange rates and interest rates using the Johansen-Juselius cointegration test from 1980 to 2012. Ekinci et al. (2016) used regression analysis to find a positive relationship between exchange rates and deposit interest rates. Toğrun and Karanfil (2016) proved a long-term relationship between real exchange rates and interest rates using the Johansen cointegration test.

Dincer et al. (2017) examined the factors determining the exchange rate between 1988 and 2016 using the MARS method. According to the results, the increase in the current account deficit causes a depreciation of the TL. They also state that economic growth causes an appreciation of the TL. Kartal et al. (2018) analyzed the factors affecting the USD / TL and Euro / TL parity using the MARS method for the period 2006:1-2017:6. According to the results of the study, the macroeconomic indicators that are important for the forecasting of US dollar rate are money supply, budget deficit, foreign investments, unemployment, domestic debt, imports, inflation, and current account deficit. The most important variables for the euro rate prediction model are money supply, budget deficit, current account deficit, foreign investments, crude oil imports, and exports.

Sit and Karadag (2019) analyzed the factors that determine the exchange rate using the ARDL Bounds test for the period of 2003M01-2018M06. According to
both short and long term coefficients, a positive relationship was found between the exchange rate and current account deficit and foreign trade deficit. A negative relationship was found between the exchange rate and the interest rate and the effect of interest on the exchange rate was negative. In addition, the increase in the general level of prices (inflation) causes an increase in the exchange rate. There is also a positive relationship between the Central Bank's foreign exchange reserves and the exchange rate.

Siklar and Akca (2020) examined the relationship between the exchange rate pressure index and monetary policy for 2002-2018. The increase in the exchange rate pressure index indicates the depreciation of the TL. According to the results, domestic credit expansion causes an increase in the exchange rate pressure index. There is a bi-directional relationship between the exchange rate and interest rate. Besides, the increase in interest rates causes the exchange rate pressure index to decrease.

**Data And Methodology**

This study explains the period when the exchange rate showed an upward trend (2011: 01-2020: 06) using monthly data. Table 1 presents the data set used in the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXC</td>
<td>Exchange Rate (US Dollar/TL)</td>
<td>Electronic Data Delivery System</td>
</tr>
<tr>
<td>CAD</td>
<td>Current Account Deficit</td>
<td>Electronic Data Delivery System</td>
</tr>
<tr>
<td>RES</td>
<td>Total Foreign Exchange Reserves of CBRT</td>
<td>Electronic Data Delivery System</td>
</tr>
<tr>
<td>M2</td>
<td>Money Supply</td>
<td>Electronic Data Delivery System</td>
</tr>
<tr>
<td>INT</td>
<td>Short term interest rate (TRLIBOR)</td>
<td>FRED Economic Data</td>
</tr>
<tr>
<td>CDS</td>
<td>Credit Default Swaps</td>
<td>investing.com</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
<td>Turkstat</td>
</tr>
</tbody>
</table>

Many variables are used in logarithms (logs) for forecasting and economic analysis, as stated in Lutkepohl and Xu (2012). For time series analysis, logarithmic transformation is used to stabilize the variance of a series. For that reason, all variables are transformed into logarithmic form. Figure 8 represents the course of the time series for the related period, while Table 2 gives the statistical properties of the series.
ARDL (Autoregressive Distributed Lag) bound test approach developed by Pesaran et al. (2001) could be applied regardless of whether series are I (0) or I (1). For this purpose, the stationarity of the series should be tested. Traditional unit
root tests test the null hypothesis that the time series is I (1). In the KPSS unit root test developed by (Kwiatkowski et al. 1992), the alternative hypothesis tests that there is a unit root in the series and it is not stationary. The purpose of the KPSS (Kwiatkowski-Phillips-Schmidt-Shin) test is to purify the deterministic trend in the observed series and ensure that the series is stationary. The KPSS test suggests that the time series is stationary around a deterministic trend, and the deterministic trend is calculated as the sum of random selection and stationary random errors. Table 3 shows the unit root test results. According to the results, the null hypothesis stating that the series is stationary for all variables is rejected. So the series is not stationary at the level. Thereupon, the same unit root tests were carried out by taking the first differences of the series, and it was determined that the series became stationary after taking the first differences.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level I(0)</th>
<th>First Difference I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNEXC</td>
<td>1.220</td>
<td>0.116</td>
</tr>
<tr>
<td>LNCDS</td>
<td>0.740</td>
<td>0.063</td>
</tr>
<tr>
<td>LNCPI</td>
<td>1.221</td>
<td>0.406</td>
</tr>
<tr>
<td>LNINT</td>
<td>0.770</td>
<td>0.123</td>
</tr>
<tr>
<td>LNM2</td>
<td>1.245</td>
<td>0.345</td>
</tr>
<tr>
<td>LNRES</td>
<td>0.783</td>
<td>0.464</td>
</tr>
<tr>
<td>LNCAD</td>
<td>0.808</td>
<td>0.162</td>
</tr>
<tr>
<td>Critical values</td>
<td>0.739 (%1)</td>
<td>0.739 (%1)</td>
</tr>
<tr>
<td></td>
<td>0.463 (%5)</td>
<td>0.463 (%5)</td>
</tr>
<tr>
<td></td>
<td>0.347 (%10)</td>
<td>0.347 (%10)</td>
</tr>
</tbody>
</table>

It is necessary to determine the appropriate lag length for cointegration analysis. The Schwarz criterion was preferred to determine the appropriate lag length. As seen in Figure 9, ARDL (1,2,1,0,2,0,0) model has the most suitable lag lengths for estimation.
After estimating the ARDL model with the appropriate lag length, a cointegration test was performed. The results of the limit test made according to this model are presented in Table 4. The null hypothesis indicates no cointegration relationship, whereas the alternative hypothesis indicates the cointegration relationship.

![Figure 9. Lag Selection](image)

Table 4. F-Test Results

<table>
<thead>
<tr>
<th>K</th>
<th>F-Statistic</th>
<th>Sign.</th>
<th>Lower bound I(0)</th>
<th>Upper bound I(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6.417998</td>
<td>1%</td>
<td>2.88</td>
<td>3.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5%</td>
<td>2.27</td>
<td>3.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td>1.99</td>
<td>2.94</td>
</tr>
</tbody>
</table>

According to the results in Table 4, the calculated F statistic is at the 1% significance level developed by Pesaran et al. (2001) was higher than the critical values. In this case, the null hypothesis, which states that there is no cointegration relationship, is rejected, and it is concluded that there is a cointegration relationship between the variables. Since there is a cointegration relationship between series, the ARDL model can be used to determine long and short run relationships. Some
diagnostic tests were applied before estimating the long-run model. The high $R^2$ value indicates that the explanatory variables used in explaining the exchange rate changes are quite powerful. LM test results confirm that there are no autocorrelation problems in the residuals. ARCH test results show that residuals have fixed variance. Jarque Bera that the errors show a normal distribution.Ramset RESET results also confirm that the model has been correctly defined.

**Table 5. ARDL Model and Long Term Coefficients**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short-run</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNEXC(-1)</td>
<td>0.849834</td>
<td>0.062618</td>
<td>13.57163</td>
<td>0.0000</td>
</tr>
<tr>
<td>LNCDS</td>
<td>0.038185</td>
<td>0.015970</td>
<td>2.391010</td>
<td>0.0187</td>
</tr>
<tr>
<td>LNCDS(-1)</td>
<td>0.008245</td>
<td>0.019444</td>
<td>0.424035</td>
<td>0.6725</td>
</tr>
<tr>
<td>LNCDS(-2)</td>
<td>-0.050134</td>
<td>0.016157</td>
<td>-3.102996</td>
<td>0.0025</td>
</tr>
<tr>
<td>LNCPI</td>
<td>0.863669</td>
<td>0.233537</td>
<td>3.698202</td>
<td>0.0004</td>
</tr>
<tr>
<td>LNCPI(-1)</td>
<td>-0.922719</td>
<td>0.216737</td>
<td>-4.257317</td>
<td>0.0000</td>
</tr>
<tr>
<td>LNINT</td>
<td>0.037493</td>
<td>0.011608</td>
<td>3.229957</td>
<td>0.0017</td>
</tr>
<tr>
<td>LNM2</td>
<td>0.884338</td>
<td>0.114525</td>
<td>7.739931</td>
<td>0.0000</td>
</tr>
<tr>
<td>LNM2(-1)</td>
<td>-0.350625</td>
<td>0.158456</td>
<td>-2.12758</td>
<td>0.0292</td>
</tr>
<tr>
<td>LNM2(-2)</td>
<td>-0.386631</td>
<td>0.120659</td>
<td>-2.04323</td>
<td>0.0187</td>
</tr>
<tr>
<td>LNRES</td>
<td>0.023854</td>
<td>0.025330</td>
<td>-0.941760</td>
<td>0.3486</td>
</tr>
<tr>
<td>LNCAD</td>
<td>0.013311</td>
<td>0.005871</td>
<td>2.267377</td>
<td>0.0255</td>
</tr>
<tr>
<td>C</td>
<td>-2.506234</td>
<td>0.837342</td>
<td>-2.995256</td>
<td>0.0035</td>
</tr>
<tr>
<td><strong>Long-run</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNCDS</td>
<td>-0.024669</td>
<td>0.082416</td>
<td>-0.299324</td>
<td>0.7653</td>
</tr>
<tr>
<td>LNCPI</td>
<td>-0.393230</td>
<td>0.593672</td>
<td>-0.662369</td>
<td>0.5093</td>
</tr>
<tr>
<td>LNINT</td>
<td>0.249676</td>
<td>0.081783</td>
<td>3.052921</td>
<td>0.0029</td>
</tr>
<tr>
<td>LNM2</td>
<td>0.979460</td>
<td>0.314818</td>
<td>3.111199</td>
<td>0.0024</td>
</tr>
<tr>
<td>LNRES</td>
<td>-0.158854</td>
<td>0.141052</td>
<td>-1.126210</td>
<td>0.2628</td>
</tr>
<tr>
<td>LNCAD</td>
<td>0.088643</td>
<td>0.050300</td>
<td>1.762300</td>
<td>0.0811</td>
</tr>
<tr>
<td>C</td>
<td>-16.68975</td>
<td>3.597188</td>
<td>-4.639666</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

$R^2$: 0.998549

Serial Correlation LM(1): 0.460 (0.498)

Serial Correlation LM(2): 0.233 (0.792)

Heteroscedasticity ARCH (1): 0.189 (0.663)

Heteroscedasticity ARCH (2): 0.414 (0.661)

Normality Jarque-Bera: 2.854 (0.239)

Ramsey RESET: 0.186 (0.663)
Table 5 contains the estimated ARDL model and the long-term coefficients of the variables affecting the exchange rate. CDS, inflation, interest rate, money supply, and current account deficit have positive and significant effects on the exchange rate in the short run. In the long run, interest rates and money supply have a significant effect on the exchange rate. The money supply has a strong positive effect on the exchange rate in the short and long run. Contrary to theoretical expectations, the interest rate’s effect on the exchange rate is positive for the short and long run.

Table 6 presents the estimation results for the error correction model. The error correction coefficient of the model was found to be negative and statistically significant. The short-term coefficients of the model are also significant for all variables. The error correction coefficient was found to be -0.15. This situation shows that if there is a deviation from the long-run equilibrium in the short-run, 15% of the disequilibrium will be eliminated in each period, that is, the system can return to equilibrium after about 3 periods (months).

Table 6. Error Correction Model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LNCDS)</td>
<td>0.038185</td>
<td>0.014099</td>
<td>2.708281</td>
<td>0.0080</td>
</tr>
<tr>
<td>D(LNCDS(-1))</td>
<td>0.050134</td>
<td>0.013899</td>
<td>3.607026</td>
<td>0.0005</td>
</tr>
<tr>
<td>D(LNCPI)</td>
<td>0.863669</td>
<td>0.184181</td>
<td>4.689244</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(LNM2)</td>
<td>0.884338</td>
<td>0.095887</td>
<td>9.222752</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(LNM2(-1))</td>
<td>0.386631</td>
<td>0.106604</td>
<td>3.626784</td>
<td>0.0005</td>
</tr>
<tr>
<td>CointEq(-1)*</td>
<td>-0.150166</td>
<td>0.020253</td>
<td>-7.414470</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

The stability of the short and long term coefficients is measured by CUSUM (cumulative sum) and CUSUMSQ (cumulative sum of squares) tests. The test results are presented in Figure 10. The test statistics remained within the critical limits (significance level at 5%). Therefore, it is concluded that the estimated parameters are stable during the analyzed period.

Figure 10. Stability of the model
Conclusion

The exchange rate is a critical macroeconomic indicator of the Turkish economy. The exchange rate dynamics can be understood by examining the instant supply-demand developments in the foreign exchange market. This market structure varies according to the development level of the economies. At the same time, the structural characteristics of economies themselves also have an impact on the foreign exchange market or exchange rate dynamics. Turkey was forced to move to a floating exchange rate regime in February of 2001 due to intense speculative attacks. We could infer that the floating exchange rate regime has a more effective economic functioning compared to the fixed exchange rate regime. For example, since there is no promised exchange rate level, healthy foreign exchange reserves are not needed to achieve this. Moreover, it is not possible to have such a high foreign exchange reserve in developing countries. However, the economy’s current conditions determine the price of the currency in the floating exchange rate system. Again, for a developing economy, it is necessary to add political conditions as well as economic conditions. The economies’ economic and political situation is priced in the foreign exchange market, and this pricing occurs very quickly and instantly.

When we examine the period of implementation of the floating exchange rate regime in the Turkish economy, we see that two distinct sub-periods appear. There is a horizontal exchange rate level in the first sub-period. The reason behind this is, of course, the market dynamics in this period. Supply-demand developments determine market dynamics. It is a period in which the efficiency of economic policy is high between 2002 and 2010. Therefore, it has benefited from favorable global liquidity conditions. In the post-2011 period, the exchange rate has been increasing steadily. If we look in terms of market dynamics, this is because the demand for foreign exchange is higher than the foreign exchange supply. To explain this simple market mechanics, it is necessary to focus on the economy’s structural features. Insufficient savings and foreign trade deficit cause a high current account deficit. Financing this deficit with short-term capital inflows increases exchange rate risks. Increasing uncertainties increase the demand for foreign currency. It is complicated to intervene with a foreign exchange reserve to meet this demand in the floating exchange rate regime. Having low reserves creates a more disruptive effect.

I examine the exchange rate dynamics in the Turkish economy. First of all, I try to explain the current situation with a narrative approach. Then I analyze the
REVISITING EXCHANGE RATE DYNAMICS FOR TURKEY

Bilgin BARİ

short and long term dynamics using an empirical approach. I base the foreign exchange market dynamics on supply-demand developments, which is a simple and efficient market process. The findings indicate that the money supply has a powerful effect on short and long-term exchange rates. It is seen that increasing TL liquidity also increases the demand for the foreign currency. The most striking result of the analysis is that the relationship between interest rate and exchange rate is the similar in the short and long run. This result emphasizes that the expected effect of the interest rate on the exchange rate is lost. While inflation has a strong effect on the exchange rate in the short run, it does not have an effect in the long run. The increase in CDS, which is used to measure the increased risk, also creates an increasing pressure on the exchange rate in the short term.

A stable exchange rate in the economy is also an indicator of a stable economy. Therefore, the economy’s structural problems must be solved, an effective economic policy must be carried out, and uncertainties must be reduced. The foreign trade deficit should be improved, and the level of savings should be increased in order to reduce the need for foreign currency. An economic policy that will ensure and maintain price stability should be established. A monetary policy that will increase the interest rate’s efficiency, which is a policy tool, should be implemented. Institutions or institutional structure that are effective in reducing uncertainties should be strengthened.

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10
THE FUTURE OF MONETARY UNION IN THE EUROPEAN UNION

Hasan Memiş¹, Hülya Derya²

Introduction

The European Union (EU) emerged with the Treaty of Paris (1952) and the Treaty of Rome (1957) for the re-strengthening of Europe following WWII. The union, which was initially established as an economic union, namely, EEC, has been developed, expanded, and deepened over time, and became political with the Maastricht Treaty in 1992. The Maastricht Treaty, signed in 1992, transferred the power to create money to the European Central Bank (ECB). Thus, as of 2002, Euro banknotes and coins were released into circulation and the Eurozone was established. A common currency in Europe has created the money that member countries cannot create themselves. The ECB ensured a very low inflation rate within the Eurozone by implementing a tight monetary policy since the date it was established. Despite the monetary union, the targeted political unity has not been achieved. The most important reason underlying this involves both the system and the structure of the monetary union. Because national autonomy exists and responsibility is assumed by political finance. Accordingly, the member countries borrow in a currency that they cannot create. On the one hand, the ECB has to purchase government bonds during the debt crisis. On the other hand, the ECB becomes more and more the “lender of last resort” in this regard. This role is not in compliance with its legal basis.

In the study; after concentrated on the establishment of the EU and the reasons for the lack of political integration within the monetary union, the ECB’s decisions on preventing crises and responses to the question of whether More Europe is required are sought.

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2  Assoc. Prof. Kilis 7 Aralık University, FEAS
1. The European Union (EU)
A) Establishment Of The EU

Following WWI and WWII, during which nearly 60 million people lost their lives, some European leaders and thinkers have concluded that the only way to maintain peace was the economical and political unification of countries. In this context, the European Coal and Steel Community (ECSC) was established in 1951 with 6 members comprising Belgium, Federal Germany, Luxembourg, France, Italy, and the Netherlands, and the European Economic Community (EEC) was established in 1957. The Community became the European Community (EC) in 1967, and eventually the European Union (EU) in 1992. The basic principles of the Union are expressed in Article 2 of the Treaty on the EU. According to this article, the Union is based on such merits as human dignity, freedom, democracy, equality, rule of law and respect for human rights, including the human rights belonging to minorities. Common to all EU member states, these merits consist of the principles of pluralism, indifference, tolerance, justice, solidarity, and equality between women and men. According to Article 3 of the Treaty, the aim of the EU is to maintain peace, to protect the merits of the Union, and to improve the welfare of their people. According to Article 6 of the Treaty, the members of the EU agree to protect the rights, freedoms, and principles stated in the ‘Charter of Fundamental Rights of the EU’ and to be a party to the ‘Convention for the Protection of Human Rights and Fundamental Freedoms’. In terms of economy, the aim of the EU is to achieve balanced and sustainable development by ensuring the free movement of goods, services, capital, and workforce, and the freedom of capital to settle within the Union. The Union has ultimately achieved its goals. After the end of WWII, Europe witnessed the longest period of peace and stability in its history. For this achievement, the EU was awarded the Nobel Peace Prize in 2012. On the other hand, in 1957, only 12 of the 28 EU member states were governed by democracy. As of today, all 28 countries are being governed by democracy. In terms of freedoms, it is seen that the EU is one of the freest communities in the world according to Freedom House (2017). Europe is home to the world’s largest single market and the second most utilized currency. It is also the world’s largest trade power, and the provider of development and humanitarian aid (Karluk, 1996: 81).

While the 21st century, which witnessed two world wars, also hosted many international associations and formations, the EU draws attention as one of the
most important of these formations. European countries have removed not only physical borders but also the borders between their regulations and policies; a supranational formation has been created with international agreements and consensus on various issues. While the EU has brought many enlargements since its first phase so far, it has made it crucial for its members to fulfill standard practices in many domains. With the Maastricht Treaty established on the basis of the EU, the name of the EEC has been transformed into the EC, and 3 basic principles have been adopted that accelerate and strengthen socio-economic progress (Karluk, 1996: 82):

- A free-market economy based on the Competition Principle.
- Sound management of Public Finance.
- Substitution principle.

The common policies determined by the Treaty of Rome (1957) were altered with the treaty signed in Maastricht on February 7, 1992. The concept of the EU, the goals and policies pursued through the European Communities (ECSC, EEA, EC) and the goals and policies covered by the three new actions (Economic and Monetary Union, European Citizenship and Common Security and Foreign Policy) brought by the EU agreement that will be taken gradually are used as a whole (Borchard, 2000: 76).

The member countries, which are in full cooperation with the legal regulations and the implementation of these regulations, also existed in a monetary union with a common currency. Nevertheless, although the monetary policies are the same, the monetary union is far from working effectively, as the EU member countries implement different fiscal policies. Since the EU member countries, whose monetary policy decisions are made by the ECB, are free to implement their own fiscal policies, this situation has revealed policy disputes in extraordinary situations.

**B) Monetary Union**

The Maastricht Treaty signed in 1992 has transferred the power to create money to the ECB. In 1999, the Euro became the currency of the EU member states, and in 2002, Euro banknotes and coins were released into circulation. Thus, the Eurozone was established. It was believed that this step would lead Europe to political integration. In 1992, 62 professors issued a warning about the European
monetary union in the Frankfurter Allgemeine Zeitung: In the article, scientists underlined that the European monetary union could not be an optimal monetary zone (FAZ, June 11, 1992: 15).

According to Sievert, a common currency in Europe “reveals money that members cannot create themselves”(Sievert 1992: 19). The Maastricht and Lisbon Treaties give the ECB the task of maintaining price stability. Moreover, the bank is given a broad range of autonomy. The ECB is the world’s most independent central bank in every formal aspect. It is modeled after the German central bank. National central banks are also linked to the ECB system. In this way, they came through national finance - labor market policy pressure. Conflicts of national interest that often occur in Europe in a way that would shake the price stabilization are wished to be settled among the member countries accordingly. Although Hayek (1977) wanted to create an anti-nationalization of money in other ways, this monetary union ultimately provides this anti-nationalization (Hayek, 1977: 65).

The Maastricht Treaty ultimately establishes an international monetary order that has not been known in Europe since the gold standard, which ensures the objectification of the money supply. The member countries would no longer use the devaluation instrument deliberately to remain competitive in the short-run. Devaluation only increases competitiveness in the short-term, because real-economic conditions that reduce competitiveness do not improve in this regard. What is at stake here is an erroneous wage-labor market policy, which increases the cost of wages above total economic productivity, affecting the competitiveness of companies. Devaluation partially compensates for this wage disadvantage, but usually leads to new wage increases with rising import prices and the inflationary pressure stemming from it. The devaluation - inflation - high wages spiral continues to warp accordingly. Especially southern European countries experience this eminently before entering the monetary union. In this context, it should not be possible to put pressure on the ECB in the European platform, neither at the level of finance nor labor market policy. Thus, the structural errors of the monetary union did not exist in national finance, labor market, and social policy autonomy, unlike some claimed. In fact, the decentralized responsibilities of national states over financial-economic policies are some of the founding features of the monetary union, which is, one of the pillars of the monetary union structure, which would of course have severe consequences.
The fathers of the monetary union also know that countries that are not used to stabilization policies would immediately wish to take advantage of low-interest rates and postpone the real-economic harmony, which is required to improve competitiveness in the medium-run. That is why benchmarks and political finance in the Maastricht Treaty introduced a stabilization and growth pact to correct faulty developments. Similar mechanisms are not found in other European treaties. Also, everyone knows that a stabilization culture would not be fostered within a few years. However, some progress was to be expected in terms of fiscal-political discipline. Whereas, first, Germany frustrates these hopes. The structural error of the monetary union appears in two points. First of all, the NO-BAILOUT (a state cannot be a guarantor for the other state) clause in the Maastricht and Lisbon treaties, is not plausible. As a result, the member states are not told anything, as one member has to consider having difficulty in repayments due to excessive indebtedness. A state-type bankruptcy scheme was not established. Secondly, the possibility of a deep financial and banking crisis was not taken into account much, which had shaken the world in the past few years. Besides, the interdependence among the debt policies of the member states along with banking and financial market regulations has not been examined. If there are some spillover effects in a country’s non-payment situation and the banks in question are not equipped with sufficient equity capital, the non-guarantor clause loses its plausibility. Even a bankruptcy order established for states cannot enhance it (BMF Scientific Committee, 2010).

2. Solution Approaches For The European Monetary Union
A) The European Central Bank in Dilemma

The ECB has been implementing a tight monetary policy since its establishment, ensuring a very low inflation rate in the Eurozone. In cases where capital movements are free and capital controls are not applied, interest rates must be equalized in all Eurozone member countries. Indeed, the Greek interest rates are converging to the German interest rates due to the decline in inflation expectations in the Eurozone. However, economic units in Greece have been getting used to high-interest rates for a long time. While public sector expenditures mostly go to social programs, households turn to housing construction. This causes an increase in budget deficit/GDP and public debt/GDP ratios in Greece over the years. In order to ensure sustainability in current transactions, the country has to apply
a contractionary fiscal policy. Encountered the problem of sustainability in current transactions, Greece tries to increase public revenues while decreasing public expenditures. Of course, this causes a decrease in the GDP and an increase in the unemployment rate in Greece (Sievert, 1992: 13-24). Increasing tensions and discontent in Greece and other EU member countries in similar cases are beginning to manifest itself in the political arena. It is the US financial crisis of 2008 that exacerbates this trend and the Euro crisis that hit Europe a few years later. In both, the liberal system conceived by the elites has been collapsing in the presence of external shocks. The price for these failures is paid by ordinary workers, not elites. Political unity is essential for the Euro’s success. German Prime Minister Helmut Kohl and French President François Mitterand, who created the monetary union, predicted that the monetary union would deepen the economic integration and that a political union in the EU would be constituted over time. However, such a union could not be established and it is not foreseen to be established in the near future. The EU can persist without the Euro, and it can be even more successful.

The basic order of the European monetary union is also under threat. If the ECB cannot create stable money, its future will be questioned. Plausibility and reputation are essential features for an independent central bank. Otherwise, it faces government pressure and has to support it with money-inflation policies. The current policy of the ECB resembles walking on a rope. On the one hand, it has to create liquidity in order to keep banks functional. It is currently the only institution in the EU that can prevent a new banking and financial crisis. However, on the one hand, the ECB’s purchase of government bonds threatens its plausibility and independence. On the other hand, the ECB’s liquidity provisions in 2011 and 2012 succeeded in maintaining the stability of the banking and financial system in Europe using monetary measures. Although banks have largely purchased government bonds with these coins and the bond between state and banks has narrowed further, this attitude is still better than purchasing government bonds on secondary markets. But ultimately, the ECB has to withdraw this excess liquidity from the market after overcoming the debt crisis. It is also highly doubtful that it will sterilize this liquidity at the right time and sufficiently. However, there seems to be no inflation threat in the European region at the moment. But, high liquidity and the insecure situation in the Eurozone would force the ECB to revert to a tight monetary policy. If the ECB crosses the boundary between monetary and financial policies again and again, then this situation is politically
thought-provoking. If the government purchases bonds, the bonds purchased from the secondary markets would greatly injure the ECB in accordance with Article 123 of the Maastricht and Lisbon Treaties. Whereas the ECB should have this power since this is part of its open market policy. Nevertheless, it is also problematic to purchase government bonds of the countries under excessive indebtedness to facilitate refinancing, because, in this regard, the fiscal policy limit is crossed.

The ECB would have made been a grave mistake by changing its task, rendering itself the “lender of last resort” of countries. Because in this way, it would have to purchase unlimited amounts of government bonds and could re-finance the EU member states. Accordingly, it would have remained on financial-political tasks that would have not been compatible with its independence. Moreover, the door to lenient monetary policy would have been opened. The European monetary union would have no longer been a stabilization union. This would have been a constitutional problem for Germany, on which on this basis Germany agreed to establish a European monetary union. Eventually, Germany would be seriously contemplating the exit from the monetary union.

But Germany’s or any other country’s exit from the monetary union could have disastrous consequences for the monetary union region as well as the German economy. In the crisis of 2012, capital owners not only withdrew their money from the heavily indebted southern countries but also in the entire monetary union because they feared the collapse of a currency unit.

Each break will raise these expectations and directly cause other capital flight. As a result, a spillover process develops and it directly fuels the fear of the system’s collapse. Germany’s exit from the union would cause exactly this shock. But this would have adverse impacts on the German economy. Until the new exchange rate between the Euro and the German mark (or other new currencies) was formed, mutual currency relations would have been partially suspended and various German companies could not have survived that process. Eventually, bankruptcies would have come and the GNP would have fallen. Also, the new DM would come under appreciation pressure and this would have constantly hindered German exports. So, this would have been too expensive for Germany as of today.

So far, only the ECB has been able to prevent the collapse of the monetary union by purchasing government bonds. In this context, perhaps by making a change in the establishment article, it could have paved the way for it to purchase unlimited
government bonds, which would also cause the financial markets to calm down. This function would have also been with his constant purchase of government bonds in the presence of a threat, in accordance with daily needs. The ECB would likely be responsible for the same number of government bonds at the end of such a process. However, this is not in compliance with the order policy in savings and essentially does not have a calming effect on the markets.

The ECB and German policy stand in front of such a dilemma. On the one hand, the ECB feels obliged to purchase government bonds during the debt crisis, because it wishes to prevent the collapse of the monetary union. In this case, Germany may turn a blind eye to a limited purchase, because the collapse of the Euro could cause serious economic damage in Germany. On the other hand, the ECB becomes more and more “lender of last resort” in this way, which is not in compliance with its legal basis. Due to such a dilemma, Germany should ultimately choose between two options.

B) “More Europe” as a Solution?

This dilemma does not disappear simply by calling for “More Europe”. Moreover, the “More Europe” strategy is still open to interpretation and various solution strategies gathered under this heading are not realistic. At the same time, it is an unrealistic vision of trying to solve this problem of over-indebtedness with an institutionalized budget or political economy control. These suggestions include, for instance, the European economic government, the Greek savings commissioner, the European finance minister, or Brussels to be equipped with broad powers on the budget. After all, when Germany is asked to take responsibility, it wishes to have some guarantees in return. These suggestions are unrealistic because such rights can only be established within the hierarchical traditional governments of national states. However, Europe would never become a unitary state. As delicately put by Napoleon in this context: “Europe will or will not be federal” (Feld, 2003: 289-317). In the federal order, it is not possible to interfere with the budgets of member states. The American federal states, Canadian provinces, and Swiss cantons have extensive budgetary autonomy. They can borrow by the right bestowed to them, but they are fully responsible for these borrowings. There is no debt service obligation union. German states, on the other hand, are subject to a very limited
restriction and are in a debt service union at the federal level. Here, just like the USA, Switzerland, and Canada, the states have administrative autonomy (Feld and von Hagen 2007: 125-150).

Only Brazil makes an exception at this point. Brazil experienced a series of financial crises following the military dictatorship, and in the 80s and the 90s, this often resulted in the liberation of states on the federal level. Subsequently, the federal intervention has become an expectation in the states during this period. In the wake of a new financial crisis and the expected bankruptcy of some states, the federal government passed a Fiscal Responsibility Law, which imposed a tight expenditure and debt brake on both the federal government and the states. For the implementation of this, the federal administration was given the right to intervene in the state budgets. The law also has sanctions: personal mistakes in politics and economics can be punished by fines or imprisonment. Besides, a series of rules ranging from management transparency to personnel training is applied in Brazil. The financial responsibility law has become decisive for the stabilization of public finance. Even though the harsh sanctions of the law have not been used yet, these rights eventually brought about a transformation into the unitary state. The local controls of the German federal states have been shown as a model generally in the context of the right to intervene so far. Notwithstanding, there are some obligations in Switzerland and the USA. The federal-state can ultimately be disciplined by force in a probable situation. This legal right does not apply much since both states have ultimately gone through civil wars. Although the excessive indebtedness of the states in Germany is the subject of the federal parliament and boards, a legal sanction is also preferred as the last option here.

This brief description of law on budgetary intervention in federal states has shown us that the intervention of a higher state level must be assessed differently for sound budgetary policy formation. On the other hand, the EU is far from being a federal state, at this stage there is no disposition that only national budgets would be controlled more effectively. One of the main reasons why France and Germany did not want to accept in the 2003 pact is to ensure their budgetary autonomy. It does not seem possible for the EU’s sovereign powers to accept effective usage rights. Beyond that, the integration of budget policies in Europe is NOT CONCERNING THE SOLUTION OF THE PROBLEM. There are two reasons for crises in the European Union: firstly, it is a system crisis and secondly, the structural problems of the member states underlie the crisis.
The cause of the system crisis lies in the structure of the European monetary union since there is national autonomy and the responsibility is assumed by the political finance. In this regard, member countries borrowed in a currency that they could not produce. The ECB is not subject to a liability law in this sense, so it cannot directly re-finance member countries. Besides, member countries should not mutually assist each other in accordance with the prohibition of mutual aid. After all, this indicates that if a country becomes over-indebted, it must go bankrupt. This bankruptcy risk emerged with the refinancing of Greece’s “voluntary” debt burden. Due to the risk of bankruptcy, especially vulnerable investors sold off borrowed government bonds. This increased the cost of refinancing and raised concerns that these countries would not be able to recover with their own power. Since there is no common solution in the European region, the financiers who worry that the monetary union would collapse are moving away from the Euro (Feld, 2011: 31).

The government borrowing of Greece, Italy, Ireland, Portugal, and Spain is very high. Also, wage costs rise sharply. The factors that cause problems in these countries are not so important in this context. Italy and Greece have had high government debt for a long time, although Italy has had a primary surplus and private sector borrowing is low, but that does not change the situation. In Portugal, the growth of state and private borrowings is thought-provoking. Excessively high private borrowing in Ireland and Spain causes major problems. Labor costs are too high in all five countries. Regardless of the reasons for this difficult situation that countries have fallen into, there is no escape from the consolidation of public finance and the reforms in the labor and product markets. These countries have to make the necessary adjustments in the short- and medium-run. But even in this way, the systemic crisis may not be overcome, even if the problems were not systemic, the situation would not change even if the monetary union states were in great condition before the financial crisis. Because once a systemic crisis develops, then investors’ trust usually comes back only over time. Even if states make reforms and necessary improvements, investors are not guaranteed to give them money at regular interest rates.

After all, the solution to the Euro crisis should be bilateral. It should lead member states to the consolidation of state finances and reforms in the business - product markets and include measures to overcome the systemic crisis. Consolidation and structural reforms can be made within national responsibility. Because
the necessary corrections require wide-ranging interventions in existing income and wealth relations, which can only be realized with national-state responsibility. If the ECB’s prohibition on the purchase of government bonds was lifted, then government bonds can be purchased on a large scale. This would have ultimately meant ‘More Europe’ since government borrowing would have been included in the community through the ECB balance sheet.

The second option to overcome the systemic crisis may be Eurobonds. Nonetheless, the concept of Eurobond is not used clearly. At this point, it would be correct to define it with an exquisite definition. Eurobonds are essentially common European government bonds, for which the member states of the monetary union bear joint responsibility in this regard. Although each bond has a limited maturity and amount, the moment such an instrument reaches the EU platform, it becomes unlimited. In this way, government borrowing is constantly included in the community. If Eurobonds were now ready for use, which is difficult due to the legal framework, then it would have created a partially reliable investment tool into which investors could have deposited money. Furthermore, this would have been a clear confirmation of the persistence of the European monetary union.

**Conclusion**

The EU has appeared on the stage of history since the era when its foundations were laid, and been one of the most important actors of both politics and economy for many years. Nevertheless, similar to the fact that different inhabitants of a house live in constant conflict, it was not easy, as predicted, for countries with different cultures and features to live under the same roof. In the monetary union, a group of countries has determined a common currency unit, abandoning their existing national currencies. The monetary union must have an institution with the authority to set interest rates, make decisions on money emission, and manage the common exchange rate. In the monetary union, there should be no significant differences among the policies implemented by the national banking regulatory and supervisory authorities of the member countries. In case of a financial crisis in the monetary union, the central bank of the union should assume the task of being the lender of last resort from which financial institutions may borrow. In the monetary union, it should be clearly known how the central bank will allocate the financial burden that would arise in crisis situations among the member countries due to its duty of the lender of last resort. Today, the point
is that the member countries, trying to blend the same monetary policy with different fiscal policies, have made huge discrepancies between the economic indicators in one corner and the indicators in the other corner. Such discrepancies are not likely to diminish at all. The structural problem of the Eurozone that underlies the crisis is the paradox of “economic integration/political fragmentation”. Despite the economic integration, the incomplete political integration constitutes the structural basis of various problems the EU encounters as of today. Nonetheless, the hope that the EU member states will find a way out without leaving the monetary union is still alive. Thus, it is necessary to return to the basic principles of the Maastricht Treaty and support the existing monetary regulations with a bankruptcy rule for states and rules for the banking union. In this context, the ECB should not be held accountable for greater monetary value stabilization.

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11

INTERNATIONAL OUTSOURCING AND THE CHARACTERISTICS OF FIRMS: EVIDENCE FROM THE TURKISH MANUFACTURING FIRMS

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1. Introduction

In the past few decades, the world economy has witnessed the rapid globalization of economic activities that have caused significant change. International production, international trade and investments are more organized in the global value chains of different countries in the production process (De Backer and Yamona, 2012). This functional and spatial fragmentation in the global value chains significantly affects how the global economy operates and increases the economic dependence between economies.

The international trade theories have changed quite significantly in the globalized world of the 21st century. This change has started to be observed in the mid-1990s with widespread availability of firm-level data. The importance of the firm level decisions and the characteristics of the firms are increasingly emphasized in determining the causes and consequences of international trade (Bernard et.al., 2007) and “international fragmentation of production” and “firm heterogeneity” are stand out.

Heterogeneous firm models, which follow the pioneering work of Melitz (2003), are focused on the reallocation of resources between and within firms as the endogenous change in firm productivity and exhibiting the different characteristic

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of the firm within the same sector. Owen (2015) asserts that the firm is heterogeneous in terms of its characteristics such as size, export, status and productivity in the New New Trade Theory. Especially, with the availability of firm-level dataset, most of studies in recent literature focus on export activity and firm’s heterogeneity (Bernard and Jensen, 2004; Helpman et.al. 2004; Greenway et. al. 2007; Arnold and Hussinger, 2010). On the other hand, the internationalization of the production and liberalization of international trade leads to technological development a decrease in production cost and international fragmentation of the value chain. International fragmentation of production of value chain which is international outsourcing causes every parts of products to be subjected to international trade and is the source of comparative advantage of fragmented goods (Arndt and Kierzkowski, 2001; Jones, et.al. 2005).

International outsourcing has attracted increasing attention on international economics in the recent years. Feenstra and Hanson (1999) pointed out that international outsourcing seems to be an important source of change in factor productivity and have an impact on how changes affects value added prices and production efficiency. In this sense, the developments in international trade theories and related literature are concerned on explanation of the increasing importance on international outsourcing that has caused on rise in international trade along with the fragmentation of the production for firms, economists and policy makers (Deardoff, 2001; Jones and Kierzkowski, 2001).

International outsourcing is one of the most popular topic in developed and developing countries. More particularly, the share of imported intermediate inputs to the total import is gradually increasing in developing countries (Feenstra and Hanson, 1999; Amiti and Wei, 2009 and Falk, 2012). The manufacturing industry is an important part of Turkey’s foreign trade and has a decisive role in Turkish economic growth. Exports include medium-low and low technology products, while imports include medium-high and high technological products. It is seen that most of the export products are related to the imported intermediate inputs. The use of imported intermediate inputs in Turkey raises from low technology to high technology industry but the share of the value added is decreasing. Considering the structure of foreign trade of Turkish economy, intermediate inputs constitute a significant proportion of import. The use of imported intermediate inputs in Turkish manufacturing firms is increasing throughout. Imported intermediate inputs in Turkish economy between 2006 and 2015 was increased by an
average of 11% annually and that constituted around 2/3 of total imports. In the same period, the share of imported intermediate inputs in total imports increased rapidly, from 66% to 73%. National Development Plans in Turkey have focused on increasing exports, productivity and control of imported intermediate inputs.

The goal of this study is to analyze the link between the firm’s characteristics and international outsourcing for the Turkish manufacturing industry in terms of firm’s heterogeneity in international trade. Thereby, it is aimed to produce more reliable information for policymakers by using firm-level data, along with theoretical arguments. Hereby, this study contributes to the literature in the number of ways. Firstly, based on Turkish firm-level data, the present study investigates the firm heterogeneity in international outsourcing. In the literature, measurements of international outsourcing based on sectoral data sources are more common (Feenstra and Hanson, 1996, 1999; Hijzen, 2003; Hijzen et al., 2005; Egger and Egger, 2006; Horgos, 2009). Sectoral data sources are considered to have lower accuracy in measurement compared to firm-level data sources. Alvarez and Lopez (2005), Marinov et al. (2008), Arnold and Hussinger (2010) highlight that firms operating even within narrowly defined industries are heterogeneity as firm’s characteristics such as productivity, size, capital intensity, etc. If these analyses use industry-level measures, the aggregate data are inadequate since macro-level data in measuring international outsourcing leads to smooth the information (Tomiura, 2005). Firm-level data allows showing whether international outsourcing has different effects according to the characteristics of the firms. Therefore, using firm-level data is very important. Second, Melitz (2003), Bernard et al. (2003) and Chaney (2016) have asserted the effect of firm heterogeneity on the decision of firms to serve a foreign market. In this sense, this study examines that the determination of international outsourcing following recent developments on firm heterogeneity in international trade. The study fundamentally aims to serve this purpose for the Turkish economy. As far as our best information, this is the first study to investigate the firm-level drivers of the international economy in specific to the Turkish economy.

This study is organized as follows. Section 2 presents potential drivers of international outsourcing, and Section 3 summarizes a brief review of the literature. Section 4 introduces econometric methodology and data. The empirical results are reported in Section 5. Section 6 provides conclusions.
2. Potential Drivers of International Outsourcing

Globalization has led to efforts to increase competitive pressure, reducing costs and increase efficiency. Increasing efficiency and reducing costs resulted in international fragmentation of the manufacturing processes of the firms. Firms have aimed to provide a competitive advantage by making different stages of production activities in different countries. Thus, there are many factors that can lead firms to use imported intermediate inputs.

Firstly, we analyze the relationship between international outsourcing and the firm’s total factor productivity. The productivity has been intensively examined in the literature on firm’s engaging in international trade. There is a strong relationship between the international outsourcing and productivity. Firm’s decision to outsource or not is endogenously determined and, a firm’s characteristics and its productivity play an important role on this decision (Antras and Helpman, 2004). In the short term, the impacts of international outsourcing on firm’s productivity is that outsourcing firms are able to reach higher quality and less costly inputs internationally than domestically obtained. Since imported intermediate inputs may differ in quality from domestic equivalents (Castellani et al, 2010), the diversification of intermediate inputs for firm leads both to a better quality of final goods and leading to a shortening of the production process (Altomonte et. al., 2013). Thus, the increase in the use of imported intermediates inputs directly increases firm’s productivity (Görg and Hanley, 2005 and Amiti and Wei, 2009). In the long term, international outsourcing will lead to change in factor shares that will impact on productivity (Görg and Hanley, 2005). Taking into consideration such factors as technological development and labor cost firm in the small open economy allows reallocation of resources more efficiently. It also provides a competitive advantage on production on which different stages performed in different countries (Damijan et. al., 2009). Görg and Hanley (2005) and Amiti and Wei (2009) have emphasized the importance of the reallocation of production within firms because of the use of international outsourcing. They have found that there is a positive relation between international outsourcing and productivity.

Although the growing literature on the relationship between productivity and international outsourcing, there has no built consensus yet (Falk, 2012). Most of studies find a positive and significant effect the relationship between international outsourcing and firm’s productivity (Pavnick, 2002; Görgiz and Stephan,

As the second determinant of international outsourcing, we investigate the effect of the exporting firm's status or export intensity. There are different direct and indirect channels through which export can increase imported intermediate inputs (Bas and Strauss-Kahn, 2014). The first channel is indirect complementary effect which firms access to more input varieties from abroad. It is stated in the literature that imported intermediate inputs are a significant incentive for the firm's exports (Bas and Strauss-Khan, 2014). Improved export market access is accompanied by both firms productivity and overcoming export fixed costs. Kugler and Verhooegen (2009), Goldberg et al. (2010), Bas and Strauss-Kahn (2014) and Halpern et al. (2015) emphasize that accessing more different kind of imported intermediate inputs increase firms' productivity and enable firms to operate in the more export markets or produce new products to the export markets. Imported intermediate inputs lead to productivity gains. With the increase in productivity, imported intermediate inputs increase the firm's export and hence firms cover more easily the fixed cost to enter the export markets and can continue their activities in the competitive export markets. The second effect is firms have access to high-quality input and new technology (Feng et al., 2016). Achieving advanced technology and the imported intermediate input allow for some of the fixed costs to be offset in relation to the possibility of increased exports and the restructuring of external demand to produce goods that satisfy the required quality standard. In brief, imported intermediate input affects the firm's exports in three ways (Edwards et al. 2018). First, imported intermediate input is associated with the firm's productivity increase (Schor, 2004; Amiti and Konning, 2007; Halpern et al, 2015; Kasahara and Rodrigueze, 2008). Second, accessing low-cost intermediate inputs increases export revenues (Bas and Strauss-Kahn, 2014). This channel increases the profitability of the firm as they bear the fixed costs in the export markets. Third, imported intermediate input increases production quality in the production process. It allows the sale of higher quality products in the export market (Kugler and Verhooegen, 2009).
Another important drivers of international outsourcing is the firm’s ownership by nationality. Firm’s ownership structure is different between outsourcer and non-outsourcer. The probability to contract out more productive firms abroad is very high for foreign-owned firms due to part of competing in the international market, hence these firms are more intensive the use of international outsourcing compared to domestic firms. According to the earlier paper in the empirical literature, the relationship between national ownership and international outsourcing is unclear. Girma and Görg (2004), Tomiura (2005) and Díaz-Mora (2008) have found positive signs, but Holl (2008) has obtained negative signs.

Furthermore, we analyze the influence of firm size as drivers of international outsourcing. The firm size states the specialization motive of international outsourcing. Firm size considers controlling economies of scale. The large firms bear the fixed entry costs for international outsourcing. Therefore, larger firms tend to be more active in international outsourcing. Tomiura (2005) has emphasized that larger firms can contract with firms from abroad for international outsourcing more easily because of having stronger negotiating power in the market. The sign of firm size is mixed in the literature. Tomiura (2005) and Holl (2008) have found positive relationship between international outsourcing and firm size, while Görg and Hanley (2004) and Díaz-Mora (2008) have obtained negative relation.

Finally, firm’s financial constraint is also related to international outsourcing. The importance of productivity and financial constraints have been widely proven in the international trade literature on heterogeneous firm trade models (e.g., Melitz, 2003; Manova, 2013; Muûls, 2015; Chaney, 2016). Firms have to bear fixed and sunk costs in order to operate in the export markets. Therefore, it is emphasized that financial factors is critical role in determining the firm’s decision to enter the export markets (Berman and Hericourt, 2010; Göksel, 2012; Chaney, 2016). Bas and Berthou (2012) and Muûls (2015) found that financial constraint affects the firm’s ability to import. Based on these developments in the literature, the effect of financial constraint on international outsourcing has investigated in this study. Lu et al. (2018) found that financial constraint and productivity have an important role on global value added. Muûls (2015) and Chaney (2016) show theoretically firms with high financial constraint are less likely to export or import.

Because the implications and directions of the different determinants of international outsourcing in terms of firm heterogeneity are mostly mixed and have
been never examined for the Turkish manufacturing firms up to this point, we will analyze the relationship between international outsourcing and firm characteristics empirically.

3. Brief Review of Literature

In recent years, the international outsourcing is one of the most popular topics in empirical literature. The vast majority of international outsourcing literature concentrates on impact of international outsourcing on productivity. Amiti and Konings (2007), Görg et al. (2008), Kasahara and Rodrigue (2008), Goldberg et al. (2010), Lileeva and Trefler (2010), Yu and Li (2014), Halpern et al. (2015) and Forlani (2017) have documented that the use of imported intermediate inputs for firms play a crucial role in increasing productivity. Halpern et al. (2015), Kugler and Verhoogen (2009), Gibson and Graciano (2011), Bas and Strauss-Kahn (2014) and Fan et al. (2015) and Fen et al. (2016) have demonstrated that firms increase productivity by taking advantage of new technologies embedded in imported intermediate inputs.

The other part of studies is about that embed the firm’s outsourcing in the estimation of a firm production function. Görgiz and Stephan (2002), Görg et al. (2008), Görg and Hanley (2004) and Hijzen et al. (2005), and McCann (2011) have investigated that international outsourcing leads to increase the firm’s productivity. While international outsourcing is increasingly becoming most important in international trade literature, the empirical literature on this subject is very limited. Görg and Hanley (2004), Girma and Görg (2004, Tomiura (2005), Díaz-Mora and Triguero (2007), Díaz-Mora (2008), Holl (2008) and Paul and Woster (2010) have investigated the determinants of international outsourcing at the firm level in increasing productivity.

4. Economic Model and Data

The empirical specifications used in this study have been expressed to analyze determinants of international outsourcing. To capture the relationship between international outsourcing, productivity and firm characteristics for the Turkish manufacturing industry, we use the basic model in econometric estimation by following Girma and Görg (2004), Farians and Martin-Marcos (2010) and Díaz-Mora (2008):
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- Model 1: \( \text{out}_{it} = \alpha + \beta_1 \text{TFP}_{it} + \nu_t + \epsilon_t \) (1)
- Model 2: \( \text{out}_{it} = \alpha + \beta_1 \text{TFP}_{it} + \beta_2 X_{it} + \nu_t + \epsilon_t \) (2)

where \( i \) is the firm in manufacturing industry, \( t \) denotes the time, \( \text{out}_{it} \) represents firm’s international outsourcing, \( \text{TFP}_{it} \) represents firm-based total factor productivity, \( X_{it} \) shows the control variables specifying other characteristics of the firms such as financial constraint (\( \text{fincons} \)), price to cost margin (\( \text{PCM} \)), export intensity (\( \text{exp\_intensity} \)) or export dummy (\( \text{dum\_export} \)), firm’s ownership (FDI), firm size and profit before tax (\( \text{bef\_profit} \)). All estimated models include year and industry-specific fixed effects to consider for firm invariant factors in our sample.

Firstly, the basic model that examines the effect of the firm’s TFP on the international outsourcing of firms has been tested. We then turn to exploit important other indicators of firm heterogeneity in addition to an extension to basic model. The dependent variable in this study is international outsourcing, which is calculated as the ratio of imported intermediate inputs to total intermediate inputs at the firm level. Görg and Hanley (2005) and Farians and Martin Marcos (2010) also used the same measurement for international outsourcing to underline the importance of imported intermediate inputs in their analysis.

To calculate the firm level TFP we employ Levinsohn-Petrin (2003) semi-parametric method. We would expect more productive firms to do more international outsourcing than other firms. Financial constraint is measured the share of total financial expenditure to total cost. Export intensity is measured as rate of firm’s exports value to sales. Export dummy is defined as export status of the firm, which takes a value of 1 if firm is exporter and 0 for firm is non-exporter. Export market access is accompanied by both firm productivity and overcoming export fixed costs. Kugler, Verhoogen (2009), Goldberg et al. (2010), Bas and Strauss-Kahn (2014) and Halpern et.al. (2015) emphasize that accessing more different kind of imported intermediate inputs increase firm productivity and enable firm to operate in more export markets or produce new products to the export markets and hence firm covers more easily the fixed cost to enter the export market and can continue its activities in the competitive export markets. Thus, we would expect the sign of export variable to have positive. Foreign ownership dummy takes value of 1 if the firm has foreign ownership and 0 otherwise. The sign of FDI is expected to be positive if firms have foreign ownership are that is expected to use international outsourcing more intensively. The firm size variable is calculated the ratio value added of firms over the total value.
added of sector and included in analysis to control for the effects of economies of scale. We would expect this variable to have positive relation, because larger firms might be more probability to outsource. PCM is the price to cost margin and is computed by the value added minus wages to divide by the value of gross production. bef_profit is profit before tax.

The dataset covers the period from 2006-2015 and we get the unbalanced panel which contains 13,874 firms with total of 93,918 observations. We use two disaggregated sources of large firm-level data sets obtained from the Turkish Statistical Institute (TURKSTAT) in order to analyze the relationship between energy intensity and firm characteristics for the Turkish manufacturing industry. The first firm-level dataset used is retrieved from the Annual Industrial and Service Statistics survey that contains very comprehensive firm-level information and that covers firms operated in all manufacturing and service sectors of the Turkish economy. This survey involves the firm-level information on classifications of economic activities at four-digit level, employment, payments, revenues, expenses, value added, number of employees, stocks and investments, financial expenses, profit before and after tax and etc. The second dataset is Foreign Trade Statistics which contains statistics on each trading firm’s products, including export and import values, quantity measures, statistics on partner country. In order to compose the dataset, we received firms belong to with 20 or more employee and drop firms with lower than operating three years in the manufacturing sector. After eliminations and calculations, we merge the Annual Industrial and Service Statistics and Foreign Trade Statistics by using the firm’s identification number.

5. Economic Results

In this part of the study, we indicate the estimated results for the equation (1-2). We examine the drivers of international outsourcing. In all regressions, firm of international outsourcing is regressed on total factor productivity and other firm characteristics variables using Ordinary Least Squares (OLS) and fixed effect methods. Time and industry effects are included in all models. Table 1 shows the estimated results of the econometric analysis for each model about determinants of outsourcing. Especially, in the direction of heterogeneity firm trade model, we see in Table 1 that manufacturing firms have important differences on characteristics.

The findings can be summarized as follows. First of all, estimated results for TFP are statistically significant and positive in all models on international outsourcing.
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Consistent with the findings of Halpern et al. (2015), we have calculated to increase the total factor productivity by importing intermediate inputs, TFP of firms affects positively on international outsourcing in all columns of Table 1 in all used econometric methods. Hence, an increase of TFP enhances the firm’s international outsourcing. The positive relationship between TFP and international outsourcing assert that imported intermediate inputs can be an important channel of technology transfer.

Table 1. Determinants of International Outsourcing

<table>
<thead>
<tr>
<th>Variables</th>
<th>OLS_1</th>
<th>FE_1</th>
<th>OLS_2</th>
<th>FE_2</th>
<th>OLS_3</th>
<th>FE_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFP</td>
<td>0.104</td>
<td>0.058</td>
<td>0.078</td>
<td>0.049</td>
<td>0.083</td>
<td>0.062</td>
</tr>
<tr>
<td>prob.</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>FDI</td>
<td>0.877</td>
<td></td>
<td>0.899</td>
<td></td>
<td>0.065</td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td>0.000</td>
<td>0.209</td>
<td>0.000</td>
<td>0.327</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exp_intens</td>
<td>0.004</td>
<td></td>
<td>0.012</td>
<td></td>
<td>0.311</td>
<td>0.024</td>
</tr>
<tr>
<td>prob.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>dumexport</td>
<td></td>
<td>0.373</td>
<td></td>
<td>0.139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td></td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln_PCM</td>
<td>0.317</td>
<td>0.133</td>
<td>0.351</td>
<td>0.131</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln_firmsize</td>
<td>-0.056</td>
<td>0.027</td>
<td>-0.055</td>
<td>0.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td>0.000</td>
<td>0.072</td>
<td>0.000</td>
<td>0.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln_bef_profit</td>
<td>0.152</td>
<td>0.001</td>
<td>0.116</td>
<td>0.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td>0.000</td>
<td>0.918</td>
<td>0.000</td>
<td>0.181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln_fincons</td>
<td>0.046</td>
<td>0.022</td>
<td>0.035</td>
<td>0.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prob.</td>
<td>0.001</td>
<td>0.000</td>
<td>0.001</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>93918</td>
<td>93918</td>
<td>60967</td>
<td>60967</td>
<td>77898</td>
<td>77898</td>
</tr>
</tbody>
</table>

Second, column (3) to column (6) express that firm size which is a sign to economies of scale and that is also significant and positive sign even after controlling other firm characteristics for result of fixed effect. Firms provide some advantages
with the effects of economies of scale such as the lower per unit costs, through the use of the division of labor, operational efficiency, and vertical integration. Hence, according to the positive relationship between a firm’s size and international outsourcing, an increase in the firm’s size causes international outsourcing activities.

Third, exporting activity variables are statistically significant and have positive signs in all models. These results are in consistent with Grossman and Helpman (2002), Görg and Hanley (2004), Bas, Strauss-Kahn (2014), and Feng et al. (2016) works. Hence, consistent with a priori expectations, increase in share of export value to sales are related to higher level of international outsourcing. We explain that firms whose plan is to continue export activity and to improve their competitiveness are demanding higher imported intermediate inputs than the other firms. The positive relationship between export activities and international outsourcing is considerably important because firm accesses more export markets and/or firm’s export value increases, then the possibility of finding higher quality intermediate inputs from abroad increase. The results for all models verify the strong nexus between the international outsourcing and export intensity or export dummy. The higher the value of the firm’s export intensity, the higher the international outsourcing (Columns 3-6). This relationship goes on even after controlling for the impact of imported intermediate inputs imports on firm’s export performance by total factor productivity, which is positively connected with the exports value and export variety. Under these circumstances, the results remain the same to the addition of the other firm characteristics such as firm’s size, financial constraint, profitability and PCM.

Fourth, columns (3-6) of Table 1 reports results for estimation allowing the importance of nationality of ownership on international outsourcing. While FDI is statistically insignificant for the fixed effect results, it is positive and significant for OLS results. In line with the prior expectations, we would expect foreign-owned firms are to be more intensive in international outsourcing. The results confirm that FDI has a positive effect on international outsourcing like Girma and Görg (2004) and Diaz Mora (2008) and Holl (2008).

Fifth, in order to reveal the effects of fixed entry cost for entering the international markets, we generate interaction with international outsourcing and financial constraint. The results show that financial constraint is positively and significantly correlated with international outsourcing. These factors, especially in
Turkey, have an impact on the firm’s decision whether or not it enters both into international outsourcing and the increase in the value of the export value or entering exports markets, significantly and sizable.

Sixth, we also examine the impact of firm’s financial constraint on international outsourcing. The results reveal that the firms with financial constraint are more inclined to outsource from abroad. Overall, the regression results indicate that engagement in international outsourcing needs to be a way of broadening the financial sources for financially constrained firms. Turkey’s First and Second 500 Largest Manufacturing Firms Report 2016 prepared by Istanbul Chamber of Industry’s emphasize that the most of the firms operating manufacturing industry satisfy their financial needs with internal financial sources. Also, more firms have to use external financing and external resources with high borrowing cost. Hereby, this relationship between financial constraint and international outsourcing can arise possible difficulties that financially constrained firms face in higher costs of international outsourcing.

6. Conclusion

This study has tried to answer how firms’ characteristics affect international outsourcing using firm-level data for Turkish manufacturing industry over the period 2006–2015 and in this direction what policies should be implemented for international outsourcing. This results show that TFP has a significant role on international outsourcing. According to the results, an increase in firm size leads to increase the international outsourcing. The larger firms in the manufacturing industries may bear the significant fixed cost more easily than the other firms and thereby increasing the profitability from international outsourcing activity. Additionally, the results indicate that the higher export intensity is positively related to international outsourcing so that an increase in export value or entering the new export market is an important factor.

All based on our results, we shortly recommended that policymakers should establish firm-based policies to ensure exports and productivity increases as pointed out in Turkey’s National Development Plan. Thereby, the policies about international outsourcing need to aim at more efficient production structures in the medium and long term to ensure the best resources allocation. Additionally, policymakers need to consider the policies that increase the value-added gains and
competitiveness from the point of the current account without decreasing the productivity gains from the imported intermediate inputs. Turkish governments should give incentives and investments which can increase value added. However, it should provide these opportunities for more productive firms, not all. Thereby, the requirements of the determining of medium and long term firm-based selective policies in international trade strategies stand out.

References


INTERNATIONAL OUTSOURCING AND THE CHARACTERISTICS OF FIRMS: 
EVIDENCE FROM THE TURKISH MANUFACTURING FIRMS

Abnisa BURGAÇ ÇIL


INTERNATIONAL OUTSOURCING AND THE CHARACTERISTICS OF FIRMS:
EVIDENCE FROM THE TURKISH MANUFACTURING FIRMS

Abıılá BURGAÇ ÇIL


SECTION III

ECONOMIC POLICY
1. Introduction

The effect of financial markets on economic growth was first suggested by Schumpeter (1912) and explained that the development in financial markets positively affected economic growth. Financial markets contribute to the transformation of savings into investment and the development of the economy by ensuring that savings reach entrepreneurs in need of funds. Stock markets are one of the most important markets performing this function and stock market indices are an important indicator of financial markets. The ratio of the market value of the stock exchanges to the national income in the countries where these exchanges are located shows the place of the stock market in the country’s economy. At the end of 2019, the ratio of the total market value of the stock exchanges to the total GDP is 133% (Turkey Capital Markets, 2019: 12). Capital markets can be affected by many factors, mainly economic and financial ones, as well as political events, wars and epidemics that will cause uncertainty in the society. Epidemics from past to present have caused millions of people to die and have deep effects on socio-economic life. The Spanish Flu, which was effective worldwide and experienced between 1918-1920, caused an estimated 50 million deaths, while the Asian Flu and Hong Kong Flu between 1957-1958 and 1968-1969, respectively, caused an estimated 1 million deaths. Coronavirus (Covid-19), which emerged in...
IS COVID-19 THE NEW BLACK SWAN OF THE FINANCIAL MARKETS?
ON THE LINKAGE BETWEEN COVID-19 AND STOCK MARKETS

Fatma MUMCU KÜÇÜKÇAYLI, Gönül YÜCE AKINCI

Wuhan, China in December 2019, spread rapidly and caused a worldwide epi-
demic problem. According to the World Health Organization (WHO), Covid-19
is a new member of the family of viruses from the common cold that causes more
serious diseases such as Severe Acute Respiratory Syndrome (SARS) and Middle
East Respiratory Syndrome (MERS) (Abodunrin et al., 2020: 14). The WHO
declared a pandemic related to Covid-19 on 11 March 2020. As of 30 July 2020,
a total of 17,132,177 cases and 668,377 deaths have occurred in worldwide (215
countries) (Worldometer).

These epidemics, which shocked social, economic and political life, are one of the
main threats that create instability for societies. For example, Asian Flu (2008)
in Asia and SARS (2002) spreading from Hong Kong were stated as the biggest
source of socio-economic instability caused by the pandemic and was accepted
as a new “Black Swan” with the jargon in the literature (Antipova, 2020: 357).
The “Black Swan” theory was introduced to the literature with the pioneering
work of Taleb (2007) and stated that the theory in question has three main fea-
tures: \(i\) black swan is unusual, \(ii\) black swan has an extraordinary effect and \(iii\)
although the black swan was unpredictable, it contain a thousand facts that can
be explained after they happen. The specified features and definitions are fully in-
cluded in the Covid-19 case, which is called a new black swan (Morales and An-
dreosso-O’Callaghan, 2020: 2). This instability caused by Covid-19 has spread
to the financial markets, one of the most fundamental units of the economy, as
well as the whole society. In this context, as Aleskerov and Egorova (2012) and
Adams and Thornton (2013) state, “Black Swans” are defined as a sequence of
events that can change the rate of return of an investment from positive to neg-
ative and is associated with a significant level of market uncertainty (as cited in
Morales and Andreosso-O’Callaghan, 2020: 3). The uncertainty that emerged in
the markets negatively affected investors’ expectations for the future, causing them
to lose financial assets and serious drops in stock markets. On March 9, 2020, the
impact of Covid-19 on important stock indices in international capital markets
was seen with the decrease of the index values by about 10% in one day (Kılıç,
2020: 68). Between January 1, 2020 and April 1, 2020, the depreciation rates of
Morgan Stanley Capital International (MSCI) World Index is 25%, the MSCI
Emerging Markets Index is 26%, the MSCI European Index is 27%, and the G7
Index is 25% (Şenol and Zeren, 2020; 2). Major world stock exchanges such as
the Financial Times Stock Exchange (FTSE), Dow Jones Industrial Average, and
Nikkei saw drastic drops as the number of Covid-19 cases increased. Dow Jones
and FTSE saw the biggest quarterly declines in the first three months of the year since the Stock Exchange Crisis occurred in 1987 (www.bbc.com, 30 June 2020).

The main objective of this study is to examine the impacts of Covid-19, new Black Swan, cases on the financial markets in 24 countries for the period between 01/16/2020 and 06/12/2020 with the five-day data set using the switching regression analyses. For this purpose, the study will be composed of five parts. Following the introduction, in the second part of the paper, summary information will be presented about the applied studies investigating the effect of Covid-19 on financial markets in the literature, and in the third section, the data set, methodology and econometric model that are the subject of the application part of this study will be introduced. After the fourth part of the application findings, the study will be concluded with the fifth and final part where a general evaluation will be made.

2. Literature Review

The epidemic diseases have caused many people to become sick and lose their lives and have had a profound impact on human history. It is known that epidemic diseases have many economic, social and psychological effects as well as the loss of many people. In addition to macroeconomic factors, epidemic diseases have shown their effects in the development of markets and stock exchanges. Epidemics create a shock effect in the market and have a negative impact on investors’ expectations for the future. Relatively many studies in the literature show that “bad mood” and anxiety are effective on investor sentiment. Anxiety drives investors’ risk-taking attitudes, causing pessimism about future returns, and hence determines asset price movements (Ichev and Marinč, 2018: 153).

Covid-19 epidemic has also caused uncertainty around the world, has brought about anxiety in investors and has given rise to fluctuations in the stock markets by selling their shares. These effects have been examined theoretically and practically by the researchers. It is expected that studies will continue to understand the effects of epidemics more clearly. Table 1 summarizes some of the studies investigating the effects of Covid-19 epidemic on stock market indices and stock returns in different countries.

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3 The countries that was included into the analysis are Turkey, Germany, Austria, Belgium, Australia, Czechia, Denmark, Finland, France, Ireland, Israel, Switzerland, Iceland, Japan, Hungary, Mexican, Norway, Poland, Portugal, Slovak, Slovenia, New Zealand, United Kingdom and Italy.
<table>
<thead>
<tr>
<th>Writer(s)-Year</th>
<th>Country</th>
<th>Period</th>
<th>Method</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunay (2020)</td>
<td>US (DJI), Italy (FMIB), Spain (IBEX), China (SHC), U.K. (UKX), and Turkey (XU100)</td>
<td>03/01/2005-03/04/2020 (4 different time series)</td>
<td>DCC-MVGARCH, DCC-MVFIGARCH, Modified ICSS</td>
<td>Covid-19 was reported to cause structural breaks in the volatility of stock indices.</td>
</tr>
<tr>
<td>Alber (2020)</td>
<td>China, France, Germany, Italy, Spain, USA (Stock Market)</td>
<td>01/03/2020-10/04/2020</td>
<td>Panel Analysis</td>
<td>It was found that Covid-19 only had a negative effect on the stock market returns of China, France, Germany and Spain.</td>
</tr>
<tr>
<td>Alqaarleh et al (2020)</td>
<td>US (S&amp;P 500), Canada (S&amp;P/TSX), UK (FTSE100), Japan (N225), Hong Kong (HIS), China (SSE)</td>
<td>01/01/2014-08/04/2020</td>
<td>Wavelet-Copula GARCH Model</td>
<td>Evidence of strong contagion has been found in equity markets during the Covid-19 outbreak. Emerging markets such as China provide fertile ground for international diversification.</td>
</tr>
<tr>
<td>Kılıç (2020)</td>
<td>Turkey (BIST Sector Indices)</td>
<td>02/01/2018-30/04/2020</td>
<td>Event Study Method</td>
<td>Negative abnormal returns were found in most indices. It is stated that the highest negative returns on a sector basis are in the tourism and textile sectors, while the positive returns are in the trade sector.</td>
</tr>
<tr>
<td>Estrada et al (2020)</td>
<td>US (S&amp;P 500), Taiwan (TWSE), China (Shanghai Stock Exchange), Japan (Nikkei 225), Germany (DAX), Hong Kong (Hang Seng), United Kingdom (U.K.) (FTSE), South Korea (KRX), Singapore (SGX), and Malaysia (FTSE Bursa).</td>
<td>15/12/2019-15/03/2020</td>
<td>Stock Markets Simulator (φ-Simulator)</td>
<td>For ten major stock market analysis, Covid-19 was predicted to cause similar damage to the 1929 Crisis. (Ḡ = 0.23).</td>
</tr>
<tr>
<td>Kandil Göker et al (2020)</td>
<td>Turkey (The Data of 26 Sectors in BIST)</td>
<td>02/01/2019-09/04/2020</td>
<td>Event Study Method</td>
<td>Most sectors it was observed that it obtained negative cumulative abnormal returns. Highest loss It was determined to be in the sports, tourism and transportation sectors.</td>
</tr>
<tr>
<td>Writer(s) - Year</td>
<td>Country</td>
<td>Period</td>
<td>Method</td>
<td>Conclusion</td>
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<tr>
<td>Lee et al (2020)</td>
<td>Malaysian (Kuala Lumpur Composite Index (KLCI) and 13 sectorial indices)</td>
<td>31/1/2019-18/04/2020</td>
<td>Regression Analysis</td>
<td>The findings showed that higher numbers of Covid-19 cases in Malaysia tended to adversely affect the performance of the KLCI index and all sectorial indices, except for the Real Estate Investment Fund (REIT) index.</td>
</tr>
<tr>
<td>Liu et al (2020)</td>
<td>Stock Indexes of 21 Countries</td>
<td>21/02/2019-18/03/2020</td>
<td>Event Study Method</td>
<td>It is stated that Covid-19 affects exchanges negatively in all countries, while countries in Asia experience more negative abnormal returns compared to other countries.</td>
</tr>
<tr>
<td>Baig et al (2020)</td>
<td>US (S&amp;P 500)</td>
<td>13/01/2020-17/04/2020</td>
<td>OLS regression</td>
<td>Increases in cases and deaths due to Coronavirus caused a significant deterioration in market liquidity and stability.</td>
</tr>
<tr>
<td>Şenol and Zeren (2020)</td>
<td>MSCI Indices (World, European, Emerging Market and G7)</td>
<td>21/01/2020-07/04/2020</td>
<td>Fourier Cointegration test</td>
<td>It is determined that there is a long term relationship between stock markets and Covid-19.</td>
</tr>
<tr>
<td>Paola and Dirks (2020)</td>
<td>Euro Area (17 Countries)</td>
<td>01/01/2020-17/05/2020</td>
<td>Panel Data Regression</td>
<td>Evidence has been presented that measures related to Covid-19 have a significant negative impact on the exchanges.</td>
</tr>
<tr>
<td>Zeren and Hızarcı (2020)</td>
<td>China (SSE), Italy (FTSE MIB), South Korea (KOSPI), France (CAC40), Germany (DAX30), Spain (IBEX35)</td>
<td>23/01/2020-30/09/2020</td>
<td>Maki Cointegration Test</td>
<td>It was determined that Covid-19 cases have cointegration relationship with SSE, KOSPI and IBEX35, and are not co-integrated with FTSE MIB, CAC40, DAX30.</td>
</tr>
<tr>
<td>Al-Awadhi et al (2020)</td>
<td>China (HSI and SSE Composite Index)</td>
<td>10/01/2020-16/03/2020</td>
<td>Panel Data Analysis</td>
<td>It is stated that Covid-19 has significant negative effects on stock returns in all companies.</td>
</tr>
<tr>
<td>Ashraf (2020)</td>
<td>Stock Market Returns of 64 Countries</td>
<td>22/01/2020-17/04/2020</td>
<td>Event Study Method and Panel Data Regression</td>
<td>Exchanges were found to have reacted negatively quickly to the growth in Covid-19 approved cases.</td>
</tr>
<tr>
<td>Topcu and Gulal (2020)</td>
<td>26 Emerging Stock Markets</td>
<td>10/03/2020-30/04/2020</td>
<td>Ordinary Least Squares (OLS) Regression Method</td>
<td>The highest effect of Covid-19 was determined on the emerging stock exchanges in Asia and the lowest effect was on the emerging markets in Europe. It was revealed that the negative impact of the pandemic on emerging exchanges started to decrease gradually in mid-April.</td>
</tr>
<tr>
<td>Thakur (2020)</td>
<td>US (S&amp;P 500)</td>
<td>23/01/2020-19/06/2020</td>
<td>Vector Autoregression (VAR) model</td>
<td>The S&amp;P 500 Index has shown negative reasons, along with an increase in the number of new cases.</td>
</tr>
</tbody>
</table>
3. Dataset, Methodological Background and the Econometric Model

The main objective of this study is to examine the impacts of Covid-19 cases on the financial markets in 24 countries for the period between 01/16/2020 and 06/12/2020 with the five-day data set using the switching regression analyses. Closing prices of the each country’s stock exchange markets were taken as a proxy for the financial markets. This variable was used as the dependent variable of the analysis. On the other hand, Covid-19 variable was used as a regime-dependent regressor and the variable represents the number of people diagnosed with Covid-19. Four regime-independent regressors are used in the analysis as control variables. The first two of these variables are handled in order to determine the effects of Covid-19 on financial markets. In this context, the first variable was included in the analyses as the number of patients recovering from Covid-19, and the second variable was added as the number of people who died from Covid-19. On the other hand, the last two control variables, exchange rates in terms of US dollars and gold prices were used as macroeconomic control variables. The main reason for including these variables in the analysis is to examine the impact of macroeconomic variables during Covid-19 period on financial markets compared to normal periods without the epidemic. The datasets used in analyses are available in Digital Conversion Office of the Republic of Turkey, Investing.com and Yahoo Finance.

In the study, the dynamic threshold model (switching regression) developed by Hansen (1999) for internal estimators and extended version of it by Kremer et al. (2013) is used. The model considered in the paper follows the cross-sectional threshold analysis of Caner and Hansen (2004) and Kremer et al. (2013) in which Generalized Method of Moments (GMM) estimation procedure is utilized to stand for endogeneity. In this context, a general form of dynamic panel threshold model can be defined as follows:

\[ y_{it} = \mu_{it} + \beta_1 z_{it} I(q_{it} \leq \gamma) + \beta_2 z_{it} I(q_{it} > \gamma) + \epsilon_{it} \]  

(1)

where \( t (t = 1, ..., T) \) represent the time, \( y_{it} \) indicates the dependent variable, \( \mu_{it} \) is based on the country-specific fixed effect and \( \epsilon_{it} \) is the error term. The indicator function, \( I(\cdot) \), presents the regime behaviours represented by the threshold variable of \( q_{it} \). \( \gamma \) indicates the threshold level and \( z_{it} \) consists of a set of independent variables that is based on \( m \)-dimensional vector. It is also possible that
the explanatory variables can contain lagged values of the dependent regressor (Kremer et al., 2013: 4).

The second step of the estimation process is to perform Two Stage Least Squares (2SLS) method to determine Covid-19 cases level. Following Caner and Hansen (2004: 818) and Kremer et al. (2013: 865), a reduced form of the regression for the independent variables of \( z_u \) as a function of the instrumental variants of \( x_u \) is estimated in the first phase. Then, the estimated values of independent variables of \( \hat{z}_u \) are substituted in the structural model for the independent variables of \( z_u \). In the second phase, by using predicted values of independent variables of \( \hat{z}_u \), the regression equation numbered (1) is estimated with the help of Ordinary Least Squares method for a fixed threshold level of \( \gamma \). Let \( S(\gamma) \) define the sum of the squared residuals of least squares, this procedure is repeated until finding a suitable threshold value of \( \gamma \) that has the smallest sum of squared residuals. In other words, \( \gamma \) is called the threshold estimator that minimizes the sum of squared error terms (Hansen, 2000):

\[
\hat{\gamma} = \text{argmin} \ S_\alpha(\gamma)
\]  

(2)

In order to determine the critical values for COVID-19 cases, the 95% confidence interval needs to be computed. Hansen (1999), Caner and Hansen (2004) and Kremer et al. (2013) suggest a constraint process which should be applied to find the optimal confidence values:

\[
\Gamma = \{ \gamma : LR(\gamma) \leq C(\alpha) \}
\]  

(3)

where, \( LR(\gamma) \) is the asymptotic distribution of the likelihood ratio and \( C(\alpha) \) is the 95% percentile concerning the distribution process. When the optimal threshold value (\( \hat{\gamma} \)) is determined, the slope coefficients can be predicted by applying GMM estimation process. In order to examine the impacts of Covid-19 cases on the volume of stock exchange markets, the switching regression model which is based on the estimation of the generalized moments method is presented in equation (4).

\[
VSMEM_t = \mu_t + \beta_1CVC_t I(CVC_t \leq \gamma) + \delta I(CVC_t \leq \gamma) + \beta_2CVC_t I(CVC_t > \gamma) + \psi z_t + \epsilon_t
\]  

(4)

In equation (4), the \( CVC_t \) represents both Covid-19 threshold values and regime-dependent regressors for two different kinds of regime, \( VSMEM \) indicates the volume of stock exchange markets and \( z_t \) refers to the vector of the control
variables or else regime-independent regressors. $\beta_1$ and $\beta_2$ are the gradient coefficients of regime, whereas $\delta_1$ shows regime intercepts.

According to Roodman (2009), the use of all the lagged values of dependent variable as the instrumental variable in switching regression analysis causes the estimations to be both unbiased and consistent. For this reason, considering the study of Arellano and Bover (1995), all of the lagged values of dependent variable are used in the model as instrumental variables.

### 4. Findings of the Analysis

The linkage between Covid-19 cases and volume of stock exchange markets is investigated by using switching regression analysis in the 24 countries through the period between 01/16/2020 and 06/12/2020 with the five-day data. For this purpose, the findings of the empirical analysis are presented in Table 2. The upper panel of table indicates the predicted values of Covid-19 case thresholds and the 95% confidence bounds relating to the thresholds. Besides that, the middle panel exhibits the regime-dependent regressors of Covid-19 case levels. In other words, this panel shows the effects of Covid-19 cases on the volume of stock exchange markets in the light of low and high case regimes. Finally, the lower panel of the table denotes the regime-independent regressors which represent the impact of control variables on the volume of stock exchange markets.
### Table 2. The Results of the Dynamic Threshold Model Analyses

<table>
<thead>
<tr>
<th>Dependent Variable: Volume of Stock Exchange Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Value of COVID-19 Case Threshold and Confidence Intervals</td>
</tr>
<tr>
<td>Threshold Value ($\hat{\gamma}$)</td>
</tr>
<tr>
<td>95% Confidence Interval</td>
</tr>
</tbody>
</table>

**Regime-Dependent Regressors (Impact of COVID-19 Cases)**

| Low COVID-19 Case Regime ($\hat{\beta}_1$) | 0.171* (1.742) [0.091] |
| High COVID-19 Case Regime ($\hat{\beta}_2$) | -4.185*** (-2.983) [0.000] |

**Regime-Independent Regressors (Impact of Control Variables)**

| Constant ($\hat{\delta}$) | 4.425*** (3.011) [0.000] |
| The Number of Patients Recovering from COVID-19 | 0.576* (1.912) [0.075] |
| The Number of Deaths from COVID-19 | -5.951*** (-3.478) [0.000] |
| Exchange Rates*COVID-19 Period | -6.407*** (-4.076) [0.000] |
| Gold Prices*COVID-19 Period | -0.872*** (-2.691) [0.006] |

**Statistics of the Model**

| Optimum Model: Fixed Effects Model | $R^2$: 0.649 |
| Cross-Section Effect: Yes | $F$-Stat (Prob): 3.775*** [0.000] |
| Period Effect: Yes | DW: 2.113 |
| Number of Observations: 2568 | Number of Cross-Sections: 24 |

*Note: t-statistics are given in parentheses and probabilities are given in square brackets. *** and * indicates the 1% and 10% significance levels. 500 bootstrap replications are used to obtain the p-values to test for the number of thresholds.*

The analysis results in Table 2 have shown that until the number of Covid-19 cases reaches 42,885 threshold case levels, the raise in the number of cases increases the stock market volume positively; however, it does not have strong effect (0.171). However, beyond the threshold level of 42,885 Covid-19 case, it has been observed that an increase in the number of cases has negative (-4.185) and statistically strong effect on the stock market volume. This result reflects that within the time frame considered there is a quadratic relationship between Covid-19 cases and financial markets, in other words inverted U-shaped relationship between the related variables are valid. On the other hand, analysis findings
reveal that the stock market volume raises (0.576) parallel to the increase in the number of patients recovering from Covid-19. Findings confirming this result show that the stock market volume decreases (-5.951) with the increasing number of deaths from Covid-19. However, it should not be overlooked that the restrictive effect of the increase in the number of deaths on the stock market volume is much more dominant than the positive effect of the number of patients recovering on the stock market. In addition, it is observed that an increase in exchange rates and gold prices during Covid-19 negatively affect the stock market volume (-6.407, -0.872, respectively).

5. Conclusions

The paper examines the impacts of Covid-19 cases on the financial markets in 24 countries for the period between 01/16/2020 and 06/12/2020 with the five-day data set using the switching regression analyses. The main reason for applying this analysis method is that it enables to show the effects of Covid-19 cases on the volume of stock exchange markets in the light of low and high case regimes.

The findings of the analysis indicate that until the number of Covid-19 cases reaches the threshold level, an increase in the number of Covid-19 cases raises the stock market volume positively; however, beyond the threshold level Covid-19 case, it is seen that an increase in the number of cases has negative strong impact on the stock market volume. This findings point out that there is a quadratic nexus between Covid-19 cases and financial markets, in other words inverted U-shaped relationship between the related variables are valid.

The basic condition for financial markets to avoid the negative impact of the pandemic with the minimal losses depends on keeping the number of cases at a certain threshold. In other words, it is observed that the number of cases that have not reached the threshold value does not have a negative impact on the financial markets, whereas it is adversely affected if the threshold value is exceeded. Therefore, it can be said that the black swan that drives the financial markets is actually the number of cases that have a certain threshold value. It should not be overlooked that any measures that can limit the number of cases can reduce the volatilities in the stock markets. Beyond the threshold level, the economic agents can change their perceptions to real markets rather than financial markets in order to meet their daily needs, improve health conditions and strengthen prudential
conditions. As it is observed, in order that the pandemic does not have devastating effects on the stock markets, governments should have to accelerate technical progress to improve health conditions, to boost R&D investments in health-care sector, to enable practices to encourage scientific progress in pandemic disease, to abolish the restrictions imposed on financial markets, to increase investment incentives that can direct domestic and foreign investors to financial markets, to take measures that will compensate for the losses of investors and to prepare development programs by taking whole economic sectors into account should be vital in the pandemic period.

References


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THE EFFECT OF ECONOMIC POLICY UNCERTAINTY ON PORTFOLIO INVESTMENT ASSETS AND LIABILITIES

Sevilay KUCUKSAKARYA

Introduction

When the recent political events and their results are analyzed, it is observed that the high level of policy uncertainty can create adverse effects on the economies. The studies related to economic policy uncertainty index (EPU) created by Baker et al. (2016) have significantly increased due to increase worldwide uncertainties. Not only such uncertainties cause households to worry, it also makes it difficult for businesses to plan. As a result of uncertainty, fluctuations occur in financial markets, and the country’s currency is damaged. For example, uncertainty regarding the fiscal policy can cause a long-term recession in the economy by delaying on investment and recruitment decisions. Studies imply that uncertainty shocks are an essential source of financial volatility (Baker et al., 2016; Phan et al., 2018, Li et al., 2018, Liu et al., 2017).

Economic policy uncertainty affects the economies through different channels. Empirical studies have revealed that economic policy uncertainty shocks are particularly effective in financial markets. According to Bordo et al. (2016) and Zhang et al. (2019), economic policy uncertainty has a negative effect on banks’ loan growth. Nguyen et al. (2018) and Choudhry (2018) investigated the relationship between economic policy uncertainty and housing prices. According to the authors, there is a long-term cointegration between economic policy uncertainty and house prices. Kang et al. (2017), Sun et al. (2018), Ji et al. (2018), Chen et al. (2019) emphasized that economic policy uncertainty increases asset and energy prices. These studies show the negative impact of economic policy

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uncertainty on financial markets. However, little is known in the literature about the impact of uncertainty shocks caused by economic policy uncertainty on portfolio investment and international investment position of countries.

This article fills this gap and adds to the existing literature by analyzing the impact of economic policy uncertainty on portfolio investment assets and liabilities, using the panel causality test developed by Dumitrescu-Hurlin (2012) (D-H). Data covers annual data of the period 2005-2019 for 21 countries. For this purpose, firstly, the relevant literature was introduced, then the data and method used in the study, and the findings were explained, and lastly, the results of the study and policy recommendations were given.

**Economic Policy Uncertainty Index and Economic Variables**

Depending on the Baker et al.’s economic policy uncertainty index calculation, recent academic studies have increased regarding the effects of Economic Policy Uncertainty (EPU) on production and financial variables. Since 2008, economic policy uncertainty has averaged about twice the level of the previous 23 years. Baker et al. (2016) claimed a significant dynamic relationship that exists between economic policy uncertainty index and real macroeconomic variables. Authors found an increase in economic policy uncertainty as measured by their index foreshadows a decline in economic growth and employment in the following months. In addition to this, according to results of their studies Gulen and Ion (2015), Baker et al. (2016) and Drobetz et al. (2018) stated that the high economic policy uncertainty in the country lowered the investment. Karnizova and Li (2014) and Caggiano et al. (2017) implied the high economic policy uncertainty in the country reduced production. Pastor and Veronesi (2012), and Arouri et al. (2016) has observed that it decreases stock prices, while Choudhry (2018) found in his study it has a significant and negative effect on property prices in the country. Relative to the studies of Karnizova and Li (2014) and Caggiano et al. (2017) in periods when the economic policy uncertainty is higher, consumers and investors tend to prefer a wait-and-see attitude instead of investing or consuming.
Figure 1 highlights 20-years of the global economic policy uncertainty index measured by Baker et. al. (2019), computed as a GDP-weighted average of national EPU indices for 21 countries that account for 80% of global output. Figure 1 also reveals that economic uncertainty has been low during the 1990s but increased considerably after the 2001 recession. In contrast, a noticeable divergence exists for the period 2003 to 2007. High economic policy uncertainty is even more pronounced at the global level, with the global EPU index reaching several all-time highs since 2016. Based on the literature, the increase in economic policy uncertainty affects the financial market negatively through different channels. Higher economic policy uncertainty significantly reduces bank loan growth, with a stronger impact on larger and riskier banks (Bordo et al., 2016; Hu and Gong, 2018) And also it increases the returns of stocks significantly and this effect is stronger and permanent in periods of high volatility (Ko and Lee, 2015; Arouri et al., 2016).

Data and Methodology

This study uses a panel data which consist of 21 countries over the period 2005–2019. The sample includes following countries: Australia, Brazil, Canada, Chile, China, Colombia, France, Germany, Greece, India, Ireland, Italy, Japan, Mexico,
Netherlands, Russia, Singapore, Spain, Sweden, United Kingdom, United States. In the study, Country specific national economic policy uncertainty and two versions of the GEPU Index - one based on current-price GDP measures, and one based on PPP-adjusted GDP\(^2\) are used. To measure policy-related economic uncertainty, writers construct an index from three types of underlying components that quantifies newspaper coverage of policy-related economic uncertainty; reflects the number of federal tax code provisions set to expire in future years and use disagreement among economic forecasters as a proxy for uncertainty.

International Portfolio investment assets and liabilities, which contains both debt securities an equity and investment fund shares are directly obtained from the World Development Indicators (World Bank). Table 1 presents variables and their data sources.

<table>
<thead>
<tr>
<th>National Economic Policy Uncertainty</th>
<th>LEPU</th>
<th><a href="http://www.policyuncertainty.com">www.policyuncertainty.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Economic Uncertainty based on current-price GDP measures</td>
<td>LGEPU</td>
<td><a href="http://www.policyuncertainty.com">www.policyuncertainty.com</a></td>
</tr>
<tr>
<td>Global Economic Uncertainty based on PPP-adjusted GDP</td>
<td>LGEPU_PPP</td>
<td><a href="http://www.policyuncertainty.com">www.policyuncertainty.com</a></td>
</tr>
<tr>
<td>International Investment Position, Assets, Portfolio investment (US Dollar)</td>
<td>LTOTALASSET</td>
<td>World Development Indicators</td>
</tr>
<tr>
<td>International Investment Position, Liabilities, Portfolio investment (US Dollar)</td>
<td>LTOTALLIAB</td>
<td>World Development Indicators</td>
</tr>
</tbody>
</table>

In the study, to examine the effects of economic policy uncertainties on investment liabilities and assets, by Dumitrescu-Hurlin (2012) the panel causality test is implemented. Prior to carrying out these tests, first the existence of cross-sectional dependence is investigated by Breusch-Pagan (1980) (Lagrange Multiplier-LM) and Pesaran (2004) (Cross-section Dependence-CD) tests. After determining the presence of cross-sectional dependence, D-H has been performed. The D-H panel causality test is a simple adaptation of the Granger non-causality test for constant coefficient non-homogeneous panel data models. It takes into account two dimensions of heterogeneity: the heterogeneity of the regression model used to test Granger causality and the heterogeneity of causality.

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\(^2\) Time series of these indexes are extracted from www.policyuncertainty.com.
relationships. In order to do this test, the series must be stationary at the same level. This method takes into account the cross-sectional dependency between each country. One of the most important advantages of this test is that it can work regardless of whether there is a cointegration relationship between variables (Dumitrescu & Hurlin, 2012).

The D-H test can predict cross-section dependency and cross-section independence situations. In normal panel Granger causality tests, when there is a causality relationship in only a subgroup of the sample due to the absence of cross-sectional information, that is, due to homogeneous null hypotheses, the null hypothesis expressing the absence of the Granger causality relationship in cross sections is rejected and the alternative hypothesis that this relationship exists for at least one cross section is accepted. In summary, in this test, despite the absence of the homogeneous Granger causality relationship in the null hypothesis, the alternative hypothesis is tested that shows the existence of the relationship for at least one cross section (Dumitrescu & Hurlin, 2012).

The equation used for the D-H panel causality test considering the linear heterogeneous model is as follows:

\[ y_{it} = \alpha_i + \sum_{k=1}^{K} \gamma^k_{it-k} y_{it-k} + \sum_{k=1}^{K} \beta^k_{it} x_{it-k} + \epsilon_{it}, \quad i = 1, 2, \ldots, N ; \quad t = 1, 2, \ldots, T \]

In the equation \( \alpha_i \) reflects individual effects and \( \gamma^k_{it} \) delay parameters; \( \beta^k_{it} \) represents the slope coefficients and \( K \) represents the lag length. In the model, it is assumed that the individual effects are constant, the lag and slope coefficients vary between units, and the lag length is the same in cross sections. For the D-H test, panel must be a balanced panel. The null and alternative hypotheses tested from the above equation are as follows:

\[ H_0: \beta_{i1} = \cdots = \beta_{iK} = 0 \quad \forall i = 1, \ldots, N \]

\[ H_1: \beta_{11} = \cdots = \beta_{K1} = 0 \quad \forall i = 1, \ldots, N \]

\[ \beta_{i1} \neq 0 \quad \forall i \neq N_1 + 1, \ldots, N \]

The null hypothesis shows that all units have no Granger causality relationship between variables, while the alternative hypothesis expresses the existence of Granger causality between variables in at least one unit. Individual residues are independent for each cross section unit. This test is normally distributed and allows.
the model used is heterogeneous, the null hypothesis makes us homogeneous; the alternative hypothesis leads to a heterogeneous result (Dumitrescu & Hur- lin, 2012). Table 1 displays the results of the D-H Panel Causality Tests between net investment assets position of countries and economic policy uncertainties ³. 

**Table 2: The Results of Pairwise Dumitrescu Hurlin Panel Causality Tests Between Assets and Economic Policy Uncertainties**

<table>
<thead>
<tr>
<th>Null Hypothesis: LTOTALASSET does not homogeneously cause LEPU</th>
<th>Test statistics</th>
<th>Null Hypothesis: LTOTALASSET does not homogeneously cause LGEPU_PPP</th>
<th>Test statistics</th>
<th>Null Hypothesis: LTOTALASSET does not homogeneously cause LGEPUC</th>
<th>Test statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTOTALASSET does not homogeneously cause LEPU</td>
<td>4.04957 (0.0000)</td>
<td>LTOTALASSET does not homogeneously cause LGEPU_PPP</td>
<td>4.96237 (0.0035)</td>
<td>LTOTALASSET does not homogeneously cause LGEPUC</td>
<td>4.62375 (0.0128)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Null Hypothesis: LEPU does not homogeneously cause LTOTALASSET</th>
<th>Test statistics</th>
<th>Null Hypothesis: LGEPU_PPP does not homogeneously cause LTOTALASSET</th>
<th>Test statistics</th>
<th>Null Hypothesis: LGEPUC does not homogeneously cause LTOTALASSET</th>
<th>Test statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEPU does not homogeneously cause LTTOTALASSET</td>
<td>2.84717 (0.8184)</td>
<td>LGEPU_PPP does not homogeneously cause LTOTALASSET</td>
<td>4.15944 (0.0577)</td>
<td>LGEPUC does not homogeneously cause LTOTALASSET</td>
<td>3.68838 (0.1938)</td>
</tr>
</tbody>
</table>

The results in Table 2 shows that there is unidirectional Granger causality running from net investment assets position of countries (LTOTALASSET) to country based economic policy uncertainties (LEPU). Similarly, the same causal relations are found between current price GDP measured global economic policy uncertainties. In other words, an increase in portfolio investments on assets indicates that the economy is performing well and might continue to perform well at least in the short run. On the other hand, there is bidirectional causal relations between PPP based global economic policy uncertainty and net investment assets position of countries. This should occurred because economic policy reflects also economic power of the country.

³ All test results show that there is cross section dependency. According to the results, the null hypothesis is rejected because it is meaningful. Therefore, there is a cross-sectional dependency for 21 countries. Economic and financial interactions, which are already accelerated by increasing globalization, increase this kind of cross-sectional dependency between economic policy uncertainty and external financial assets and liabilities among countries.
Table 3 shows the results of D-H Panel Causality Tests between net investment liabilities position of countries and economic policy uncertainties. Test results in table shows that there are unidirectional causalities running from economic policy uncertainties to liabilities. This result highlight the vulnerability of the liabilities to economic policy uncertainties.

### Conclusion

In this study, the relationship between economic policy uncertainties (both global and national) and portfolio investment assets and liabilities for 21 countries was analyzed using the D-H panel causality test during 2005 and 2019. The cross-sectional dependency between countries indicates that there are close economic and financial relations among the countries in the sample and that economic shocks arising from policy uncertainties are likely to spread between these countries.

Investing in short-term securities, particularly portfolio flows, including debt securities, equities and liabilities, is fully affected by both national and global economic policy uncertainties. As a result of this situation, it can be observed that investors use such information to make investment decisions across the countries. In times of high economic policy uncertainty, investors do not want to invest in debt securities, especially the sample countries. If economic policy uncertainties indicated a country is not eligible in nature or inherently problematic in terms of the economic outcomes, the investors show less willingness to invest money into that countries’ equities, liabilities or debt securities. This highlights
the importance of early government actions and interventions to support the financial sector in case of an economic policy uncertainty.

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FINANCIAL LITERACY AND DIGITAL COMPETENCE COULD PREDICT FINANCIAL RISK TOLERANCE: A RESEARCH STUDY IN TURKEY

Çağrı HAMURCU

Abstract

The objectives of this study are to find out whether there are any relationships between financial risk tolerance, financial literacy, and digital competence or not and how financial risk tolerance could be predicted by financial literacy, digital competence, and demographical factors. To measure financial risk tolerance, financial literacy and digital competence, Grable and Lyttton Financial Risk Tolerance Scale, basic financial literacy questions and a newly developed digital competence scale are used respectively. Results indicate that there are positive correlations between financial risk tolerance, financial literacy, and digital competence. The highest correlation is found between financial risk tolerance and financial literacy. A new digital competence scale structured with three factors (digital competence factors 1, 2, and 3) is developed. Moreover, it is founded that gender and marital status are affecting factors for financial risk tolerance separately. The financial risk tolerance of men is greater than women and married ones are greater than single ones. Furthermore, as a result of multiple regression analysis, it is obtained that financial risk tolerance could be predicted by financial literacy, marital status and digital competence factor 1. The importance of this work lies in its different perspectives for financial risk tolerance with the effects of financial literacy and digital competence on it. The finding mechanism could be used to strengthen financial sustainability.

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Jel Codes: D90, D91, G40, G41.

Keywords: Behavioral Finance, Financial Risk Tolerance, Financial Literacy, Digital Competence, Financial Sustainability

Introduction

Financial risk tolerance is defined as the measure of risk believed and accepted and the attitude towards the risk (Sulaiman, 2012). In other words, financial risk tolerance is the eagerness of people to decide on financial issues under maximum uncertainty (Prabhakaran & Karthika, 2011). In the case of risk, the main point is how the risk is perceived rather than rationality. In this case, cognitive, emotional and demographic factors come into prominence. Evaluating the amount of risk, expected and realized results are becoming important factors.

In order to understand the basis of individuals’ financial risk tolerances, lots of studies were focused on the effect of demographic characteristics such as age, income, gender, marital status and level of education. Even though the existent studies focused especially on demographic factors, it is not sufficiently and compromised knowledge about how an individual’s financial literacy and capability of using the latest technology or digital competence affects financial risk tolerance attitudes. It is stated that an individual in a digital financial environment should be digitally competent and financially literate (Salman & Saleem, 2017).

The first objective of this study is to find out whether there are any relationships between financial risk tolerance, financial literacy, and digital competence or not. The second aim is to reveal how financial risk tolerance could be predicted by financial literacy, digital competence, and demographical factors. In this study, the effects of gender, marital status, and age on financial risk tolerance are researched as demographical factors. In order to reduce the effects of other demographic factors, increase the clearance of the findings, level of education and income of the participants are kept constant.

Using and understanding financial information more appropriately and correctly is described as financial literacy (Huston, 2010). In order to ensure the financial sustainability of individuals, families, enterprises, and economies, it is known that financial literacy is one of the important abilities a person has (Swiecka, Yeşildağ, Özen, & Grima, 2020). In literature, it is founded that financial risk tolerance is
related to financial literacy positively (Grable, 2000; Grable & Joo, 2000; Grable & Joo, 1999; Grable & Lytton, 1999; Riley & Russom, 1995). On the other hand, Yip (2000) reached a result that there is no relation between financial risk tolerance and financial literacy. Financial risk tolerance and financial literacy relation are evaluated in this research.

Moreover, to reveal the relation between digital competence and financial literacy, this relation is also researched in this study.

Recent developments in technology have led to significant changes in life. The capability of using the latest technology has received much attention, especially over the last decades. The next decade is likely to witness a considerable rise in digital technologies. To participate in nowadays society, some competencies related to digital technologies are required. This set of competencies related to digital technologies is Digital Competencies. As a result of this project, under five main digital competence areas, 21 digital competencies are defined (Ala-Mutka, 2011; Ferrari, 2013) (see Table 1). A new digital competence scale is developed according to the above stated digital competences. In this table, abbreviations are defined for each main competence and sub-competencies below.

Table 1 Digital Competencies

<table>
<thead>
<tr>
<th>1. Information and data literacy (IDL)</th>
<th>4. Safety (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Browsing, searching and filtering information (IDL1)</td>
<td>4.1 Protecting devices (S1)</td>
</tr>
<tr>
<td>1.2 Evaluating Information (IDL2)</td>
<td>4.2 Protecting personal (S2)</td>
</tr>
<tr>
<td>1.3 Storing and retrieving information</td>
<td>4.3 Protecting health (S3)</td>
</tr>
<tr>
<td>2. Communication and collaboration (CC)</td>
<td>4.4 Protecting the environment (S3)</td>
</tr>
<tr>
<td>2.1 Interacting through technologies (CC1)</td>
<td>5. Problem-solving (PS)</td>
</tr>
<tr>
<td>2.2 Sharing information and content (CC2)</td>
<td>5.1 Solving technical problems (PS1)</td>
</tr>
<tr>
<td>2.3 Engaging in online citizenship (CC3)</td>
<td>5.2 Identifying needs and technological responses (PS2)</td>
</tr>
<tr>
<td>2.4 Collaborating through digital channels (CC4)</td>
<td>5.3 Innovating and creatively using technology (PS3)</td>
</tr>
<tr>
<td>2.5 Netiquette (CC5)</td>
<td>5.4 Identifying digital competence gaps (PS4)</td>
</tr>
<tr>
<td>2.6 Managing digital identity (CC6)</td>
<td></td>
</tr>
<tr>
<td>3. Digital content creation (DCC)</td>
<td></td>
</tr>
<tr>
<td>3.1 Developing content (DCC1)</td>
<td></td>
</tr>
<tr>
<td>3.2 Integrating and re-elaborating (DCC2)</td>
<td></td>
</tr>
<tr>
<td>3.3 Copyright and Licenses (DCC3)</td>
<td></td>
</tr>
<tr>
<td>3.4 Programming (DCC4)</td>
<td></td>
</tr>
</tbody>
</table>
FINANCIAL LITERACY AND DIGITAL COMPETENCE COULD PREDICT FINANCIAL RISK TOLERANCE: A RESEARCH STUDY IN TURKEY
Çağrı HAMURCU

In order to investigate the interaction between financial risk tolerance, digital competence, and financial literacy, these hypotheses are developed: Hypothesis 1: “Financial risk tolerance is positively related to financial literacy”, H2: “Financial risk tolerance is positively related to digital competence.”, H3: “Financial literacy is positively related to digital competence”.

Material and Methods
This qualitative study is performed to 117 volunteers working in Ankara, Turkey (May 2018-January 2019), has a university degree and has approximately the same amount of individual income. In the scheduled meetings, each participant is explained the research and how they can answer the questions. Then a web version of the form linked to email is sent privately. The privately completed forms by participants were then submitted back. Totally 135 participants were attended to meetings and 117 of these 135 participants are completed the form.

In the first phase, all explanations and statements defining every 21 digital competencies in Dig Comp 2.1 (Carretero, Vuorikari, & Punie, 2017) with 8 proficiency levels are translated into Turkish. The scale is prepared with the controls of relevant experts and researchers. In the second phase, the first version of this scale is implemented on randomly selected volunteers (N=20) working in Ankara, Turkey. In the scheduled meeting, each participant is explained the research, Digital Competence, DigComp 2.1, examples of use for each competence (Carretero et al., 2017) and how they can answer the scale. Then a web version of the scale linked to email is sent. The privately completed scales by participants are then submitted back. Then, the first reliability analysis is performed on the data of the pilot test group (α= .981).

In the third phase, the scale is implemented with the same method explained in phase two on the sample group (N=117) working in Ankara. Then, the second reliability analysis is performed on the data of the sample group. In the fourth phase, an explanatory factor analysis study is performed in order to determine whether the 21 statements in this scale has sufficient validity (α = .978).

In this study, to measure financial risk tolerance, digital competence, and financial literacy; Grable and Lytton Financial Risk Tolerance Scale (Grable, & Lytton, 1999; Grable, Lytton, & O’Neill, 2004), the newly developed digital competence scale according to Dig Comp Ver 2.1 (Carretero et al., 2017) and basic financial literacy questions (Lusardi, & Mitchell, 2007; Van Rooij, Lusardi, & Alessie,
2011) are used respectively. The scores of financial risk tolerance scale range from 13 to 47, high scores define increased financial risk tolerance. The newly developed digital competence scale is composed of 21 items and each item is answered from 1 to 8 according to an individual’s proficiency level. This basic financial literacy question set is composed of 5 questions in order to explore an individual’s numerical skills and to understand an individual’s knowledge about some basic financial terms such as compound interest, inflation, time value of money and income-price relation. If an individual gives a correct answer to any one of the basic financial literacy questions, 1 point is obtained. As a result, the total score of the basic financial literacy questions ranges from 0 to 5 for each individual.

All analyses are performed by SPSS Ver.20.

Results

In the first part of this section, the demographic distribution of the participants is given in Table 2.

<table>
<thead>
<tr>
<th>Gender</th>
<th>45.3% (F, n=53)</th>
<th>54.7% (M, n=64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>65.8% (Married, n=77)</td>
<td>34.2% (Single, n=40)</td>
</tr>
<tr>
<td>Age</td>
<td>15.4% (30-, n=18)</td>
<td>48.7% (30-39, n=57)</td>
</tr>
</tbody>
</table>

Note: F=Female; M=Male; n=number.

In this study, the level of education and income of the participants is kept constant.

To measure digital competence, a digital competence scale is developed. In order to evaluate the factors of this scale, explanatory factor analysis is performed. At the beginning of the factor analysis, it is evaluated that The Kaiser-Meyer-Olkin (KMO) value is 0.874 and the Bartlett sphericity test (df=210, Sig.=0.000) and these values show that this scale is suitable for factor analysis. At the end of successive calculations with promax with kaiser normalization as a rotation method, 14 components have remained and these components are distributed into 3 main factors (see Table 3). The total variance explained is 0.869. The same factor structure with different loadings is evaluated when the varimax with Kaiser normalization is selected as a rotation method.
**Table 3. Factor Matrix of Digital Competence**

<table>
<thead>
<tr>
<th>Digital Competence</th>
<th>Digital Competence Factor 1</th>
<th>Digital Competence Factor 2</th>
<th>Digital Competence Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can identify technical problems when operating devices and using digital environments, and solve them (from trouble-shooting to solving more complex problems). (PS1)</td>
<td>1.010</td>
<td>.877</td>
<td>.872</td>
</tr>
<tr>
<td>I can assess needs and identify, evaluate, select and use digital tools and possible technological responses and solve them. (PS2)</td>
<td>.877</td>
<td>.872</td>
<td>.872</td>
</tr>
<tr>
<td>I can modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge. (DCC2)</td>
<td>.872</td>
<td>.872</td>
<td>.693</td>
</tr>
<tr>
<td>I can create and edit digital content in different formats, to express oneself through digital means. (DCC1)</td>
<td>.872</td>
<td>.872</td>
<td>.693</td>
</tr>
<tr>
<td>I can articulate information needs, search for data, information, and content in digital environments, access and navigate between them. (IDL1)</td>
<td>.693</td>
<td>.917</td>
<td>.907</td>
</tr>
<tr>
<td>I can organize, store and retrieve data, information, and content in digital environments. (IDL3)</td>
<td>.907</td>
<td>.907</td>
<td>.906</td>
</tr>
<tr>
<td>I can analyze, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. (IDL2)</td>
<td>.906</td>
<td>.906</td>
<td>.835</td>
</tr>
<tr>
<td>I can protect devices and digital content, and understand risks and threats in digital environments. (S1)</td>
<td>.835</td>
<td>.835</td>
<td>.562</td>
</tr>
<tr>
<td>I can protect personal data and privacy in digital environments. (S2)</td>
<td>.562</td>
<td>.562</td>
<td>.907</td>
</tr>
<tr>
<td>I can interact through a variety of digital technologies and understand appropriate digital communication means for a given context. (CC1)</td>
<td>.907</td>
<td>.907</td>
<td>.807</td>
</tr>
<tr>
<td>I can participate in society with public and private digital services. (CC3)</td>
<td>.807</td>
<td>.807</td>
<td>.879</td>
</tr>
<tr>
<td>I can share data, information and digital content with others through appropriate digital technologies. (CC2)</td>
<td>.879</td>
<td>.879</td>
<td>.855</td>
</tr>
<tr>
<td>I can use digital tools and technologies for collaborative processes, and co-construction and co-creation of data, resources, and knowledge. (CC4)</td>
<td>.855</td>
<td>.855</td>
<td>.819</td>
</tr>
</tbody>
</table>

The Cronbach’s alpha values of Factor 1 is $\alpha = .962$, Factor 2 is $\alpha = .952$, Factor 3 is $\alpha = .940$ and Total (14 Items) is $\alpha = .967$. In this newly developed scale, scores are ranged for factor 1 and factor 2 from 5 to 40, for factor 3 from 4 to 32, for total 14 items from 14 to 112.

Digital competence factor 1 composed of the items represent problem-solving 1,2 (PS1, and PS2) and digital content creation 1,2, and 3 (DCC1, DCC2, and DCC3). Information and data literacy 1,2,3 (IDL1, IDL2, and IDL3) and safety items are included digital competence factor 2. The third digital competence factor (factor 3) is the sum of all four items in the communication and collaboration category (CC1, CC2, CC3, and CC4).

In order to find whether there are any relationships between financial risk tolerance, digital competence, and financial literacy or not and to reveal the direction and severity of these relationships, first of all, correlation analysis is applied. Tables 4 is the outputs of this analysis.

Table 4. Correlation Analysis of Financial Risk Tolerance - Financial Literacy - Digital Competence

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Financial Risk Tolerance</th>
<th>Financial Literacy</th>
<th>DC Factor 1</th>
<th>DC Factor 2</th>
<th>DC Factor 3</th>
<th>DC Scale (Factor 1, 2, 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Risk Tolerance</td>
<td>27.22</td>
<td>5.08</td>
<td>0.464**</td>
<td>0.255**</td>
<td>0.213*</td>
<td>0.155</td>
<td>0.232*</td>
<td></td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>2.69</td>
<td>1.65</td>
<td>0.464**</td>
<td>0.223*</td>
<td>0.206*</td>
<td>0.221*</td>
<td>0.239**</td>
<td></td>
</tr>
<tr>
<td>DC Factor 1</td>
<td>15.09</td>
<td>8.49</td>
<td>0.255**</td>
<td>0.223*</td>
<td>0.731**</td>
<td>0.738**</td>
<td>0.913**</td>
<td></td>
</tr>
<tr>
<td>DC Factor 2</td>
<td>18.40</td>
<td>8.44</td>
<td>0.213*</td>
<td>0.206*</td>
<td>0.731**</td>
<td>0.727**</td>
<td>0.909**</td>
<td></td>
</tr>
<tr>
<td>DC Factor 3</td>
<td>13.87</td>
<td>7.34</td>
<td>0.155</td>
<td>0.221*</td>
<td>0.738**</td>
<td>0.727**</td>
<td>0.897**</td>
<td></td>
</tr>
<tr>
<td>DC Scale (factor 1, 2, 3)</td>
<td>47.37</td>
<td>22.00</td>
<td>0.232*</td>
<td>0.239**</td>
<td>0.913**</td>
<td>0.909**</td>
<td>0.897**</td>
<td></td>
</tr>
</tbody>
</table>

Note: SD = standard deviation. DC = Digital Competence. * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

According to table 4, financial risk tolerance is positively correlated to financial literacy, digital competence factor 1, digital competence factor 2 and digital competence scale (factors 1, 2 and 3) separately (except Digital Competence Factor
3, p>0.05). In these relations, the highest correlation factor is found between financial risk tolerance and financial literacy (0.464).

In addition to that, relations of financial literacy with digital competence factor 1, digital competence factor 2 and digital competence factor 3 and digital competence scale (factors 1, 2 and 3) are significantly positive (p<0.05) (see table 4).

Moreover, as it is expected, there are positive correlations between all three factors of digital competences and digital competence scale (factor 1, 2 and 3). These correlations are at a very high level (between 0.727 and 0.909).

Based on the results obtained above, regression analyses are performed to estimate the dependent variable according to independent variables. In these analyses, gender, marital status, and age are included.

One-Way Anova and Kruskal-Wallis tests are also applied in order to find the relation between financial risk tolerance, financial literacy, digital competence and demographic factors (gender, marital status, and age). It is found statically meaningful relationships between financial risk tolerance&gender, financial risk tolerance&marital status and financial literacy&gender (Sig. values are 0.014, 0.007 and 0.010 respectively). The result shows us that men (mean value is 28.27) have a greater financial risk tolerance than women (mean value is 25.96). In addition to that, the married ones (mean value is 28.13) has a greater financial risk tolerance than the single ones (mean value is 25.48). It is also found that the financial literacy values of men (mean value is 3.05) are higher than women (mean value is 2.26). Moreover, it is not found any significant relationship between financial risk tolerance, financial literacy, digital competence, and remaining demographic factors.

In order to predict financial risk tolerance, different regression models are developed between independent factors. In all models, financial risk tolerance is chosen as a dependent factor. These regression models show that, when financial literacy, marital status and digital competence factor 1 are added to the regression model hierarchically, the highest prediction ratio (R square = 0.3014) is achieved as a predictor of financial risk tolerance (see Table 5).

In model 1, only Financial Literacy is chosen as an independent factor, in model 2 Marital Status is added to model 1. In model 3, digital competence factor 1 is added to model 2. According to the regression analysis results, statistically
significant regressions are founded in all three models. As a result of hierarchical regressions, Model 3 is achieved. In model 3, it is founded that financial risk tolerance is predicted by Financial Literacy, Marital Status and Digital Competence Factor 1. The prediction formula of financial risk tolerance is given below.

Financial Risk Tolerance = 25.764 + 1.313xFinancial Literacy + 2.655xMarital Status + 0.098xDigital Competence Factor 1.

R Square value indicates that 30.14% of the variation in financial risk tolerance can be explained by model 3 containing Financial Literacy, Marital Status and Digital Competence Factor 1.

**Table 5. Financial Risk Tolerance, Digital Competence, and Financial Literacy Regression Analysis**

<table>
<thead>
<tr>
<th>Independent Variable(s)</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>R Square</th>
<th>Adjusted R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>23.367</td>
<td>0.803</td>
<td></td>
<td>29.093</td>
<td>0.000</td>
<td>0.464a</td>
<td>0.216</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>1.432</td>
<td>0.255</td>
<td>0.464</td>
<td>5.622</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>26.894</td>
<td>1.384</td>
<td></td>
<td>19.437</td>
<td>0.000</td>
<td>0.525b</td>
<td>0.276</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>1.426</td>
<td>0.246</td>
<td>0.462</td>
<td>5.801</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>2.617</td>
<td>0.850</td>
<td>0.245</td>
<td>3.078</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>25.764</td>
<td>1.473</td>
<td></td>
<td>17.487</td>
<td>0.000</td>
<td>0.549c</td>
<td>0.301</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>1.313</td>
<td>0.249</td>
<td>0.426</td>
<td>5.277</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>2.655</td>
<td>0.839</td>
<td>0.249</td>
<td>3.164</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Competence Factor 1</td>
<td>0.098</td>
<td>0.048</td>
<td>0.164</td>
<td>2.037</td>
<td>0.044</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Dependent Variable= Financial Risk Tolerance; B=the unstandardized beta; SE B=the standard error for the unstandardized beta; β=the standardized beta, t=the t test statistic; p=the probability value; * Significant at the 0.05 level (2-tailed); ** Significant at the 0.01 level (2-tailed). (marital status = 1, for married; 0 = single. a=Predictors: (Constant), Financial Literacy. b=Predictors: (Constant), Financial Literacy, Marital Status. c=Predictors: (Constant), Financial Literacy, Marital Status, Digital Competence Factor 1.
FINANCIAL LITERACY AND DIGITAL COMPETENCE COULD PREDICT FINANCIAL RISK TOLERANCE: A RESEARCH STUDY IN TURKEY
Çağrı HAMURCU

To reveal the value of a variation in financial risk tolerance explained by digital competence factor 1, another regression analysis is applied. As a result of this analysis, the R square value is found as 0.0499. It could be said this value can only explain 4.99% of the variation in financial risk tolerance by digital competence factor 1. 95.01% of financial risk tolerance can not be explained by digital competence factor 1. There must be other factors affecting financial literacy except for digital competence. This is consistent with the result of correlation analysis.

Discussion and Implications

The results demonstrate seven findings.

First of all, financial literacy is a determinant factor for financial risk tolerance and financial risk tolerance is increasing with financial literacy. There is a positive correlation between financial risk tolerance and financial literacy. This result verifies Hypothesis 1 “Financial risk tolerance is positively related to financial literacy”. Some researchers in literature found financial risk tolerance is positively related to financial literacy (Grable, 2000; Grable & Joo, 2000; Grable & Joo, 1999; Grable & Lytton, 1999; Riley & Russon, 1995) are consistent with our findings. On the other hand, the result of Yip (2007) that there is no relation between financial risk tolerance and financial literacy does not support our findings.

Secondly, it is proven in our study that financial risk tolerance is related to digital competence. This finding verifies Hypothesis 2 “Financial risk tolerance is positively related to digital competence”. It could be inferred that the level of digital competence could be a related factor for financial risk tolerance. From a different viewpoint, it could be said that digital competence creates an increase in people’s confidence (Ala-Mutka, 2011; Ferrari, 2012) or people’s confidence could produce digital competence (Hatlevik, Ottestad, & Throndset, 2015). This confidence could be the reason for ascending financial risk tolerance. The relation between the readiness to use digital financial services and risk tolerance is founded positively in the study of Königsheim, Lukas & Nöth (2017). It could be interpreted that this finding is compatible with ours.

Thirdly, it is also found that there are positive relations between digital competences and financial literacy. This is proof of Hypothesis 3 “Financial literacy is positively related to digital competence”. It could be concluded from these findings that; digital competency could ease to be financially literate on a limited
scale. It is expected that digital competent people could reach information more easily and the correct way. From a financial point of view, this result could be commented that digital competence could create opportunities to increase financial literacy. Because of the above-stated reasons, financial literacy could be interpreted as related to digital competence. The projection of digital competence on financial matters could be taken into account within the scope of financial literacy. In the study of Königsheim, Lukas & Nöth (2017), it is stated that the likelihood of using digital financial services is positively correlated with financial knowledge. As put forward by Rozkrut&Rozkrut (2019), e-finance solutions for financial consumers require digital competence. These findings could be interpreted in favor of our findings.

Fourthly, a new digital competence scale structured with three digital competence factors (digital competence factor1, 2, and 3) is obtained. It is important to highlight the fact that; this study could be assumed one of the few studies focused on developing a scale one to one correspondence of DigComp 2.1. Previous studies on developing a scale on digital competence by Akkoyunlu, Soylu, and Çağlar (2010) and by Kuzminska, Mazorchuk, Morze, Pavlenko, and Prokhorov (2018) cannot be considered as conclusive. Although the first previous study is a successive approach, major drawbacks are it is not exactly relayed on DigComp and its statements are on more of digital empowerment. The second study was one step close to DigComp. But it was not one to one correspondence of all 21 competencies on DigComp 2.1.

Fifthly, it is founded that gender is affecting financial risk tolerance. The financial risk tolerance of men is greater than women. This result is compatible with previous studies (Bajtelsmit, & Bernasek, 1996; Grable, 2000; Grable & Joo, 2000; Hallahan, Faff, & McKenzie, 2004; Hariharan, Chapman, & Domian, 2000; Ostrovsky-Berman & Litwin, 2018; Powell & Ansic, 1997; Sung & Hanna, 1996; Yao & Hanna, 2005).

Sixthly, financial risk tolerance is affected by the marital status such that the risk tolerance scores of the married ones are greater than the single ones. It could be originated from that the marriage and being family could give some safety and power for financial risk-taking because having a partner could provide more financial and emotional sources and an increased ability to tolerate undesirable financial results (Hallahan et al., 2004). According to the study of Wilson and Oswald
(2002), marriage can enhance feelings of attachment and belonging and ensures emotional and instrumental support. When comparing our results to those of older studies, it must be pointed out that some studies found that married ones are more risk-tolerant than single ones (Chang, DeVaney, & Chiremba, 2004; Grable, 2000; Grable & Lytton, 2003; Haliassos & Bertaut, 1995; Kuzniak, Rabban, Heo, Ruiz-Menjivar, & Grable, 2015; Sung & Hanna, 1996). On the contrary, some studies found the opposite results (Hallahan et al., 2004; Sulaiman, 2012) and some studies found that marital status is unrelated to financial risk tolerance (Chaulk, Johnson, & Bulcroft, 2003; Grable et al. 2004; Hammitt, Hninger, & Treich, 2005).

Seventhly, it is developed a new model on financial risk tolerance. This model is structured on the prediction of financial risk tolerance. In this model financial risk tolerance is tried to be predicted by independent factors. The result of the analysis shows that financial risk tolerance could be calculated by financial literacy, marital status and digital competence factor 1. It could be said that financial literacy, marital status and digital competence factor 1 are the predictors of financial risk tolerance. In the model, 30.14% of the variation in financial risk tolerance could be explained by the above stated three factors. It also means that only 69.86% of the variation in financial risk tolerance is still unexplained. For this reason, adding other independent variables could improve the fit of the model. Although this prediction ratio is limited, it wouldn’t be wrong to say being financially literate, married and digital competent could increase financial risk tolerance. If financial risk tolerance increases, an individual might have sufficient courage for financial issues in order to benefit from opportunities. This mechanism could help to strengthen for individual’s financial sustainability.

Limitation of This Study and Implications for Future Research

Though the significant findings, this study has a few limitations. These limitations might be addressed in future studies. The first limitation of this study, however, is the number of participants. Although scientifically accepted results, it suffers from some limitations due to the number of participants. This study is implemented only in the capital city of Turkey, Ankara. This is the second limitation of this research. Other cities or even other countries could be added to the next researches. To increase the prediction ratio for financial risk tolerance, researching
and adding other independent variables and demographical factors having possible effects on it could improve the fit of the model.

All the findings and recommendations about the limitations of this work provide a good starting point for discussion and further research. Our study provides a framework for a new perspective. Future investigations are necessary to validate conclusions that can be drawn from this study.

References


FINANCIAL LITERACY AND DIGITAL COMPETENCE COULD PREDICT FINANCIAL RISK TOLERANCE: A RESEARCH STUDY IN TURKEY

Çağrı HAMURCU


15
THE PLACE AND FUTURE OF ISLAMIC BANKING IN THE GERMAN BANKING SYSTEM
Hatice Elanur Kaplan

Introduction
With the escalation of the subprime crisis in the USA and the consequences for the real economy in Europe around 2008, Islamic banks and Islamic finance attracted a great deal of attention and were intensively researched in the western world. Many market players put their hopes in the alleged crisis resistance. While the real estate bubbles and the consequences of the burst bubbles had Europe and the USA firmly under control, the Islamic banks were almost immune to the negative consequences (Seel, 2012).

In 2009 Dubai experienced a crisis, as the state company Dubai World had to ask its creditors to defer payments, for a total of approximately 60 billion USD to settle liabilities. However, these were essentially liabilities that were based on an intersection of Islamic banking and the classic Western banking system. Just a few months later, the core of the payment crisis was overcome, and the restructuring of the state holding Dubai World began (Matschke et al., 2014).

The core of Islamic banking is the claim to act ethically in every respect, with the ethical and moral canon derived from the Koran itself or the Sharia. Given the resilience to crises and the high ethical standard, it seemed very likely that Islamic finance in general and Islamic banking, in particular, would become established in the western world. Many classic Western banks opened their own ‘Islamic windows’ or tried their hand at Sharia-compliant financial products. The positive expectations were reinforced by the steadily increasing absolute number of people of Islamic faith and the even stronger increase in the relative proportion of the total population. Further growth impulses from the current expansion of the sales market for Islamic-compliant banks are provided on the one hand by...
the influx of refugees from the Muslim regions of North and East Africa to the western states, and on the other hand by the lifting of financial sanctions against Iran (Sobol, 2015). The high expectations of the growth of an Islamic financial sector have not yet been fulfilled. The aim of the present study is to identify the market potential of people living in Germany by researching the interest in Islamic banking of Muslims who are already economically established in Germany.

**Instruments in Islamic Banking**

Since the challenges facing the financial sector in the Islamic world are not fundamentally different from those in the western world, various parallels can be seen in the products, which only differ from one another in their design. The financial instruments in Islamic banking can be divided into debt and equity capitalized contract forms as well as Islam-compliant leasing transactions. The entirety of the contractual structures is characteristic of a closeness to the real economy. The constant reference to the real economy is another central feature in Islamic banking. In contrast to conventional finance, the task of which is to provide untied capital, Islamic banking is based on the real economy. Therefore the prohibitions “Riba” and “Gharar” must be observed. These ensure that mutual trade only takes place on the basis of real goods (Kaplan, 2020).

The first fundamental contrast between classical Western finance and Islamic finance is the Riba interest prohibition. The word Riba means “surplus” or “interest”. According to Sharia law, all business deals in Islamic finance must be riba-free. Islamic schools of law agree on this prohibition, the scholars derive this prohibition from various suras of the Quran and the Sunna (Kayed, et al., 2012).

According to legal scholars, there is a separation of profits from commercial transactions and income from claims. A Muslim is allowed to lend money, but an interest claim from the loan is prohibited. The creditor may request a repayment of the loan, but he/she must waive his/her claim as soon as the debtor becomes insolvent (Fritzsch, 2017). In the end, Riba is an interest rate that is not allowed to exist in the Islamic financial system. The term Riba is not clearly defined in either the Quran or the Sunna. There are ongoing discussions about specific and detailed delimitation. As a result, there is a unanimous opinion among legal scholars that both the demand for interest and the payment of interest is strictly forbidden (Shaikh et al., 2017).
In contrast to the *Riba*, there is no such clear legal position for the prohibition on *Gharar* speculation. *Gharar* is the second major contrast to the western financial system and can be translated into English as “speculation” or “uncertainty/risk”. *Gharar* itself is also not categorically forbidden, only excessive *Gharar* is to be avoided (Gassner and Wackerbeck 2010, p. 38). *Gharar* is often found in short-term investments. There is no special limitation on speculation in financial markets; the prohibition of speculation prohibits any high-risk trade that involves contractual uncertainties (Hassan and Aliyu, 2018). In terms of implementation, the prohibition is difficult to interpret, as Islam itself does not explicitly forbid taking risks. The gap in interpretation can be closed by perceiving *Gharar* as the danger that one contractual partner exposes the other to risks without his/her knowledge. This approach is also confirmed by the fact that contracts are forbidden for which fulfillment is already uncertain in principle (Hassan and Mahlknecht, 2011).

Islamic law schools may disagree on the demarcation of *gharar*, but the unanimous opinion is that the prohibition on speculation also includes a prohibition on all forms of deception. From the *Quran* it is deduced that trading is already prohibited as soon as one of the contractual partners achieves a benefit to the detriment of the contractual partner (Kühn, 2015). The threshold for this is quite low, as speculation about the information deficits of the contractual partner already constitutes a violation (Azarian, 2011).

In practical implementation, every money transaction with a real object must be secured at Islamic Finance. Apart from this commonality, which is a basic requirement for all contract structures, the financing models differ in structure. In its basic form, the debt-based instrument “*Murabahah*” is a purchase agreement with buyback. Three parties are involved in such a contract; the bank generates its income from the surcharge levied when the goods are resold. From a legal point of view, the financial institution also bears the risk of non-acceptance by the customer (Warninda et al., 2019). The instrument “*Mudarabah*”, which is an Islamic social contract, differs from this. Here the bank generates its income from the profit of the project and not from a surcharge. With this type of contract, both risks and profits are shared between the bank and the customer (Ashrafania 2016, p. 45).

By comparing the instruments of the Islamic financial system, it can be seen that these can be related to the conventional forms of contract. This is justified by
globalization and reinforced by the need to establish contract structures similar to the prevailing conditions in order to adapt to the economic conditions on the market and thus to position oneself competitively.

The respective historical development also plays a decisive role in the similarities between the conventional and Islamic contract structures. The western financial system serves as the starting point for Islamic finance. In order to achieve a successful market positioning of an Islamic compliant financial system, a flexible system and adaptability are necessary. The Islamic legal system has developed some mechanisms for adaptation, such as the involvement of Islamic legal scholars. The Islamic legal scholars should interpret the Sharia and adjust it to given standards. There are also ongoing adjustments in the Islamic financial system due to the supervision of Sharia boards. Islam-compliant financial products and services can take into account current standards and circumstances, but at the same time, comply with the principles and norms of Islam (Wilson, 1991).

Potential of Islamic Banking

The business domain of Islamic banking has expanded continuously over the past few years and it can be expected that growth will continue in the future. In order to examine the market chances of Islamic banking in Islamic and non-Islamic countries, the market structure is analyzed first. The datasets published by the Islamic Financial Services Board (IFSB) in 2017 and recorded in the Islamic Financial Services Industry Stability Report serve as the basis for this.

The global business domain of Islamic Banking had a volume of 1.89 billion USD in 2016 (IFSB 2017, p. 7). The “The World Islamic Banking Competitiveness Report 2012-2013” published in 2012 was very optimistic that the Islamic banking business domain would exceed two billion USD in 2014 (The World Islamic Banking Conference, 2015). The average annual growth rate between 2004 and 2011 was up to 40% in individual countries, but this could no longer be achieved after 2011 (IFSB, 2013, p. 10). In 2015, the global growth rate decreased from around 10% to 6% and rose again in 2016 to around 10%. Higher growth rates can only be observed in countries that have relatively young Islamic finance. These include, for example, Nigeria with 24.8% and Oman with 43.9% (IFSB, 2017, p. 11).
Asset growth in the global Islamic financial services industry stagnated in 2016 for the second year in a row. This was mainly the result of write-downs of global Islamic bank assets in USD due to exchange rate devaluations in important Islamic banking markets.

The business domain of Islamic banking developed better in 2016 than in 2015. Sukuk issues rose and Islamic stocks developed positively again. At the same time, there were negative impulses, such as the first failure of a Sukuk issue in 2016. In contrast to previous years, Sharia-compliant stocks achieved lower returns than conventional stocks. The number of Islamic funds has decreased slightly, almost 30% of the funds were discontinued.

Sukuk are the best-known form of Islamic securities and they are most likely to be equated with the conventional term of the certificate (Usmani, 2007).

While the Sukuk emissions on the primary market from 2004 to 2012 showed an average annual growth rate of approx. 45% and their value were thus 6.6 billion USD to 131.2 billion USD rose, the global financial crisis led to a significant slump in this business area from 2007 onwards. This is due to the fact that during this period there was an investment inhibition on the part of both investors and issuers. The growth rate of global Sukuk emissions recovered rapidly; from 2009 an annual growth rate of around 60% followed until 2012 (IFSB, 2013, p. 25). This growth could no longer be achieved after 2012, although the demand for sukuk has also increased in non-Islamic countries such as the UK increased (Failaka Online, 2018). After Sukuk emissions peaked in 2012, the volume fell to 64.3 billion USD in 2015. And rose again on the primary market by 16% to 74.8 billion USD in 2016 due to increased emissions from issuers from states and state-related companies. After the stagnating year 2015 with 300.3 billion USD, the global sukuk in circulation rose by six percent to 318.5 billion USD at the end of 2016. Despite these improvements, the Sukuk market has not been able to regain the dynamism of the past few years (IFSB, 2017, p. 15).

The Middle East and parts of Asia, especially Malaysia, have the largest share of Islamic banking and thus also the largest share of assets. Islamic banks are most strongly represented in these regions (Hassan, 2017, p. 409). One explanation for this is that e.g. Iran is a strictly Muslim state and its financial system is strictly based on Sharia principles. Kuala Lumpur is the most relevant financial market for Islamic banking (IFSB, 2013, p. 7). Since Asia and the Middle East make up
the second largest proportion of Muslims worldwide with almost 60%, the geographical focus is to be expected. With a share of 50.8%, Malaysia leads the world, especially with regard to Sukuk emissions (IFSB, 2017, p. 16f.).

Although the Islamic capital market grew considerably between 2004 and 2011 (IFSB, 2013, p. 3), growth in the Islamic banking sector fell to an average of 5.7% in 2015. However, the asset growth rate rebounded in 2016 with a growth of around ten percent. Islamic banking assets expanded by 9.9% between the fourth quarter of 2013 and the second quarter of 2016. This growth was concentrated in 14 countries which together represent about 94% of the global Islamic banking industry. The growth potential of the Islamic banking system is evident from the absolute increase in Muslims. Optimal future prospects for Islamic banking can be derived, which will also have an impact on financial markets outside the Islamic states (IFSB, 2017, p. 10).

Problems of raising the potential of Islamic banking in Germany

Since financial products and financial transactions are subject to strict legal regulations in Germany, problems can arise when introducing Islamic-compliant financial products. For example, accounts according to Islamic Banking cannot be implemented in Germany, since the Deposit Protection and Investor Compensation Act (EAEG) obliges all financial institutions to secure their deposits by belonging to a statutory compensation scheme. Since the bank does not guarantee deposits in Islamic banking, this form of bank account is not permitted in Germany (Section 2 EAEG).

For this problem, there is a possibility in the UK that the customer voluntarily waives the deposit insurance. However, if the customer does not want this, his account will no longer be classified as Islam-compliant, but as a conventional account. Further problems arise when purchasing real estate according to the Islamic Musharakah diminishing principle in Germany. Since, with the Musharakah diminishing principle, the financial institution first becomes the owner of the property and then sells it to the customer, the real estate transfer tax as well as the notary and legal fees would be due in Germany with every change of ownership (Arshad and Ismail, 2010).

In the UK, this competitive disadvantage of Islamic-compliant financial institutions compared to conventional financial institutions was eliminated with the
abolition of double taxation in 2003, which triggered a boom in Islamic-compliant building finance in the UK (Karbhari et al., 2004). In order to discuss the legal problem with the introduction of Islamic banking in Germany, BaFin held a conference on “Islamic banking” at the end of 2009. BaFin assured that it would support the introduction of Islam-compliant financial products within the framework of the legal possibilities and tasks (BaFin, 2012, p. 6).

Overview of services offered by Islamic Banking in Germany

Despite the potential, the Islamic banking market in Germany is only poorly developed, and Islamic banking only forms a niche market (Schönenbach, 2012, p. 3). Until the summer of 2015, there was no full-fledged Islamic financial service provider in Germany. The “Financial Advice for Muslims and Friends” (FMF GmbH) founded in 2008 has been trading as ZinsFrei since 2015. ZinsFrei does not act as a financial institution, but as a consulting company that provides selected Sharia-compliant products to its customers. ZinsFrei currently has a location in Frankfurt and advises its customers nationwide (ZinsFrei, 2018).

The Kuveyt Türk Beteiligungsbank founded a representative office in Germany in 2004 and opened the first branch in Mannheim in May 2010. However, at this point in time the bank was unable to offer its own banking products, but instead only brokered transactions for third-country deposit brokerage with its Turkish parent company due to the license it received in 2010. In 2012, the Turkish parent company, Kuveyt Türk Katilim Bankasi A.S. submitted an application for a banking license to the Federal Financial Supervisory Authority. With the license granted in March to operate the deposit and credit business, KT Bank AG is now a deposit financial institution under German law. As a result, Kuveyt Türk Bank AG started payment transactions on July 1st, 2015, and opened further branches in Berlin and Frankfurt. Due to the great demand that Kuveyt Türk Bank AG sees for Islam-compliant financial products in Germany, the branch network is to be gradually expanded. For example, it is planned to open branches in Essen, Düsseldorf, Cologne, and Munich. So far, however, there is only one other branch in Cologne (Kuveyt Türk Bank AG, 2018).

Moreover, the German universal banks Deutsche Bank and Commerzbank maintain their own “Islamic Windows”. They offer e.g. has its own departments and branches specializing in Islamic Finance, which almost exclusively serve institutional
investors from the Near and Middle East (Braham, 2012, p. 52). Commerzbank also has Islamic finance products in the areas of “Financial Institutions” and “Corporate and Investment Banking” and works with Islamic financial advisors to develop Islamic compliant products. Commerzbank’s branches in this area are located in Dubai, Beirut, Cairo, and Kuala Lumpur (Commerzbank, 2018). Deutsche Bank also offers Islamic-compliant investments and financing for predominantly institutional Arab investors through the so-called Islamic Finance Structuring Team of Deutsche Bank Middle East and North Africa. The team serves the state, semi-state and private companies. Deutsche Bank Middle East and North Africa act as book-runners for Sukuk issues (Deutsche Bank, 2018).

On the German market, ETFs from asset managers DB X-Trackers and Ishares can be acquired on Islam-compliant indices such as the DJ Islamic Market Titans 100 or the MSCI World Islamic. Allianz Global Investors offered the Islamic managed investment fund “Allianz Islamic Global Equity Opportunities” on the German market until November 2012, but this was dissolved due to insufficient demand (German-Emirati Chamber of Commerce and Industry 2010, p. 2). Commerzbank had similar experiences as early as 2005 and liquidated the “Al-Sukoor European Equity Fund” (Soylu, 2019, p. 151).

Advantages and disadvantages of Islamic banking

After analyzing the potential of Islamic banking for Germany as a business location, particularly with regard to examples and problems with its introduction in Germany, the advantages and disadvantages of this banking system are assessed. There is no doubt that the Islamic Banking segment has grown steadily over the past few years. And this trend is likely to continue, as evidenced by the increasing Sukuk emissions and the increasing volume of assets (IFSB, 2013, p. 10).

In this context, it can be assumed that demand will continue to grow for the most part in the Islamic states and less on the German market. It should also be noted that Islamic banking is a niche market in a global comparison, as only one percent of the money market is processed through Islamic banking transactions. Furthermore, only a few western financial institutions participate in this business area. The reasons for this abstention lie in the limited handling options when implementing Islamic compliant products. These basically limit the investment opportunities of the banks, which leads to limited investment options and even
investment bans in certain industries, such as Alcohol, prostitution, and pork. The *Gharar* prohibition, which is intended to rule out speculation and uncertainty, means that business areas such as derivatives trading and short selling are excluded. The joint profit and loss sharing through equity financing protect against risky trading because it reduces the incentives to invest in speculative transactions. The Islamic compliant financial system has a significantly lower level of risk than the conventional financial system. A more sustainable business orientation that is strived for generates economic efficiency for the entire economy. However, despite the social economic orientation and significant growth in recent years, Islamic banking lacks competitiveness in global comparison (Alam et al., 2017).

One reason for the lack of competitiveness of the Islamic compliant banks is the Islamic principles, which are used as the basis for the Islamic conformity of the contractual structures. Particular attention is paid to the *Riba* prohibition, as this means that all contractual structures must contain the avoidance of interest. Accordingly, the drafting of contracts is shaped by Islamic values, which leads to clear differences between conventional and Islam-compliant banking products. This discrepancy is also the reason why Islamic banking finds it difficult to compete with the conventional financial system in an international comparison. The possible disagreement on legal issues between Islamic legal scholars has a negative impact on competitiveness. For example, the legal scholars represent widely divergent positions on individual contracts relating to the *Maysir and Qimar* gambling prohibition. There is disagreement here as to whether investments in the stock market fall under the prohibition of *Maysir and Qimar* (Mihajat, 2016).

Another disadvantage is that the implementation of Islamic banking is time-consuming for financial institutions and requires long-term educational work. The installation of a Sharia board to ensure that the products conform to Islam, for example, means an effort for financial institutions. Organizations such as Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), International Islamic Financial Market (IIFM), and the Islamic Financial Services Board (IFSB) have contributed to some degree to standardization in Islamic banking. But despite the international adjustment process, the young Islamic financial system lacks popularity and comparability (BAMF, 2017, p. 5). Although the constant competitive pressure from the conventional financial system is constantly driving the expansion of Islamic financial products, the dynamically designed legal system can only moderate the differences to the Western financial
system. Accordingly, it is difficult for banks that conform to Islam to be competitive in the context of competition (Sacarcelik, 2016).

**Possible demand from Muslims living in Germany**

The following information relates to the study carried out on behalf of the German Islam Conference from 2016 with the title “How many Muslims live in Germany?”. According to this study, on December 31, 2015, between 4.4 and 4.7 million of the approx. 82.5 million people living in Germany support the Muslim faith (Federal Statistical Office, 2017). This makes up a relative share of approx. 5.5% of the total population. Due to various factors such as dual citizenship and family memberships as well as the increased immigration of refugees between 2014 and 2017, which are essential criteria for estimating the Muslim population, only imprecise information can be given about the actual current number. For example, the religious affiliation of the refugees from 2016 was clearly dominated by Islam with 76% (BAMF, 2017, p. 25). A Muslim is often counted as someone who comes from an Islamic country. It remains unclear whether the person actually sees himself as Muslim. The “Research Group Weltanschauungen in Germany” also points out these inaccuracies. It assumes that in Germany 3.6 million. There were “denominational Muslims” - about a million fewer than the Federal Office assumes. This reduces the relative share of Muslims in the total German population to 4.4% (FOWID, 2016).

**Consolidation of the research results**

The majority of Muslims describe themselves as “believers” and live their religion in everyday life and their personal environment by means of prayers, observing religious holidays, and observing fasting regulations more than people of non-Muslim religious affiliation (Stichs and Rotermund, 2017). These findings are also reflected in the study. In general, the results of the Muslims and the comparison group can be described as opposing. This was clearly shown both in the questions about the religious orientation of a bank and in the questions about the Riba or Gharar prohibition. While only a few respondents from the comparison group consider a bank’s religious orientation important, around half of Muslim respondents share this view.
More than 50% of the Muslims describe the prohibitions as important or indispensable. This is also due to the fact that these prohibitions are an essential part of Islamic principles and are therefore part of the everyday life of every devout Muslim (Gassner and Wackerbeck, 2007). Furthermore, the survey showed that Muslims advocate a stronger influence of religion on the economy, in this case on the financial sector. It can thus be stated that the Islamic compliant banking system due to the considerable potential target group, an estimated 4.5 million. Muslims could theoretically have great potential in Germany (Zimmer et al., 2017).

Conclusion

The present study gave an insight into the instruments used in Islamic banking. The study explored the potential of Islamic banking. The potential of Islamic banking from the perspective of German financial institutions, examples of Islamic banking in Germany, and problems with the introduction of Islamic banking in Germany were discussed.

Outside of the Muslim target group, Islamic banking does not play a role within Germany and has no relevant potential. This “rejection” of the Islamic banking system, or the lack of interest in it, can be seen from the results of the survey addressed to the comparison group. On the one hand, the comparison group considered a bank based on religious principles to be unimportant. On the other hand, many of those surveyed in the comparison group are unimportant or unknown about the principles of Islam, by which Islam-compliant banks are based. It can therefore be assumed that an Islamic-compliant financial system has no potential for the respondents from the comparison group.

A look at the Muslims questioned shows the opposite result. According to the survey, 61% of the Muslims prefer an Islamic-compliant bank to a conventional bank, as this does not charge interest. The proportion of Muslims surveyed for whom the religious orientation of a bank is important is clear at 46%. 37% of the Muslims surveyed said that they prefer an Islamic bank despite the higher price. Islamic principles are also very important to the Muslims surveyed. However, for 87% of the Muslims, the availability of ATMs and branches are also very important. This can be seen as a disadvantage for the Islamic compliant banks, as the branch network within Germany is not well developed.
Accordingly, it can be concluded from the findings that Islamic banking has a large potential target group among the Muslims living in Germany. However, the qualitative factors of this target group with regard to the income structure are less interesting than for the comparison group. That makes it less attractive to replace conventional banks with Islamic offers, also in the private customer segment. Even the classic commercial banks could adapt their OTC products by making small variations in the context of customer care, in order to retain Muslim customers, for instance, the automatic transfer of interest income as a donation to a non-profit organization. Ultimately, the Muslims living in Germany currently have Western accounts and participate in business life. They are only new customers in the rarest of cases. Despite all its advantages, Islamic banking will not play a relevant role in the German banking environment for the foreseeable future.

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THE ROLE OF IFRS AND AUDITING IN CORPORATE GOVERNANCE

Mehmet Nuri SALUR

Introduction

The concept of corporate governance took great attention after international financial crisis and started to be talked in financial markets. Especially the company scandals which showed up in 90’s increased the need of corporate governance. The Enron and WorldCom scandals in USA, the Parmalat scandal in Italy, the Ahold scandal in Holland and the Yanguangxia scandal in China suddenly made corporate governance and its control draw all attention to themselves. Besides that, global financial crises that increased their effect with the integration of financial markets made corporate governance applications a current issue for a more durable company structure against these crises. Moreover, with international capital activities gaining speed, investors started to be interested not only in the companies in their own countries but also in the companies and investment ways all over the world and so companies make effort to be able to adjust more to corporate governance arrangements which are trusted and generally accepted to attract the aforementioned capital. (Aktan, 2013: 3)

On the other hand, the weaknesses in internal and independent audits behind the mentioned company scandals revealed the vital importance of auditing and accounting discipline. Within this scope, the subject of audits in private and public spaces is more focused anymore and the importance of the accounting principles which are generally accepted increased. The importance of a strong audit mechanism and a harmony in accounting standards for a good corporate governance system came into prominence.

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In this study, the concept of corporate governance is primarily introduced and the importance and benefits of that is mentioned. After, the role of audit in corporate governance is referred by shortly discussing the audit mechanism in companies. In the third chapter, the importance of compliance of IFRS for corporate governance is explained by shortly referring to the international financial reporting standards (IFRS).

1. The Concept of Corporate Governance and Its Importance

Corporate Governance is set of rules which coordinate the relationships between company management and shareholders and stakeholders. In other words, it is a kind of a management philosophy targeting to exhibit the responsibilities and obligations of company management and to preserve the rights of all stakeholders directly or indirectly related to the actions which companies run, including shareholders in any company (Aktan, 2013: 5). Corporate governance is a form of management that enables the investors to provide financing to businesses to feel that they are safe in the decisions they make about financing which managers provide with the point of earning money with these investments (Shleifer and Vishny, 1997: 737). Corporate governance can also be described as the set of principles which all stakeholders must follow and which prioritize businesses to achieve their goals by preventing possible conflicts for interest among these stakeholders. (Ataman and Cavlak, 2016: 214). In summary, corporate governance actually means “good business management”. For a good business management to previously determine not only the responsibilities and obligations of the board of directors and company senior management but also the rights of stakeholders which are out of and inside of the company and to legalize these are highly important but not enough. Beyond these, for good company management it’s pretty necessary to implement change management, strategic management, synergistic management, total quality management, human recourses management etc. management techniques in the company in an effective way. (Aktan, 2013: 7).

Good corporate governance within the frame of literature and approximations accepted in general was built on the 4 primary principles. (Donker and Zahir, 2008: 84-85). These principles are explained below:

The Principle of Fairness expresses the company behaving fair towards every related stakeholders and every rights-holders meanwhile preserving the interests
of partners. According to this principle, it should be assured to treat fairly to all stakeholders by not allowing violating in a way that would break the equality in opportunity among the shareholders and by not discriminating among the stakeholders. The right of getting compensation and restoration should be given in the case of a possible breach. (Pamukçu, 2011: 135).

The Principle of Responsibility expresses the company treating respectfully to the arrangements which reflect legislation and social values while doing their actions. In their corporate social responsibility activities which have been rising in importance in the recent years, companies not only follow the legal reforms, but also take behaving respectfully and sensibly towards society to forefront by going beyond these. In this context, decisions made and activities done create an impact on society and this should be considered. (Alp and Kılıç, 2014: 60-62). Institutional social responsibility activities contribute to society and besides this, these activities also make a great contribution to companies, enhance the perception of society about companies, provide positive returns about areas of either consumer behaviors or human recourses and financing to companies.

The principle of Transparency expresses every kind of data either financial or nonfinancial except for the ones which commercial secrets about the company involves in are presented to all shareholders and stakeholders of the company in a correct, complete, solid, understandable, analyzable, easily accessible, punctual and affordable way (Güngör Tanç and Cingöz, 2011: 208).

The Principle of Accountability expresses a person or an organ that makes decisions, uses power, takes action, functions about an issue is responsible for his decision, the power he uses, his action, his functions and is expected to give an explanation about those. For this principle to be applied successfully, it’s important to determine authorities, duties and responsibilities at all levels in the company in a clear way, and it’s also important to have proportional authorities and responsibilities, internal audit and independent external audit mechanisms with a strong and effective internal control structure. (Alp and Kılıç, 2014: 59-61).

1.1. The Benefits of Corporate Governance

Especially accounting and auditing scandals happening in global companies and international financial crises decreased the trust which is put in firms and capital
markets. A good corporate governance system has a critical role in gaining back the trust in respect of investors and stakeholders.

Corporate governance is one of the key factors of increasing economic efficiency, providing a sustainable growth and also gaining trust of investors. Corporate governance has been presenting a structure that the targets of the companies are determined. It has been determining the ways of how to achieve these goals and how to control the performance. In this context, good corporate governance should ensure suitable promotions to the top management to go towards the targets in the direction of advantages of companies and shareholders and it should ease active control. (OECD, 2004).

Besides; the effective management mechanism established as a result of good corporate governance practices results in an increase in company performance and efficient use of resources. Likewise, effective corporate governance encourages the establishment of systems to ensure that the board of directors and senior management operate in line with the company’s objectives. Also, the corporate governance principles emphasize the benefits of stakeholders to be reviewed in the decision-making process, explain the necessary methods for this and help the benefits of different stakeholders to be represented to the company strategies in a balanced way. Thus, a unity of purpose is achieved between the company management and stakeholders for the success of the company (TKYD and Deloitte).

The benefits of good corporate governance practices for companies have also been reflected in the results of many quantitative and qualitative studies conducted in recent years. In companies that are successful in corporate governance, it has been observed that financial performance increases, employees and managers at all levels adopt the company more, and business performance increases, and customer loyalty is positively affected. As a result, it can be said that good corporate governance practices help for sustainable growth for companies in the long run.

2. The Role of Audit in Corporate Governance

In terms of accounting auditing, auditing can be defined as the analysis of the financial statements and accounting records of the companies. With a broader explanation, the audit aims to determine the degree of compliance and accuracy of a particular economic unit or a specific period of a financial statements and other information with sufficient and appropriate independent audit evidence to
provide reasonable assurance. For this purpose, audit is the process of gathering evidence carried out by an independent expert, evaluating the collected evidence by comparing them with the bases through book records and documents, and presenting the result with a report (Haftacı, 2016: 2).

In today’s increasingly globalized world, the interaction of different economic units with each other more, the increase of company mergers and the rapid movement of international capital according to the changing conditions force the companies, which are the dynamos of the economy, to adapt to changing conditions. This situation necessitates the preparation of transparent, comparable and accurate financial statements by making their current accounting systems more effective in order for companies to increase their competitiveness and keep up with developing capital markets and the enhancement of their reliability by subjecting them to auditing. In addition to this, due to the complexity of economic activities and transactions, the abundance of data, and the unfair attitudes of the information providers in recent years, the reliability of the information provided by the businesses has been questioned more and the needs of information users for reliable information have been increasing (Selimoğlu et al., 2014: 1-2). These developments increase the importance of auditing in business management. The need for auditing is increasing day by day due to the complexity of the accounting system with the increasing business volume and the increasing possibility of making mistakes, the insufficiency of the company internal control and accounting system, the separation of financial information users from the company, and conflicts of interest between company managers and financial information users. (TÜRMOB-TESMER, 2013). All stakeholders of the business such as investors, partners, employees, managers, analysts, credit institutions, suppliers, customers and relevant public institutions will be able to access transparent, comparable, timely and accurate information about the business through the audit. In this way, the interests of all parties will be preserved and the long-term profitability and sustainability of businesses will be ensured.

The success that businesses can achieve by managing them with effective corporate governance practices can only be possible with effective audit practices. Corporate governance practices and integration of these practices with auditing; It is extremely important for businesses to achieve sustainable growth and global standards. In addition, this situation is important for the stakeholders of the business to access accurate, impartial and reliable information (Karadeniz, 2015: 321).
Proper financial reporting is used as a good tool for the application of corporate governance principles. In order for the principle of accountability to be implemented, the public should be informed about the company’s activities in certain periods, which can be achieved through financial reporting. Again, in accordance with the principle of transparency, the sharing of the company’s performance and strategy expectations with stakeholders can be achieved with financial reporting tools. In order to balance conflicts of interest within and outside the institution and to protect minority rights, the relevant groups must be accurately informed, which can also be achieved through financial reporting. The information contained in financial reporting comes through various processes within the company. The soundness of these processes depends on proper internal audit and independent audit (Arı, 2008: 50). Therefore, a good control mechanism ensures correct financial reporting and correct financial reporting increases the level of corporate governance.

The ability of businesses to build trust in their stakeholders depends on financial reporting in accordance with national and international standards. These standards ensure that financial information users are presented with the information appropriate to their needs in a truthful manner. The independent audit process expresses its opinion on whether the financial statements prepared by the management are prepared in accordance with these standards. In this way, the accuracy and honesty of the information contained in the financial statements will serve the stakeholders to have an idea about whether the company reflects its financial status in a realistic way. Therefore, it will contribute to the preservation of the principle of equality by protecting the rights of the stakeholders, and the provision of the principle of transparency through the fact that the financial statements reflect the status of the enterprise faithfully. With this aspect, independent audit is effective in establishing and maintaining corporate governance in companies. (Memiş, 2016: 42)

In this context, it can be said that, in terms of corporate governance, independent auditing provides reasonable assurance to investors, creditors and other stakeholders about that financial statements are free from significant errors, frauds, and mistakes. By providing a substantially accurate information flow to outside the company through financial statements; By contributing to the elimination of the information asymmetry between the business management and other stakeholders,
it also has an efficient role in the solution of the real commissionaire conflict of interest problem. (Ari, 2008: 63)

Internal control system, which is one of the important elements of audit, is also a driving force in the implementation of corporate governance perspective and principles. An effective internal control system directly serves the purposes of corporate governance. Internal control ensures that information about the business is transmitted to the relevant parties in a correct, timely and complete manner, which brings along the principles of equality, transparency, accountability and responsibility. In order to achieve equality between shareholders and stakeholders in the business, information concerning the parties of the business must be disclosed. Transparency is the transmission of necessary and sufficient information to shareholders, stakeholders and other relevant parties. The effectiveness of the internal control system also requires accurate, complete and timely sharing of information. Therefore, an effective internal control system serves both the principle of equality and the principle of transparency, which contributes significantly to the success of corporate governance. (Baskıcı, 2012: 115-116)

On the other hand, an effective internal control system to be established within the company will ensure that everyone acts within this authority and responsibility by determining the authorities and responsibilities of the company employees. Again, the internal control system will establish an effective accounting system to record financial movements, thus it will prevent unrecorded transactions and as a result it will ensure reliability in data. In addition, an effective internal control system will determine to what extent the employees of the company work actively and effectively in line with the objectives set by the company. Therefore, the internal control system will determine who is responsible for financial or non-financial transactions in the company and may call these persons to account. Thus, the principles of transparency, equality, accountability and responsibility will work and as a result, corporate management will be established in the business (Usul et al., 2011:50)

Today, in addition to the function of increasing the reliability of the financial statements, additional value creating functions are also expected from the audit process for business activities such as detecting irregularities within the company and reporting to the management and providing consultancy services to the management regarding the problems and corrective suggestions in the internal control
systems. In this way, managerial errors will be minimized and the corporate management system will be strengthened (Memiş, 2016: 42).

Audit plays an important role in the corporate management system in terms of risk management in businesses. Sound corporate governance practices should embody good risk management. Risk management should be considered as a process that takes all risks into account in order to protect the continuity of the activities of the organization. In addition, in order to implement risk management practices, an internal and corporate structure should be developed that takes into account the special structure of the organization rather than a standard method. At this point, internal audit plays an important role. Internal audit ensures the understandability and controllability of risks within the organization, establishes an effective risk management system by establishing the necessary infrastructure for risk management and thus strengthens the corporate management system. (Abdioğlu, 2007: 290)

Finally, it will be necessary to mention the contribution of auditing to corporate management in the context of creating social responsibility awareness in businesses. The understanding of corporate governance directs companies to act with social responsibility awareness within the framework of ethical values. The internal auditor plays an extremely important role in the application and development of ethical principles within the company. The internal auditor builds trust by overseeing ethical priorities and applying ethical behavior. In this respect, the responsibility of the internal auditor in protecting the public interests is possible by reporting illegal contracts to the relevant persons. This situation is a result of corporate transparency and accountability regarding the understanding of corporate governance by internal auditors. Therefore, it can be said that an effective internal audit function is an important element of good corporate governance and supports internal corporate governance elements in the formation of a reliable corporate image. (Abdioğlu, 2007: 291)

3. IFRS and The Role of IFRS in Corporate Governance

3.1. International Financial Reporting Standards (IFRS)

Financial reporting is a tool that is produced within the accounting information system and provides the financial information needs of different interest groups in businesses in a timely, accurate, reliable and understandable manner. This tool
helps users of financial information make the right decisions in their business decisions. At the same time, it is a very important tool that provides managers with the information about the financial performance and financial status of the business by periods, about how the business is managed during its lifetime. (Palea, 2013: 18; Hatunoğlu and Güneş, 2012: 243).

With the effect of globalization, the modern economy is based on the free movement of capital and financial transactions that take place far beyond physical boundaries. While companies want to raise capital around the world, investors try to diversify their investment portfolios by making use of various investment opportunities in these different countries. In this context, many different financial transactions are carried out in many different countries. It will be a complex structure that each company prepares and reports financial statements based on the accounting standards of their own country. A high-quality, internationally comparable and common language accounting and reporting standard is required to assist both companies and investors who want to make certain economic decisions (www.ifrs.org; Stolowy et al., 2013: 163).

IFRS aims to provide international comparability to financial markets around the world in addition to the basic principles of corporate governance such as transparency and accountability. Many factors such as the elimination of borders, multinational activities of companies, the need for of good quality, understandable, comparable and reliable financial information about the companies that investors want to invest in, the effort to harmonize the accounting and reporting regulations in different countries reveal the necessity of IFRS (Elliot and Elliot, 2011: 101; Gökçen et al., 2011: III).

IFRS also provides substantially useful and reliable information about the financial situation, financial performance and cash flows of the enterprise in order to meet the financial information needs of business managers and investors in decisions to be made (Alexander et al., 2012: 85).

In line with the features mentioned above, IFRS meets the financial information needs that are useful not only for the managers and investors of the enterprise, but also for all stakeholders of the enterprise. Financial reports created in accordance with IFRS will make a significant contribution to the increase of the quality of financial reporting as it will reduce the level of asymmetric information between
enterprises and all stakeholders of the enterprises and thus the development of corporate governance practices in that enterprise (Kao and Wei, 2014: 226).

International standardization efforts in financial reporting began with the first World Congress of Accountants (WCOA) meeting held in St. Louis in 1904 by the International Federation of Accountants (IFAC).

It was proposed to establish a committee at the 10th WCOA held in Sydney in 1972, and then a committee called the International Accounting Standards Committee (IASC) was established in London in 1973. Later, this committee was named the International Accounting Standards Board (IASB) in 2001 and continues its activities as an independent regulatory authority that has developed and published IFRSs since then (Aysan, 2007: 20; Kao and Wei, 2014: 228). Adopting to publish standards based on principles rather than rules, this board continues to publish standards regarding financial reporting today by publishing many standards in the historical process. According to a research conducted by the IFRS Foundation in 2017, more than 27,000 of approximately 49,000 local companies traded in 88 major stock exchanges around the world use IFRS. In addition, it has been determined that 900 of the 3,000 foreign companies traded in these 88 large stock exchanges also use IFRS (www.archive.ifrs.org).

3.2. The Role of IFRS in Corporate Governance

The accounting and auditing scandals that emerged in the US and Europe in the 2000s, especially in companies traded on the stock exchange, have led to the questioning of the reliability of the financial reporting of companies. (Karğın et al., 2015: 506). As the reason for these scandals, it is stated that countries and especially enterprises mostly have insufficient corporate governance practices (Alp and Kilıç, 2014: 17). This is because, a well-applicable corporate governance increases the quality of the financial reporting process, which is one of the most important reasons of these company scandals, and prevents financial statement manipulations and crucial mistakes in financial statements (Cohen et al., 2004: 87).

The principles of equality, responsibility, accountability and transparency of corporate governance serve to increase the quality of financial reporting. A quality financial reporting positively affects the investment, loan and similar resource allocation decisions of the stakeholders, and so this increases market efficiency. Corporate governance, which is a very useful tool in terms of establishing investors’
trust, constitutes the backbone of financial reporting by increasing investors’ perception of the reliability of the firm’s financial performance, financial status and cash flows (Norwani et al., 2011: 207; Ebaid, 2013: 264; Özilhan, 2002).

In order to observe the financial reporting process on behalf of the stakeholders, the financial statements should be prepared by the business managers in accordance with IFRS and this compliance should be controlled by the independent audit process. Accordingly, considering that the fundamental basis of corporate governance is the protection of stakeholders’ rights, the rights of stakeholders will be protected by reporting in accordance with IFRS. Besides it, in the financial reporting process, the management will be able to effectively monitored and prevented to make material mistakes due to inaccuracies and frauds. (Arsoy, 2008: 20; Karğın et al., 2015: 508). Corporate governance draws its strength from a system that includes accounting applications with these described features. Therefore, it is possible to say that accounting practices and corporate governance practices are in mutual interaction, and good corporate governance must rely on a strong accounting information system that reflects the truths (Aysan, 2007: 17).

The accounting and auditing scandals of the early 2000s made the relationship between corporate governance and IFRS more important, because these scandals revealed the importance of transparency, fair presentation, and a financial reporting process free from mistakes and frauds for quality financial reporting (Çitak, 2009: 83; Rezaee, 2003: 1). In this context, IFRS has an important role to complement corporate governance practices and at the same time, successful corporate governance ensures quality financial reporting (Lepadatu and Oprea, 2011: 408). Hereby, increasing the quality of financial reporting will be effective in the audit process and as a result, quality financial statements that have been audited will provide an advantage in attracting foreign investors and obtaining low-cost financing. All these statements once again reveal that there is a very close, strong and connected relationship between IFRS and corporate governance (Ataman and Cavlak, 2016: 217-218; Erdikler, 2006: 15).

Conclusion

The understanding of corporate governance reveals a superstructure including all the activities of the companies and emphasizes the necessity to act within the framework of certain principles and rules towards all interest groups involved.
This understanding reveals the existence of a structuring that emerges as a result of the interaction of all parties. Within this structuring, it is basically projected that companies act within the principles of transparency, accountability, equality and responsibility. Along with the company scandals in the international arena, fundamental regulations were made in many countries, emphasizing the commitment and loyalty of company employees to the company, and stipulating legal and criminal responsibilities. Countries either make changes in their legislation in order for the corporate governance understanding and principles to be implemented, or regulations such as guidelines, practices and codes for corporate governance understanding are made through self-regulatory institutions in the country. Thanks to these regulations and intrabusiness improvements, companies that achieve compliance with corporate governance understanding and principles reduce their risk levels, lower capital costs, and companies gain a competitive advantage in the international arena. Thus, companies are in a struggle and an effort to take their place in the international financial system with the awareness of competing in the global world. (Abdoğlu, 2007: 282-290).

An indispensable element for a good corporate management system is a solid control mechanism. Internal audit, internal control, independent audit, and all other audit mechanisms help for good corporate governance practices and ensure its continuity. A good control system; ensures that financial information is delivered to all parties in a timely and accurate manner, enables financial reporting in accordance with standards, thus strengthening the principles of transparency, equality and accountability in businesses. In addition, audit prevents the occurrence of unrecorded transactions and ensures reliability in data. In addition, an effective auditing system determines how effectively and actively the employees of the company are working, also determines the person responsible for the transactions taking place in the company and can call for an account from these persons. Thus, the principles of transparency, equality, accountability and responsibility will be strengthened and as a result, the level of corporate governance in the business will increase. In addition to all these, auditing allows the establishment and operation of a sound risk management system required for a good corporate management system. Finally, auditing supports corporate social responsibility practices, strengthening internal corporate governance elements in the formation of a reliable corporate image.
In order for companies to be successful in today’s effective competitive environment emerging with globalization, they need to use corporate governance practices, especially in managerial issues, and IFRS applications in the context of financial reporting within the accounting information system. Since the use of IFRS in accounting practices and financial reporting will significantly increase the level of demystifying to the public in companies, corporate governance practices will be significantly complied with. The fact that these two applications support each other and then complement each other together with the audit shows that all these applications are in a relationship with each other. It is an undeniable fact that full implementation of IFRS is needed for a successful audit, and corporate governance principles and practices are needed for the full implementation of IFRS. Many academic studies conducted to reveal the relationship between corporate governance, audit and IFRS also reveal this reality.

As a result, ensuring the sustainability of companies, maintaining their assets in an effective competitive environment will be possible by making financial reporting on the basis of IFRS based on corporate governance principles in accounting sense and built on these principles. Along with all these practices, the completion of both elements of the audit activities within this framework will add value to the companies in terms of meeting the need for reliable financial information and will contribute to the companies to reach their targets. In order for companies to achieve the goals they set in line with their mission and vision, they must assimilate the supportive and complementary relationship between corporate governance, IFRS and audit, and shape their managerial and accounting / financial functions within the framework of this internalized relationship.

Moreover, the existence of corporate governance practices in companies will provide significant contributions to the development of capital markets. This is because, companies that have made financial reporting in accordance with IFRS and have good corporate governance practices will be among the companies preferred by investors, as the level of public disclosure and transparency, which are the basic principles of corporate governance, will increase. As a result of these companies being subject to IFRS, having their financial reports audited will also increase the reliability level of financial reports. This will make positive contributions to both companies and the national economy.
References


THE ROLE OF IFRS AND AUDITING IN CORPORATE GOVERNANCE

Mehmet Nuri SALUR


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SECTION IV

MARKETING AND CONSUMER THEORY
REGIONAL DYNAMICS OF PARTNER VIOLENCE AGAINST WOMEN IN TURKEY: AN ECONOMIC PERSPECTIVE

Hakan ULUCAN1

Introduction

This study analyzes the regional differences in intimate partner violence against women in Turkey. As a developing country, Turkey has regional diversities in both socio-economic and cultural structures. In the western parts of the country, economic activities are characterized by industrialization, whereas eastern regions are dominated by more traditional economic activities like agriculture. Sectoral composition in the region is very important in the regional partner violence rates. Some industries, such as textile and some service sector activities, especially demand female labor. Similarly, some agricultural activities also demand more female labor. The intimate partner violence is very sensitive to whether the woman is employed or not. Therefore, living in a region where more female labor is demanded is an important factor determining the dynamics of man-woman relationships.

The regions also vary according to the attitudes towards domestic violence. Patriarchal mechanisms remain a significant factor in shaping the dynamics of sexual partnerships and marriages. This does not mean that industrialized regions have no patriarchal mechanisms playing a role in partner violence. Although the level is low, intimate partner violence caused by patriarchal mechanisms can also be witnessed in the industrialized regions due to several factors. Firstly, migration flows within the country and also flows from the outside countries in Turkey are very high. This means that the number of people from more traditional structures are not diminishing but growing in the industrialized regions. Secondly, the

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pace of the modernization process in the metropoles is not the same across all socio-economic groups. Thus, a part of people still devoted to patriarchal roles even in the industrialized regions.

The development level of the regions is also different across the country. This is not only related to the main economic activities, but also to the institutional quality in the regions. The developed regions require more female labor in more secured conditions, while in underdeveloped regions, there is generally less labor demand for women. Even if equal or more female labor is demanded by the agricultural or informal sector in underdeveloped regions, the job security and income of these jobs will be very poor. This means that the household bargaining power of the women in the underdeveloped regions are very low. However, this does not necessarily increase domestic violence. Indeed it can actually reduce the violence according to the instrumental theory of violence, which will be discussed in the literature part.

Whatever the results, the regional variation in socio-economic factors create different mechanisms influencing the intimate partner violence. This study will analyze both between heterogeneity in intimate partner violence dynamics across the NUTS-1 regions in Turkey and within heterogeneity in the provinces of these regions. In the following section, the literature is covered, and the details about the theoretical economic models about domestic violence are underlined. In the third section, data and methodology issues are discussed. Then, the estimation results are given. The study ends with the conclusion part in which the policy implications are also drawn.

**Literature**

From a regional perspective, the dynamics of intimate partner violence dynamics change according to the country where the couple lives. In developed countries, the dynamics in the labor market plays the most crucial role. Aizer (2010) shows that, in the US, women living in an area with better labor market conditions experience lower violence in her relationship. By using her household bargaining model, Aizer states that the better potential labor market status increases the likelihood of divorce for women if they are exposed to domestic violence. This is due to the lower costs of exit from marriage in the area with better employment and income opportunities for women. Women, even those who are out of the labor
force, enjoy better labor market conditions because their husbands should decrease the violence, foreseeing the probability of divorce. Anderberg et al. (2015) also report a similar finding for the UK, suggesting that a higher female unemployment rate increases domestic violence. On the other hand, in underdeveloped or developing countries, some cultural factors such as patriarchal mechanisms, in addition to labor market dynamics, also account for some dynamics in the intimate partner violence. Immature institutionalization in these countries results in a lack of mechanisms to empower and protect women against intimate partner violence. Thus, different mechanisms lie behind the dynamics of intimate partner violence in developing countries. Male backlash is one of those mechanisms underlined by Chin (2012) in her study using Indian data. Eswaran and Malhorta (2011) emphasize male violence as a tool to get power in the household bargaining mechanism in their study for the same country. Both study show that better conditions in the labor market or in income level for women do not necessarily reduce the violence they face from their partners or husbands.

The male backlash mechanism is the negative response of men to empowered women based on a judgment that a more powerful female partner can be a threat to male’s traditional leading role. Patriarchal cultures, which are more dominant in developing or underdeveloped countries, triggers male backlash mechanisms. Maybe, the lack of institutional structure in underdeveloped countries is another reason for the reflection of male backlash in the form of violating behaviors. As an impulse, the male backlash is also included in the minds of westernized men, but the force of law and good institutional structure does not allow them to reflect this impulse in the form of violence. Eswaran and Malhorta (2011) state that male violence against his partner originates from the evolution process. According to this view, males use violence to guarantee his fatherhood of the baby due to the selfishness of the genes. Thus, the woman involved with more interactions with the other men will probably be violated more from their husbands. The male backlash mechanism and the mechanism stemming from evolution are very close, both explaining the conditions of the male violence. The evolution perspective explains the origin of the violence, and male backlash is the reflection of the evolutionary origins in today’s world. Education is the most peaceful measure against these kinds of impulses of men, but, due to the problems about the quality and participation of the system, education cannot be effectively used against domestic violence in developing countries.
Another study on India, Bloch and Rao (2002) shows that women can even be violated by her husband to seize income from her family. Dowry payments in India are paid by the family of the bride to groom in a manner that payments continue even after the wedding. In this situation, a wife can return to a hostage in the hand of a violent husband, and the dowry payment can return to ransom money demanded from her family. Under this condition, the bribes from wealthier families will be violated more. This surprising result shows that a factor, such as having a wealthier family—which is thought to reduce violence in normal life, can be a factor that is actually responsible for the increase in the violence under different customs and patriarchal roles. This also shows the complexity of the problem. The problem is very sensitive to the region of residence.

Heath (2014) shows that female employment increases domestic violence in Bangladesh among those from lower education status and those who are married at their younger ages. This shows that employment increases the risk of domestic violence among women from lower socio-economic classes. These women also have lower bargaining power in the household. Hidrobo (2016) shows that the increased income transfers to the women in Northern Ecuador decreased the probability of being violated by partners.

The general tendency derived from literature is that the game-theoretic and labor market explanations like Aizer (2010) are more prominent in the developed countries, while male backlash, evolutionary perspectives have more explanatory power in the dynamics in the developing countries. However, this does not necessarily mean that there is no male backlash dynamics in the developed countries, and there are no domestic violence trends in the developing countries caused mostly by labor market trends. The countries are regionally segregated. Some regions can be developed while some other regions show the characteristics of a developing country. Besides, some regions can have different cultural attitudes towards domestic violence. Also, some trends against feminism, such as the Red-Pill movement, can be returned to a massive hate against woman movement even in a developed country. Sometimes, these kinds of movements can explicitly-implicitly be supported by governments even in the developed country, leading to loss of gains of hundreds of years of struggles. In this process, domestic violence can be started to be seen as normal by a mass of people.
Farmer and Tiefenthaler (1996) show that women who call for shelter protection from the government can be faced with more of domestic violence as a result of reactional behavior from their husbands in the US. Thus, a measure that is assumed to be helpful for violated women can be a reason for being violated more in a mechanism even in a developed country. Farmer and Tiefenthaler’s explanation is that the women want shelter protection to show their threat points to their husbands. When a woman without the power to divorce applies to shelter protection, the husband can react by using more violence, relying on her incapability to end the relationship. This means that when an empowered woman, who also has the power to end the relationship, applies to shelter protection, this will be a credible threat to the husband; in the end he should probably reduce the violence level used on his wife. The study of Farmer and Tiefenthaler is very close to Aizer (2010) in the sense that both studies uses game-theoretical perspectives against domestic violence. On the other hand, the results of Farmer and Tiefenthaler is very intriguing, indicating that even in a developed country, women can be in danger.

Iyengar (2009) shows another evidence of a violent reaction to a policy designed to lower domestic violence. The mandatory arrestment laws in the US increased the female homicides in the families due to two mechanism emerged as a result of the policy. Firstly, women decrease their calls for police even when they are violated to protect their husbands or partners from prison. Thus, without the intervention of the police, more incidents result in homicides. Secondly, under the probability of arrest, some men reacted to their partner in retaliation when their wives complained to the police about their violence.

There are few studies using a regional perspective on domestic violence in Turkey. Tumen and Ulucan (2019) analyze the effects of a policy, panic buttons, on two chosen pilot regions in Turkey, Adana and Bursa. The buttons are distributed to the women in the region by the institutions of the Turkish government in order for them to call for the security forces suddenly in a case of domestic violence against them. According to the study, the policy produced negative results, increasing domestic violence in the region, mainly due to male backlash effects. Erten and Keskin (2019) examine the effects of the Syrian influx to Turkey, which is initiated with the civil war in Syria and increased throughout the midst of the last decade, on domestic violence against women. By exploiting the provincial level variation in the number and rates of the Syrian immigrants,
they show that although the influx undermined Turkish women in the labor market, domestic violence on Turkish women decreased due to the influx. This is mostly due to the fact that Turkish men use violence on their partners as an instrument to increase their bargaining power. Having excluded from the labor market, Turkish women with lower bargaining power experienced lower domestic violence incidents. Erten and Keskin (2018) analyze the effects of education on domestic violence against women by using the discontinuity created by 1998 compulsory education reform in Turkey. They show that the reform increased the completed years of education among the women in Turkey, but psychological violence on them also increased. They explained this phenomenon by using instrumental theories on violence.

**Data And Methodology**

2008 and 2014 National Surveys on Domestic Violence against Women (NS-DVW) released by Turkstat are used in the study. The data presents representative information about women in Turkey. The information contains socio-economic characteristics such as education and the labor market status of women. The data also presents information about whether the corresponding respondent is exposed to intimate partner violence from her partner in general and in the last year from the survey date. If the woman reports that she was violated, then the information about the level of violence, how many times she was exposed to violence, is asked. The data set is very rich in terms of the type of violence that it covers. Physical, psychological, sexual, and economic violence types are covered by the survey. In general, physical violence is the main focus of the studies in the literature. This study also follows the literature in this sense by focusing on physical violence. The physical violence question asks whether her partner or husband slapped, pushed, punched, attacked, kicked, beat, or grabbed the respondent or whether pulled her hair, hit with an item to her, threatened her with a gun or knife, or burned a part of her body. If the corresponding woman is faced with at least one of these violent acts from the partner or husband, then the number of times is recorded to the survey. The survey also presents other violence types, sexual, psychological, and economic types. In Table 1, the last year violence rates by NUTS-1 regions are presented. The violence rates calculated according to the intimate partner violence at a point in time is presented in Table 2.
In Table 1, the changes in intimate partner violence in the last year from the date of the survey can be analyzed. The first two columns represent the physical violence in 2008 and 2014. The following columns are for sexual and economic violence, orderly. TR7 and, TRA, and TRC regions have the highest physical intimate partner violence in the country. TR2 and TR3 regions experienced a significant increase in intimate partner violence rates. On the other hand, most regions achieved a decline in intimate partner violence in the last year. TRC is the region with the highest decline, from 15.6 percent to 6.2 percent. In TRA, the rate is decreased from 12.9 percent to 6.7 percent. An overall reduction in intimate partner violence in the last year can partly be related to the institutional improvements, such as participation in the Istanbul Convention and the adoption of the law on Protection of Family and Prevention of Violence against Females in 2012 (Republic of Turkey Ministry of Family and Services, 2016). The foundation of violence prevention centers based on the law is another improvement (Republic of Turkey Ministry of Family and Services, 2016).

The reductions achieved in the physical partner violence could not be achieved in the sexual partner violence, which can be seen in Table 1. TRA, with one of the highest decline in the last year physical violence, shows similar success in sexual violence, which was reduced from 13 percent to 6.7 percent. Economic violence increased from 2008 to 2014 in the regions except for regions TR7, TRA, TRB, and TRC. This can be due to the higher participation of women in economic activities. The partner or the husband of the participated woman increase his efforts to seize her income. The negative correlation between economic violence and physical violence can indicate that physical violence is used when economic violence is not used. In other words, the male partner or husband can be using physical violence when he was not able to seize the income of his wife or partner.
REGIONAL DYNAMICS OF PARTNER VIOLENCE AGAINST WOMEN IN TURKEY: AN ECONOMIC PERSPECTIVE

Hakan ULUCAN

Table 1: The Last Year Intimate partner Violence Rates by Regions.

<table>
<thead>
<tr>
<th>Nuts 1 Region</th>
<th>Physical Violence</th>
<th>Sexual Violence</th>
<th>Econ. Violence</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR1 (Istanbul)</td>
<td>0.080</td>
<td>0.088</td>
<td>0.035</td>
</tr>
<tr>
<td>TR2 (West Marmara)</td>
<td>0.043</td>
<td>0.079</td>
<td>0.031</td>
</tr>
<tr>
<td>TR3 (Agean)</td>
<td>0.058</td>
<td>0.098</td>
<td>0.042</td>
</tr>
<tr>
<td>TR4 (East Marmara)</td>
<td>0.057</td>
<td>0.051</td>
<td>0.040</td>
</tr>
<tr>
<td>TR5 (West Anatolia)</td>
<td>0.096</td>
<td>0.086</td>
<td>0.049</td>
</tr>
<tr>
<td>TR6 (Mediterranean)</td>
<td>0.099</td>
<td>0.068</td>
<td>0.055</td>
</tr>
<tr>
<td>TR7 (Mid-Anatolia)</td>
<td>0.116</td>
<td>0.091</td>
<td>0.093</td>
</tr>
<tr>
<td>TR8 (West Black Sea)</td>
<td>0.069</td>
<td>0.072</td>
<td>0.062</td>
</tr>
<tr>
<td>TR9 (East Black Sea)</td>
<td>0.049</td>
<td>0.044</td>
<td>0.062</td>
</tr>
<tr>
<td>TRA (North-East Anatolia)</td>
<td>0.129</td>
<td>0.067</td>
<td>0.130</td>
</tr>
<tr>
<td>TRB (Mid-East Anatolia)</td>
<td>0.103</td>
<td>0.056</td>
<td>0.082</td>
</tr>
<tr>
<td>TRC (South-East Anatolia)</td>
<td>0.156</td>
<td>0.062</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Source: Author's own calculations using NSDVW.

In this study, the incidence of physical domestic violence, rather than the level of it, is focused. This means that a dummy variable is constructed, representing whether the corresponding women are exposed to physical violence. This dummy variable takes the value 0 if the women experience no physical violence. Similarly, the dummy is 1 if the women is exposed to physical violence. In the descriptive analysis, the information on the violence in general and violence in the last year is provided. In the estimation part, the attention is focused on the violence in the last year from the survey date since the violence at a point in time is more cloudy.

The linear probability model is used in the estimations. The last education degree held by the women, whether the women is worked in the last week from the
survey date, the sector of the women in her last job if she has an employment experience, and the NUTS-3 province level of her are included in the equation of estimation. Equation 1 shows the econometric specification. $X$ shows the characteristics of the women, including education level, employment status—whether she worked last week from the survey date, her bargaining power variables, and sector of her last job if she has a work experience. $f_y$, $f_p$ are year and province fixed effects respectively.

$$y = \lambda + \beta X_t + \beta \varepsilon_t + f_y + f_p + \varepsilon_i$$

The robust estimations are run separately for each NUTS-1 region. Turkey uses the regional classification system according to the standards of the European Union. NUTS-3 classification gives the most detailed regional classification, presenting the provinces in Turkey. Turkey has 81 provinces. NUTS-2 definition provides one level broader category, separating the country into 26 regions by combining several provinces in the same geographical location. NUTS-1 level is the broadest category, which combines NUTS-2 regions from the same main area, splitting the country into 12 regions. This means that 12 different estimations are conducted in the study. By including the provincial fixed effects in each region, the regional dynamics through a more detailed category are observed. Figure 1 shows the NUT-1 regions in Turkey on the map. Table 3, on the other hand, shows the provinces in each region.
Table 2: Intimate Partner Violence Rates by Regions.

<table>
<thead>
<tr>
<th>Nuts 1 Region</th>
<th>Physical Violence</th>
<th>Sexual Violence</th>
<th>Economic Violence</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR1 (Istanbul)</td>
<td>0.284</td>
<td>0.259</td>
<td>0.094</td>
</tr>
<tr>
<td>TR2 (West Marmara)</td>
<td>0.218</td>
<td>0.259</td>
<td>0.074</td>
</tr>
<tr>
<td>TR3 (Agean)</td>
<td>0.296</td>
<td>0.331</td>
<td>0.128</td>
</tr>
<tr>
<td>TR4 (East Marmara)</td>
<td>0.305</td>
<td>0.268</td>
<td>0.094</td>
</tr>
<tr>
<td>TR5 (West Anatolia)</td>
<td>0.389</td>
<td>0.329</td>
<td>0.131</td>
</tr>
<tr>
<td>TR6 (Mediterranean)</td>
<td>0.342</td>
<td>0.310</td>
<td>0.130</td>
</tr>
<tr>
<td>TR7 (Mid-Anatolia)</td>
<td>0.439</td>
<td>0.383</td>
<td>0.195</td>
</tr>
<tr>
<td>TR8 (West Black Sea)</td>
<td>0.365</td>
<td>0.332</td>
<td>0.151</td>
</tr>
<tr>
<td>TR9 (East Black Sea)</td>
<td>0.299</td>
<td>0.237</td>
<td>0.138</td>
</tr>
<tr>
<td>TRA (North-East Anatolia)</td>
<td>0.432</td>
<td>0.335</td>
<td>0.211</td>
</tr>
<tr>
<td>TRB (Mid-East Anatolia)</td>
<td>0.370</td>
<td>0.262</td>
<td>0.148</td>
</tr>
<tr>
<td>TRC (South-East Anatolia)</td>
<td>0.406</td>
<td>0.260</td>
<td>0.164</td>
</tr>
</tbody>
</table>

Overall

Source: Author’s own calculations using NSDVW.

Figure 1: Regional classification of Turkey in NUTS-1 level
Table 3: Provinces in each Nuts-1 Region

<table>
<thead>
<tr>
<th>Regions</th>
<th>Provinces</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR/ TR2</td>
<td>Istanbul, Tekirdağ, Edirne, Kırklareli, Balıkesir, Balıkesir, Çanakkale</td>
</tr>
<tr>
<td>TR3</td>
<td>Aydın, Denizli, Muğla, Manisa, Afyon, Kütahya, Uşak</td>
</tr>
<tr>
<td>TR4</td>
<td>Bursa, Eskişehir, Bilecik, Kocaeli, Sakarya, Bolu, Yalova</td>
</tr>
<tr>
<td>TR5</td>
<td>Ankara, Konya, Karaman</td>
</tr>
<tr>
<td>TR6</td>
<td>Antalya, Isparta, Burdur, Adana, Mersin, Hatay, K.Maras, Osmaniye</td>
</tr>
<tr>
<td>TR7</td>
<td>Kirikkale, Aksaray, Nigde, Nevşehir, Kırşehir, Kayseri, Yozgat</td>
</tr>
<tr>
<td>TR8</td>
<td>Zonguldak, Karabük, Bartın, Kastamonu, Cankiri, Sinop, Samsun, Tokat, Corum, Amasya</td>
</tr>
</tbody>
</table>

Source: TurkStat

Estimation Results

Table 4 and Table 5 show the estimation results. Provincial fixed effects of the same regressions are given by Table 6, 7, and 8. When the educational variables are considered, for almost all regions, intimate partner violence decreases as education level increases. However, the significance of the parameters is varying according to the regions. Education level starts to decrease violence significantly with or after a high school degree. It is very surprising that Primary and secondary schools make no difference in domestic violence except TRB and TRC regions, which are among the most underdeveloped regions in the country. This can indicate that in developed regions, education makes a difference only after a level in the labor market. The coefficient of high school education is significant for TR2, TR3, TR4, TR5 regions, which are the regions with industry as a main economic activity. This means that, in industrialized regions, having graduated from high school increases the bargaining power of women, decreasing the level of violence they face. The estimated parameter of a college degree is insignificant for five regions, TR2, TR3, TR5, TR8 TR9. The parameter is negative and
significant for the rest of the regions, indicating that a college degree decreases the probability of intimate partner violence for women.

Table 4: Estimation Results for the First 6 Regions

<table>
<thead>
<tr>
<th>Nuts 1 Region</th>
<th>TR1</th>
<th>TR2</th>
<th>TR3</th>
<th>TR4</th>
<th>TR5</th>
<th>TR6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education Var.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Sch.</td>
<td>-0.013 (0.045)</td>
<td>-0.032 (0.032)</td>
<td>0.017 (0.022)</td>
<td>-0.044 (0.029)</td>
<td>0.008 (0.028)</td>
<td>-0.027 (0.021)</td>
</tr>
<tr>
<td>Secondary Sch.</td>
<td>-0.021 (0.045)</td>
<td>-0.005 (0.037)</td>
<td>0.013 (0.026)</td>
<td>-0.003 (0.035)</td>
<td>-0.006 (0.034)</td>
<td>-0.008 (0.027)</td>
</tr>
<tr>
<td>High Sch.</td>
<td>-0.029 (0.045)</td>
<td>-0.062* (0.032)</td>
<td>-0.048* (0.027)</td>
<td>-0.063** (0.031)</td>
<td>-0.053* (0.030)</td>
<td>-0.005 (0.025)</td>
</tr>
<tr>
<td>College</td>
<td>-0.085* (0.043)</td>
<td>-0.036 (0.036)</td>
<td>-0.019 (0.027)</td>
<td>-0.060* (0.033)</td>
<td>-0.052 (0.034)</td>
<td>-0.053* (0.029)</td>
</tr>
<tr>
<td>College plus</td>
<td>-0.098** (0.042)</td>
<td>0.115*** (0.032)</td>
<td>-0.054* (0.028)</td>
<td>- (0.033)</td>
<td>-0.104** (0.033)</td>
<td>-0.10*** (0.025)</td>
</tr>
<tr>
<td><strong>Labor Market and Bargaining Var.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked last week</td>
<td>-0.011 (0.033)</td>
<td>0.009 (0.018)</td>
<td>0.0177 (0.028)</td>
<td>-0.005 (0.024)</td>
<td>-0.099*** (0.0344)</td>
<td>0.007 (0.024)</td>
</tr>
<tr>
<td>Spend all income</td>
<td>-0.021 (0.020)</td>
<td>-0.012 (0.016)</td>
<td>0.0166 (0.020)</td>
<td>-0.046 (0.019)</td>
<td>-0.031 (0.025)</td>
<td>-0.041* (0.023)</td>
</tr>
<tr>
<td>2014</td>
<td>0.014 (0.018)</td>
<td>0.044*** (0.014)</td>
<td>0.444** (0.014)</td>
<td>-0.005 (0.013)</td>
<td>-0.001 (0.017)</td>
<td>0.028 (0.013)</td>
</tr>
<tr>
<td><strong>Sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>0.047 (0.064)</td>
<td>-0.033 (0.037)</td>
<td>-0.036 (0.045)</td>
<td>0.097* (0.051)</td>
<td>0.064 (0.081)</td>
<td>0.079 (0.089)</td>
</tr>
<tr>
<td>Services</td>
<td>0.029 (0.048)</td>
<td>0.014 (0.020)</td>
<td>0.002 (0.029)</td>
<td>0.038 (0.028)</td>
<td>0.039 (0.038)</td>
<td>0.029 (0.029)</td>
</tr>
<tr>
<td># observations</td>
<td>960</td>
<td>1387</td>
<td>1448</td>
<td>1244</td>
<td>1349</td>
<td>1836</td>
</tr>
</tbody>
</table>

Note: *, **, *** show the significance level of 10 %, 5 %, and 1 %, orderly. Standard errors are presented in parenthesis.
It is interesting to note that working in the survey week does not matter in the regions except the TR5 and TRA regions. This shows that employed women are also vulnerable to violence. In Turkey, women generally participate in the informal sector. Insecure job conditions with very low payments may not have ensured enough bargaining power for women in the household. When the results on education variables and labor market variables are considered together, we can see that potential status in the labor market matters more than actual status, validating the hypothesis of Aizer (2010). The coefficients of the variable included in estimations as a proxy for the power of the woman in the household, whether the corresponding women can spend her own income without any information, are insignificant for the regions only apart from TR6. The sector information about the woman’s last experience shows that only a few sector coefficients are significant. In the TR4 region, one of the industrialized regions in Turkey, industry increases domestic violence relative to agriculture, whereas, in the regions with more agricultural activity, industry decreases domestic violence relative to agriculture.
Table 5: Estimation Results for the Rest 6 Regions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Nuts-1 regions</th>
<th>Nuts-1 regions</th>
<th>Nuts-1 regions</th>
<th>Nuts-1 regions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TR7</td>
<td>TR8</td>
<td>TR9</td>
<td>TRA</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Sch.</td>
<td>0.004</td>
<td>0.013</td>
<td>-0.007</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.017)</td>
<td>(0.014)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Secondary Sch.</td>
<td>0.008</td>
<td>0.006</td>
<td>0.002</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>(0.027)</td>
<td>(0.021)</td>
<td>(0.020)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>High Sch.</td>
<td>-0.022</td>
<td>-0.0099</td>
<td>-0.030</td>
<td>-0.036</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.021)</td>
<td>(0.016)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>College</td>
<td>-0.085***</td>
<td>-0.038</td>
<td>-0.003</td>
<td>-0.101***</td>
</tr>
<tr>
<td></td>
<td>(0.030)</td>
<td>(0.022)</td>
<td>(0.028)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>College plus</td>
<td>0.042</td>
<td>-0.082</td>
<td>-0.065</td>
<td>-0.067**</td>
</tr>
<tr>
<td></td>
<td>(0.143)</td>
<td>(0.030)</td>
<td>(0.025)</td>
<td>(0.031)</td>
</tr>
<tr>
<td><strong>Labor Market and</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bargaining Var.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked last week</td>
<td>0.031</td>
<td>-0.002</td>
<td>0.015</td>
<td>-0.085***</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.021)</td>
<td>(0.016)</td>
<td>(0.031)</td>
</tr>
<tr>
<td>Spend all income</td>
<td>-0.084***</td>
<td>-0.026</td>
<td>-0.005</td>
<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>(0.0)</td>
<td>(0.018)</td>
<td>(0.015)</td>
<td>(0.026)</td>
</tr>
<tr>
<td>2014</td>
<td>-0.015</td>
<td>0.007</td>
<td>-0.005</td>
<td>-0.058***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.012)</td>
<td>(0.010)</td>
<td>(0.013)</td>
</tr>
<tr>
<td><strong>Sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>-0.09***</td>
<td>0.038</td>
<td>-0.040</td>
<td>-0.076*</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.045)</td>
<td>(0.013)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>Services</td>
<td>0.052</td>
<td>0.028</td>
<td>0.018</td>
<td>-0.006</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(0.024)</td>
<td>(0.019)</td>
<td>(0.039)</td>
</tr>
<tr>
<td># observations</td>
<td>1786</td>
<td>2017</td>
<td>1860</td>
<td>2118</td>
</tr>
</tbody>
</table>

Note: *, **, *** show the significance level of 10 %, 5 %, and 1 %, orderly. Standard errors are presented in parenthesis.

The provincial fixed effects are included in the estimations in order to observe the local differences inside a NUTS-1 region. Estimations show that, generally, NUTS-1 regions have homogeneity inside the main region, with few exceptions. Industrialized areas generally pose more heterogeneity than relatively
underdeveloped regions of central and eastern Anatolia. Table 6, 7, and 8 show the province fixed effects in our estimations. Since the provincial variables are included in the dummy variable form, reference groups are given at the end of each column. In the TR2 region, only Tekirdag have different estimated parameter from the reference province, Balikesir. The province is very close to Europe. In the TR3 region, in Aydın, İzmir, and Manisa, domestic violence is lower than the region by approximately 10 percent for all regions. It is not surprising when the fact that these are the developed provinces are the country is taken into account. The surprising one is the higher domestic violence in Denizli and Mugla, which are also the developed provinces in the region. TR4 and TR5 regions are homogenous within their geographical borders, without any provinces showing a statistically different pattern.

Table 6: Provincial Fixed Effects I

<table>
<thead>
<tr>
<th>Regions</th>
<th>TR2 Coefficients</th>
<th>Regions</th>
<th>TR3 Coefficients</th>
<th>Regions</th>
<th>TR4 Coefficients</th>
<th>Regions</th>
<th>TR5 Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tekirdag</td>
<td>0.23</td>
<td>Aydın</td>
<td>-0.12***</td>
<td>Bolu</td>
<td>0.008</td>
<td>Karaman</td>
<td>0.082</td>
</tr>
<tr>
<td>Canakkale</td>
<td>-0.026</td>
<td>Denizli</td>
<td>-0.031</td>
<td>Bursa</td>
<td>0.004</td>
<td>Konya</td>
<td>-0.019</td>
</tr>
<tr>
<td>Edirne</td>
<td>-0.023</td>
<td>İzmir</td>
<td>-0.097**</td>
<td>Duzce</td>
<td>0.012</td>
<td>Rg: Ank</td>
<td></td>
</tr>
<tr>
<td>Kırklareli</td>
<td>-0.034</td>
<td>Kutahya</td>
<td>-0.038</td>
<td>E.Sehir</td>
<td>0.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tekirdag</td>
<td>-0.045***</td>
<td>Manisa</td>
<td>-0.10**</td>
<td>Kocaeli</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RG:Bализesir</td>
<td></td>
<td>Mugla</td>
<td>-0.065</td>
<td>Sakarya</td>
<td>-0.026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usak</td>
<td>0.02</td>
<td>RG</td>
<td></td>
<td>Yalova</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afyon</td>
<td></td>
<td>RG</td>
<td></td>
<td>Bilecik</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *, **, *** show the significance level of 10 %, 5 %, and 1 %, orderly.

In the TR6 region, K. Maras shows a different pattern, higher domestic violence than the other provinces within the region. K.Maras is the closest city in the region to the Southeastern Anatolia, indicating that the province is not only locationally but also culturally closer to southeastern Anatolia. This means that the city poses more patriarchal dynamics. TR6, TR7, TR8, and TR9 regions, central and northern Anatolian regions are homogeneous within their borders, with the cities being very identical in terms of the domestic violence incidents.
In the TR10 region, Bayburt is lower than, while Igdir is higher than the reference group. The fixed effects of the other provinces are statistically insignificant, indicating that only Bayburt and Igdir is different from the regional average. The provinces of the TR11 region are identical in terms of the domestic violence dynamics, without any province with a significantly different estimate from the reference group. In TR12, only Gaziantep’s parameter is different from the reference province; domestic violence is higher in this province than the reference province and regional average. Gaziantep is one of the most affected provinces from the Syrian refugee flow, not only in its region but also in the country. The Syrian workers may have disproportionately excluded a significant number of Turkish women from the market. Although Erten and Keskin (2019) found the opposite, in Antep, Turkish women may have faced with more domestic violence, having lower bargaining power due to exclusion from the employment.
Table 7: Provincial Fixed Effects III

<table>
<thead>
<tr>
<th>Regions</th>
<th>TR10 Coefficients</th>
<th>Regions</th>
<th>TR11 Coefficients</th>
<th>Regions</th>
<th>TR12 Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardahan</td>
<td>-0.035</td>
<td>Bitlis</td>
<td>0.058</td>
<td>Batman</td>
<td>0.052</td>
</tr>
<tr>
<td>Bayburt</td>
<td>-0.067**</td>
<td>Elazığg</td>
<td>0.024</td>
<td>Diyarbakir</td>
<td>0.014</td>
</tr>
<tr>
<td>Erzincan</td>
<td>-0.034</td>
<td>Hakkari</td>
<td>-0.011</td>
<td>Gaziantep</td>
<td>0.060**</td>
</tr>
<tr>
<td>Erzurum</td>
<td>-0.015</td>
<td>Malatya</td>
<td>0.030</td>
<td>Kilis</td>
<td>-0.024</td>
</tr>
<tr>
<td>Iğdır</td>
<td>0.057*</td>
<td>Muş</td>
<td>0.008</td>
<td>Mardin</td>
<td>-0.012</td>
</tr>
<tr>
<td>Kars</td>
<td>0.008</td>
<td>Tunceli</td>
<td>0.002</td>
<td>Sanliurfa</td>
<td>0.003</td>
</tr>
<tr>
<td>RG: Adiyaman</td>
<td></td>
<td>Van</td>
<td>0.029</td>
<td>Siirt</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sırnak</td>
<td>0.028</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RG: Bingol</td>
<td></td>
</tr>
<tr>
<td>Toplam</td>
<td>998</td>
<td>908</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *, **, *** show the significance level of 10 %, 5 %, and 1 %.

Conclusion

In this study, the regional differences in the dynamics of domestic violence are analyzed by using NSDVW data set for the years 2008 and 2014. The regional intimate partner violence rates in terms of physical, sexual, and economic are very high in Turkey, as shown by the descriptive statistics calculated by using the micro data set of the study. The heterogeneity in intimate partner violence against women between the regions is examined by running separate regressions for each NUTS-1 region. In the regressions, only physical violence is focused. In this way, 12 separate regressions are conducted. Province fixed effects are included in the regressions in order to capture within heterogeneity in intimate partner violence dynamics in a NUTS-1 region. The estimations show that there are barriers against the violence reducing effects of the education. The levels lower than high school barely reduces the probability of being violated by the partner. Even the high school degree significantly reduces domestic violence only in the western and industrialized parts of the country with the exception of South East Anatolia, the TRC region, where even the primary school degree reduces domestic violence relative to the women without any degree. In the central and northern parts of the Anatolia, the education level lower than a college degree hardly reduces the probability of being violated from husband or partner. This calls for a
need to design some policies and establish some institutions helping the women faced with the danger of being violated by their husbands or partners.

Indeed, there were some efforts that deserve attention in the first part of the last decade. Participation as a leading country in the Istanbul Convention was an important step. This was followed by the adoption of the law on Protection of Family and Prevention of Violence against Females in 2012. As the data section shows, these policies are probably the main factor in reducing the physical violence rates in the regions. Istanbul Convention and the law have empowered the women in some specific ways. For example, the law imposed the eviction of the violent husband from the marital home. Precisely for the same reason, the law and convention attracted reactions of some conservative and patriarchal parts of the country. This reaction has returned to an opposition movement against the Istanbul Convention and the law. The opposition defended their ground by arguing that the measures against domestic violence have harmed the family, the core of Turkish society. The Turkish government is under a great pressure from these parts of the community. For the time being, the government has not taken any steps satisfying the opposition to the convention and law but the probability to take a step back is not negligible since the government is also conservative and needs the support of conservative parts of the country. On the other hand, this study shows that the education system has little effect on reducing intimate partner violence, and there is a need for continuation steps like the law and the Istanbul Convention.

References


THE ROLE OF CONSUMER PERCEPTIONS OF SOCIAL RESPONSIBILITY PROJECTS ON CONSUMER-BASED BRAND EQUITY: AN EXAMPLE OF A LARGE-SCALE COMPANY

Murat Çakırkaya

1. Introduction

CSR is the process of treating an organization’s stakeholders in an ethical or responsible manner. “Ethically or responsible” means treating key stakeholders in a way that is considered acceptable to international norms. It also includes “ethically or responsible” social, economic, financial and environmental responsibility. The broader purpose of CSR is to establish higher sustainability standards (Hopkins, 2006: 298).

The survival and wealth of a company is determined by its ability to create superior value to the market. Poolthong and Mandhachitara (2009: 408) emphasized that CSR initiatives are a powerful tool in creating quality and brand effect perceived by the consumer. They also revealed that CSR initiatives affect perceptions of service quality, and at the same time increase consumers’ trust in institutions and have a positive effect on their emotional attitudes. Employee loyalty, brand image, customer loyalty and increase in market share are some of the reported positive results of the relationship between CSR and brand influence (Hassan et al., 2013: 121).

A brand can attract consumers or drive them away. The reason behind this is the perception of the value that consumers attribute to this brand. At first, a brand

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1 This study was supported within the scope of the project number 201212001 accepted by Necmettin Erbakan University Scientific Research Projects Commission.
2 Necmettin Erbakan University
can be identified with the product it produces, but this brand may develop associations and loyalties beyond that product over time. Advertisements and usage experience etc. factors play an important role in the formation of these associations and attachments (Keller & Lehmann, 2006: 745).

The question of whether the consumer perceptions of Turkcell’s corporate social responsibility projects, operating in the mobile communication sector, have any role on Turkcell's consumer-based brand equity is the main question of the study. Another aim of the study is to determine the effect level of consumer perceptions of CSR practices on consumer-based brand equity perceptions. Charitable responsibilities, such as generating benefits for the community, making donations to charities and improving the well-being of the local community can positively affect a company’s image (M.C.Kim & Kim, 2014: 120).

2. Literature Review

2.1. Corporate Social Responsibility (CSR)

CSR efforts have been analyzed from various angles. For example, some researchers have discussed the relationship between CSR efforts and corporate financial performance. In studies conducted in this field, the link between CSR efforts and the financial success of a company has been revealed (Lee 2008: 64). On the other hand, marketing researchers primarily focused on the effects of CSR efforts on consumers. In addition, the impact of CSR studies on business to customer (B2C) and business to business (B2B) marketing activities was also examined. In this context, the effects of CSR on customer expectations and perceptions have been investigated (Staudt et al., 2014: 67). In addition, CSR studies have gained importance in other functional areas. For example, CSR efforts in the field of human resources management are regarded as a means of determining best practices for implementing CSR activities in the workforce, as well as attracting employees (Strandberg 2009: 23).

If it is examined in terms of the parties affected by CSR activities, four types of CSR activities can be mentioned.

2.1.1. Respect for Society (Charity) Activities

In the charity dimension, the aim is to give the company an image of a socially sensitive institution among members of the society. At this point, it should be followed how the company conducts its charity in a way that benefits the society
The company’s charitable activities include helping developing countries, supporting social and cultural activities in the countries and regions where it operates, developing projects for poor countries and supporting charity.

2.1.2. Respect for Environment

The essence of this dimension is based on sustainability. On the other hand, although it is said that this dimension is a derivative of the environmental movement, its scope has expanded much more and has become an indispensable field for stakeholders (Moreira, 2016: 11). If the environmental effects of the activities carried out by the enterprises are in question, they are expected to measure how these activities affect the environment. This is usually done in the form of a cost-benefit analysis while utilizing natural resources (Boachie-Mensah & Yeboah, 2015:152). The second issue is the evaluation of environmental responsibility within the framework of a “win-win” mentality. Uddin et al (2008: 207) stated that companies that are committed to environmental management get the positive results of these activities. There are also studies that show that a responsible public image can attract more customers. In addition, environmental awareness will offer businesses new market opportunities.

2.1.3. Respect for Consumers

It is observed that customers are becoming more conscious about purchasing products from companies that follow a reliable CSR policy. For this reason, the importance of addressing customers with visible CSR projects is increasing day by day. As a matter of fact, such a strategy positively affects the decisions of the customers and gives an opportunity to gain on brand equity (Torres et al., 2012: 15). As a matter of fact, as a result of a study, the results showed that CSR activities increase brand equity and purchase intention (Park, 2014: 189).

2.1.4. Respect for Employees

Strong CSR performance can lead to employee benefits and increase employee morale (Tuzzolino & Armandi, 1981: 21; Valentine & Fleischman, 2008: 159). Different CSR practices, such as meeting trade union demands, providing better healthcare and retirement benefits, and paying higher-than-market wages, can help companies build their reputation in increasing employee productivity.
In addition, it may be possible for more talented and more motivated personnel to turn to the company (Malik, 2015: 429).

2.2. Consumer-Based Brand Equity

There are two different approaches to the concept of brand equity: company-based brand equity and consumer-based brand equity. The distinction between these perspectives depends on the actors using the concept of brand equity, the measurement goals and the ultimate goal (Atılgan et al., 2009, 116). Company-based brand equity measures the total value of a brand as a separate asset (Christodoulides & de Chernatony, 2010: 45). Atılgan et al. (2009, 115) point out that company-based brand equity mostly uses financial market data. The consumer-based brand value perspective focuses on the customer's brand idea. It is considered the driving force of the brand’s increasing market share and profitability and is based on the connotations and beliefs of consumers (Christodoulides and de Chernatony 2010, 44).

Aaker (1992: 125) determined that, in the formation of a brand equity, there were five general categories belonging to the brand’s assets. These are: (1) brand loyalty, (2) brand awareness, (3) perceived quality, (4) brand association in addition to perceived quality, and (5) registered brand assets such as patents, trademarks, and established channel relationships.

3. The Methodology of The Research

3.1. Scale and Hypotheses

The question of whether the consumer perceptions of Turkcell’s corporate social responsibility projects, operating in the mobile communication sector, have any role on Turkcell's consumer-based brand equity is the main question of the study. Another aim of the study is to determine the effect level of consumer perceptions of CSR practices on consumer-based brand equity perceptions. The universe of the research is composed of Turkcell subscribers residing in Konya. However, within the scope of the research, it is not possible to reach all Turkcell subscribers residing in Konya due to some constraints such as cost, time limit and difficulty in accessing participants. For this reason, the research was carried out by using purposeful sampling method from non probabilistic sampling types. Therefore, the generalizability and external validity of research results are limited. Another limitation is that the research is a cross-sectional study in the context of handling
time. Accordingly, the research results are limited to the dates of 15 July 2020 - 15 August 2020. The target audience in the research is Turkcell subscribers residing in Konya. The margin of error is set at 5 percent. As a result of the sample size calculation formula, it was aimed to reach at least 384 people and 452 questionnaires were reached between the relevant dates.

In the research, face-to-face questionnaire technique was used in order to reach primary data. For this purpose, a questionnaire consisting of three parts has been prepared. The first part of this questionnaire includes questions about demographic variables. In the second part, CSR Perception main dimension questions are included. These questions consist of 18 Likert-scale items and four dimensions. In order to determine the perception of CSR, “Consumer Perceptions Scale of a Company’s CSR” prepared by Swaen & Chumpitaz (2008: 18) was used. In the third part, scales (consisting of 17 Likert-scale items and 4 dimensions) prepared by Yoo & Donthu (2001: 14) and Taşkin & Akat (2010) were used to determine “Consumer-Based Brand Equity Perception”. All of the expressions in the scales were scaled according to the Likert (five-point) scale.

There are a total of 41 variables in the questionnaire. CSR perception dimension consists of 18 observed variables and brand equity dimension consists of 17 variables. The remaining 6 variables are classified variables related to demographic characteristics.

3.1.1. Research Model

![Figure 1: Research Model of the Relationship Between CSR Perception and Consumer-Based Brand Equity Perception](image-url)
3.1.2. Research Hypotheses

The hypotheses developed within the framework of the model created are as follows:

\( H_1 = \text{Perceived Charity Activities Variable} \), which is one of the sub-dimensions of CSR Perception, is statistically significant in predicting the Consumer-Based Brand Equity Variable.

\( H_2 = \text{Perceived Respect for Environment Variable} \), one of the sub-dimensions of CSR Perception, is statistically significant in predicting the Consumer-Based Brand Equity Variable.

\( H_3 = \text{Perceived Respect for Consumers Variable} \), one of the sub-dimensions of CSR Perception, is statistically significant in predicting the Consumer-Based Brand Equity Variable.

\( H_4 = \text{Perceived Respect for Employees Variable} \), one of the sub-dimensions of CSR Perception, is statistically significant in predicting the Consumer-Based Brand Equity Variable.

\( H_5 = \text{CSR Perception Variable} \) is statistically significant in predicting the Consumer Based Brand Equity Perception Variable.

\( H_6 = \text{There is a positive relationship between the Perceived Charity Activities Variable and the Consumer-Based Brand Equity Perception Variable.} \)

\( H_7 = \text{There is a positive relationship between the Perceived Respect for Environment Variable and the Consumer-Based Brand Equity Variable.} \)

\( H_8 = \text{There is a positive relationship between the Perceived Respect for Consumers Variable and the Consumer Based Brand Equity Perception Variable.} \)

\( H_9 = \text{There is a positive relationship between the Perceived Respect for Employees Variable and the Consumer-Based Brand Equity Perception Variable.} \)

\( H_{10} = \text{There is a positive relationship between the Perceived CSR Perception Variable and the Consumer Based Brand Equity Perception Variable.} \)
3.2. Analysis and Findings

SPSS program was used to analyze the data. In order to test the reliability of the scales used in the research, Cronbach's Alpha values, which are the internal consistency indicator, were calculated before proceeding with the analysis. Then, frequency analysis, correlation and multiple regression analysis were used in the analysis of the data.

3.2.1. General Statistics (Frequency Analysis)

The demographic characteristics of the 452 people participating in the study are as follows:

Table 1. Frequency Distribution of the Demographic Characteristics of the Participants

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Value</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Value</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>278</td>
<td>61,5</td>
<td>Single</td>
<td>231</td>
<td>51,1</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>174</td>
<td>38,5</td>
<td>Married</td>
<td>221</td>
<td>48,9</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>452</td>
<td>100</td>
<td>Total</td>
<td>452</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>Under 20 years</td>
<td>53</td>
<td>11,7</td>
<td>Elementary School</td>
<td>30</td>
<td>6,6</td>
</tr>
<tr>
<td></td>
<td>21–39</td>
<td>317</td>
<td>70,1</td>
<td>High school</td>
<td>68</td>
<td>15,0</td>
</tr>
<tr>
<td></td>
<td>40-55</td>
<td>82</td>
<td>18,1</td>
<td>Associate Degree</td>
<td>43</td>
<td>9,5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>452</td>
<td>100</td>
<td>University</td>
<td>226</td>
<td>50,0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's degree</td>
<td>85</td>
<td>18,8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>452</td>
<td>100</td>
</tr>
<tr>
<td>Occupation</td>
<td>Special Professionals</td>
<td>97</td>
<td>21,5</td>
<td>2000 TL or less</td>
<td>162</td>
<td>35,8</td>
</tr>
<tr>
<td></td>
<td>Artisan</td>
<td>61</td>
<td>13,5</td>
<td>2001–3500 TL</td>
<td>91</td>
<td>20,1</td>
</tr>
<tr>
<td></td>
<td>Worker</td>
<td>52</td>
<td>11,5</td>
<td>3501–5000 TL</td>
<td>85</td>
<td>18,8</td>
</tr>
<tr>
<td></td>
<td>Officer</td>
<td>82</td>
<td>18,1</td>
<td>5001-7500 TL</td>
<td>71</td>
<td>15,7</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>120</td>
<td>26,5</td>
<td>7501 TL and above</td>
<td>43</td>
<td>9,5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>40</td>
<td>8,8</td>
<td>Total</td>
<td>452</td>
<td>100</td>
</tr>
</tbody>
</table>
As can be seen from the table, it is seen that the general participant profile consists of the Y Generation representatives who are mostly in working life. (70.1% of the participants are in the 21-39 age group.) The main reason for this is that Generation Y has an important place in business life and consumption expenditures. The importance of generation Y will increase in the coming period. In addition, the percentage of participants in the age group 20 and under (Generation Z) is only 18-20 years old, so the percentage in the sample is low. The high age range determined for Generation Y participants (18 years) also contributed to the high sample size of this group. Especially the high level of general education of this active working generation, who have just started their business life or have gained some experience in their work, coincides with the realities of life. (50% of the participants have graduated from the university. 18.8% have a master’s degree.) It can be said that other demographic data of the participants also reflect the general society. For example, the distribution in occupational groups; Students (26.5%); Special Professionals (21.5%); Civil servants (18.1%); Tradesmen (13.5%); It is at the level of workers (11.5%) and can be said to reflect the general society. It is possible to explain the high level of low income (the percentage of participants with an income of 2000 TL and less is 35.8%) with the high rate of students in the sample.

3.2.2. Correlation and Regression Analysis

Before analyzing, Cronbach’s Alpha coefficient was used to evaluate the reliability (internal consistency) of the scales in the questionnaire form and these coefficients are presented in Table 2.

Table 2. Reliability Coefficients of the Scales Used in Research

<table>
<thead>
<tr>
<th>Scale Dimensions</th>
<th>Number of Questions</th>
<th>Standard (Cronbach) Alpha</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Perception</td>
<td>18</td>
<td>0.872</td>
<td>3.08</td>
<td>0.74</td>
</tr>
<tr>
<td>Consumer Based Brand Equity Perception</td>
<td>17</td>
<td>0.942</td>
<td>3.07</td>
<td>0.89</td>
</tr>
<tr>
<td>Charity Activities</td>
<td>4</td>
<td>0.851</td>
<td>2.98</td>
<td>0.75</td>
</tr>
<tr>
<td>Respect for the Environment</td>
<td>3</td>
<td>0.846</td>
<td>2.88</td>
<td>0.79</td>
</tr>
<tr>
<td>Respect for Consumers</td>
<td>3</td>
<td>0.928</td>
<td>3.03</td>
<td>1.07</td>
</tr>
<tr>
<td>Respect for Employees</td>
<td>8</td>
<td>0.938</td>
<td>3.22</td>
<td>0.83</td>
</tr>
</tbody>
</table>
In the examination of the reliability coefficients of the scales used in the study, the Cronbach’s Alpha Value of the Charity Activities Dimension was found to be 0.851. Cronbach’s Alpha Value of Respect for The Environment Dimension was found to be 0.834. However, Cronbach’s Alpha If Item Deleted Value for the question that “Turkcell reduces the consumption of natural resources”, which is among the questions of this dimension, has been found to be 0.846. In other words, it has been observed that the purpose of asking this question is not similar to the purpose of asking other questions. (Since the value of the relevant question is greater than Cronbach’s Alpha value, it is removed from the question group.) If this question is removed from the analysis, it will be seen that the reliability value increases to 0.846. Cronbach’s Alpha Value of Respect for Consumers, another dimension of CSR Perception variable, was found to be 0.907. However, one of these questions is “Turkcell look after consumer rights.” (After-sales service, warranty) Cronbach’s Alpha If Item Deleted Value for the question was found to be 0.928. If this question is removed from the analysis with the same justification above, it will be seen that the reliability value increases to 0.928. Cronbach’s Alpha value belonging to Respect for Employees Dimension, which is the last dimension of CSR perception, was found to be 0.934. However, one of these questions is “Turkcell does not operate in countries where human rights are violated.” Cronbach’s Alpha If Item Deleted Value was found to be 0.938. If this question is removed from the analysis with the same justification above, it will be seen that the reliability value increases to 0.938. Although there are different approaches regarding the criterion values of the reliability coefficient, it is generally accepted that the scale is reliable when the Cronbach’s Alpha value is 0.70 and above (Durmuş et al., 2016: 89). When the Cronbach’s Alpha values given above are examined, it is seen that both the CSR Perception scale (α = 0.87) and the Consumer Based Brand Equity Perception scale (α = 0.94) used in the study have values above 0.70. Therefore, it can be said that the scales used in the study are reliable. After looking at the reliability of the scales used in the study, Pearson Correlation analysis was used in this section to see the relationships between the sub-factors of the scales used in the questionnaire form and the results are shown in Table 3:
THE ROLE OF CONSUMER PERCEPTIONS OF SOCIAL RESPONSIBILITY PROJECTS ON
CONSUMER-BASED BRAND EQUITY: AN EXAMPLE OF A LARGE-SCALE COMPANY

Murat Çakırkaya

Table 3. Correlation Analysis Results of Scales Used in the Research Model

<table>
<thead>
<tr>
<th></th>
<th>CSR Perception</th>
<th>Consumer Based Brand Equity Perception</th>
<th>Perceived Charity Activities</th>
<th>Perception of Respect for the Environment</th>
<th>Perception of Respect for Consumers</th>
<th>Perception of Respect for Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Perception</td>
<td>r 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Based Brand Equity Perception</td>
<td>r .802**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Charity Activities</td>
<td>r .810**</td>
<td>.695** 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of Respect for the Environment</td>
<td>r .818**</td>
<td>.677** .716** 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>.000 .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of Respect for Consumers</td>
<td>r .830**</td>
<td>.689** .522** .593** 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>.000 .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of Respect for Employees</td>
<td>r .945**</td>
<td>.719** .664** .672** .733** 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>.000 .000 .000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**. The correlation is significant at the 0.01 level.

As seen in Table 3;

- A positive and significant relationship was found between CSR Perception and Consumer Based Brand Equity Perception (r = .802, p <0.01). According to these findings, the H₁₀ hypothesis was accepted.

When the relationship is examined in terms of sub-dimensions;

- It is seen that there is a positive significant relationship between Perceived Charity Activities and Consumer Based Brand Equity Perception (r = .695, p <0.01). According to these findings, the H₆ hypothesis was accepted.
• It is seen that there is a positive and significant relationship between Percep-
tion of Respect for the Environment and Consumer-Based Brand Equity Percep-
tion ($r = 0.677$, $p < 0.01$). According to these findings, the $H_7$ hypothesis was
accepted.

• It is seen that there is a positive significant relationship between Percep-
tion of Respect for Consumers and Consumer Based Brand Equity Percep-
tion ($r = 0.689$, $p < 0.01$). According to these findings, the $H_8$ hypothesis was
accepted.

• It is seen that there is a positive significant relationship between Percep-
tion of Respect for Employees and Consumer Based Brand Equity Percep-
tion ($r = 0.719$, $p < 0.01$). According to these findings, the $H_9$ hypothesis was
accepted.

To make a general evaluation; There are medium-level, positive and significant
relationships between the 3 sub-dimensions of CSR Perception and Consumer
Based Brand Equity Perception. (Perceived Charity Activities 0.695; Respect for
the Environment 0.677 and Respect for Consumers 0.689). On the other hand,
there is a strong, positive and significant relationship between Consumer Based
Brand Equity Perception and Respect for Employees (0.719).

After the correlation analysis, multiple regression analysis was applied to deter-
mine to what extent CSR Perception dimensions predicted the Consumer Based
Brand Equity Perception variable. Analysis results are given in Table 4.

| Table 4. The Effect of Consumer Perception of Turkcell’s CSR Practices on Consumer Based Brand Equity |
|-------------------------------------------------|-------------|-----------------|-------------|-------------|--------------|--------|
| Dependent Variable                             | $R^2$ / Adjusted $R^2$ | Independent Variable | B | Standard Error | $t$ | $p$ | $F$ | $p$ |
| Consumer Based Brand Equity                    | 0.643 / 0.642 | CSR Perception     | 0.966 | 0.034 | 28.486 | 0.000 | 811.443 | 0.000 |

When Table 4 is examined, it has been determined that, in general, Turkcell’s
CSR practices are statistically significant in predicting the Consumer Based Brand
Equity. Accordingly, the $H_5$ hypothesis was accepted. The model was found to
be significant ($F=811.443; p=0.000; R^2=0.643$). According to these results, ap-
proximately 64.3% of the Consumer Based Brand Equity perception can be ex-
plained by the CSR Perception variable.
Table 5. The Effect of Consumer Perception of Turkcell’s CSR Practices Sub-Dimensions on Consumer-Based Brand Equity

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Standardized Coefficients</th>
<th>t statistics</th>
<th>p value</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Based Brand Equity</td>
<td>Perceived Charity Activities</td>
<td>0.351</td>
<td>6.984</td>
<td>0.000</td>
<td>0.050</td>
</tr>
<tr>
<td></td>
<td>Perception of Respect for the Environment</td>
<td>0.175</td>
<td>3.562</td>
<td>0.000</td>
<td>0.049</td>
</tr>
<tr>
<td></td>
<td>Perception of Respect for Consumers</td>
<td>0.245</td>
<td>7.084</td>
<td>0.000</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>Perception of Respect for Employees</td>
<td>0.218</td>
<td>4.285</td>
<td>0.000</td>
<td>0.051</td>
</tr>
</tbody>
</table>

\[ R^2 = 0.659 \]
\[ \text{Adjusted } R^2 = 0.656 \]
\[ F \text{ statistics } = 215.758 \ (p = 0.000) \]

When Table 5 is examined, it is seen that the model is generally significant. \( F = 215.718; \ p = 0.000; \ R^2 = 0.659 \). In other words, it is statistically possible to estimate the “Consumer Based Brand Equity” variable with at least one of the 4 sub-dimensions of the “CSR Perception” scale.

As a result, it has been determined that all of the independent variables (Perceived Charity Activities, Perception of Respect for the Environment, Perception of Respect for Consumers and Perception of Respect for Employees) in the model have a significant effect on perceived Consumer Based Brand Equity. Therefore, \( H_1, H_2, H_3, \) and \( H_4 \) hypotheses were accepted. The \( R^2 \) value in the table shows the explanatory power of the model. As a result of the regression analysis, the explanation rate of the independent variables for the Consumer Based Brand Equity variable was found to be 65.9%. In addition, when the coefficients table is examined, it is seen that the “Charity Activities” variable provides the greatest contribution to this explanatoryity.

4. Results and Discussion

In today’s intense global competition world, it is clear that CSR can only be sustainable as long as it continues to add value to corporate success. However, not only the company executives but also the society’s sensitivity in this direction and their interest in such projects will contribute to the future interest of CSR projects.
In addition, the continuation of the increase in global competition will also enable CSR to continue as an important part of the business world and attract attention (Carroll, 2008: 42). As a matter of fact, a study conducted in India has revealed that CSR is an opportunity to provide better corporate value and therefore should be included at all operational levels (Singh & Verma, 2018: 85). Another research has shown that CSR communication has a bigger role in creating brand value than company credibility (Mahrinasari, 2019: 317).

As a result of the study, the following results have been reached: There are medium-level, positive and significant relationships between the 3 sub-dimensions of CSR Perception and Consumer Based Brand Equity Perception. (Perceived Charity Activities 0,695; Respect for the Environment 0,677 and Respect for Consumers 0,689). On the other hand, there is a strong, positive and significant relationship between Consumer Based Brand Equity Perception and Respect for Employees (0,719). In addition, it has been determined that Turkcell’s CSR practices are statistically significant in predicting the Consumer Based Brand Equity. (F = 811,443; p = 0,000; R² = 0,643). According to these results, approximately 64.3% of the Consumer Based Brand Equity perception can be explained by the CSR Perception variable. When the role of CSR practices on Consumer Based Brand Equity is evaluated in terms of CSR perception dimensions, it is seen that the model is generally significant. In other words, it is statistically possible to estimate the “Consumer Based Brand Equity” variable with at least one of the 4 sub-dimensions of the “CSR Perception” scale. As a result of the regression analysis, the explanation rate of the independent variables for the Consumer Based Brand Equity variable was found to be 65.9%. In addition, when the coefficients table is examined, it is seen that the “Charity Activities” variable provides the greatest contribution to this explanatoryity.

The results of the research generally coincide with the results of the studies in the literature. As a matter of fact, it is possible to come across many studies on the positive impact of CSR activities on consumer-based brand value. For example; The impact of CSR on consumer-based brand value has been realized on an elite group of US companies with global brands, and as a result of the study, it has been confirmed that CSR is a valid source for intangible competitive advantage (Melo & Galan, 2011: 423). As a result of a research conducted on 10 countries and 57 global brands; showed that CSR perceptions towards each of the stakeholder groups have positive effects on brand equity. In addition, global
brands that follow local social responsibility policies in the societies in which they operate have achieved significant benefits that increase their brand equity. The reason for this is the positive impressions CSR leaves on other stakeholders, especially customers (Torres et al., 2012: 13). In a study conducted over 100 companies included in the Interbrand list, it was concluded that proactive CSR activities increase brand equities (Harjoto & Salas, 2017: 21). The results of a study conducted specifically for Saudi Arabia show that the focus of CSR activities is the nature of CSR, the size of CSR and attitude towards CSR (Ajina, et al., 2020). Analysis results in a study conducted in the USA and South Korea; It has shown that CSR practices regarding product responsibility, economic and environmental issues increase brand equity (Woo & Jin, 2016: 20). Singh & Islam demonstrated that some tools could be used to measure the impact of CSR projects on brand value and exemplified this situation through a tool used (Carroll, 2008:19). In a study conducted using data from 175 companies in Mexico, it was concluded that there is a positive relationship between CSR rating and brand value of a company (Bouvain, 2011: 13).

Although there are many studies supporting the positive impact of corporate social responsibility projects on brand equity, there are also studies with opposite results. For example, in a study conducted by Farooq et al (2015: 2013) based on data belonging to companies in different countries and different sectors, it was emphasized that CSR activities are unnecessary costs paid by companies. It is concluded that these costs negatively affect the current and expected financial performance. Surprisingly, it has been documented that there is a significant and negative relationship between CSR policies and brand equities. In another study conducted on 50 US companies, no relationship was found between CSR and brand equity (Gherghina & Simionescu, 2015: 23). In addition, the results of the study conducted in France and Tunisia showed that CSR actions carried out by luxury brands did not increase the willingness of customers to pay higher prices (Diallo et al., 2020: 1).

In this study, the consumer perception of social responsibility projects was put at the center and the relationship between CSR and consumer-based brand equity was examined. In addition, the existing literature was tried to be expanded by determining the role of CSR projects on consumer-based brand equity. Although it is known that CSR projects are one of the effective areas of marketing, previous studies on CSR were generally evaluated on four basic responsibilities (economic,
legal, ethical and charitable responsibility) that organizations should fulfill. On the other hand, there is a limited number of studies to determine the role of the dimensions of consumer perception of CSR projects on consumer-based brand equity. For this reason, this article contributes to the CSR literature and discusses the role of consumer perception of CSR projects on consumer-based brand equity in the context of “Charity activities”, “Respect for the environment”, “Respect for consumers” and “Respect for employees”. For this reason, it is thought that it will contribute to marketing professionals and academicians, especially professionals working in the mobile communication sector, which is the basis of the study.

Recommendations for future studies can be summarized as follows: This study has been carried out in the mobile communication sector and the next studies can be done in different sectors. Another suggestion is that the study is carried out in different provinces, regions and countries other than Konya. Finally, in this study, the role of consumer perception of CSR projects on consumer-based brand value was investigated. In the following studies, consumer perception of CSR projects; Customer satisfaction, reputation perception, repeat purchasing intention, etc. can be investigated on many variables.

References


THE ROLE OF CONSUMER PERCEPTIONS OF SOCIAL RESPONSIBILITY PROJECTS ON CONSUMER-BASED BRAND EQUITY: AN EXAMPLE OF A LARGE-SCALE COMPANY

Murat Çakırkaya


POLITICAL MARKETING PROCESS
AND USE OF SOCIAL MEDIA

Sevilay USLU DİVANOĞLU¹, Resul ÇELİK²

Introduction

Human beings try to convey their own feelings and thoughts to others throughout their lives and making great efforts to make the other person fit with his/her own ideas. This approach has also gained importance when it comes to politics. In general, those who have the desire for political power feel the desire to influence the target audience in order to reach the position they want, that is, to take power, and to direct them in line with their own ideas and thoughts by getting their support. For this reason, political marketing and social media emerge as the most important tools in reaching the target audience. Technological improvement and the use of new styles of communication in many fields have also affected the development of many fields in recent years. Social media, which allows people to connect with each other online, to write their daily thoughts, to discuss these thoughts, and to share and access within mutual permissions, is one of the new styles of communication with the people in political marketing. The use of social media tools, whose usage areas are rapidly growing day by day, are also becoming widespread in political areas. This situation causes all attention to this field and it is seen that the importance given to social media is increasing day by day. When the literature of our country and the world is examined, there are few studies that enable the use of the political marketing process and the use of social media within a certain program and plan. With this study, revealing its importance in terms of political marketing process and social media usage and it is considered important in terms of being a resource to contribute to quantitative studies to be carried out later.

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1. Political Marketing Mix

Marketing can be defined as meeting consumer demands, ensuring consumer satisfaction, revealing ideas and products in line with the demands of consumers, estimating the economic levels of consumers, and showing the appropriate result by prioritizing the demands and desires of consumers. In addition, these activities continue after the product is delivered to the consumer, and technical support and warranty services are also provided to the consumer. Along with the selection of the market within the concept of marketing, the evaluation of consumer demands in marketing emerges as an indicator of the support provided to the consumer. Along with these activities, there is also the purpose of gaining profit (Üste et al., 2007: 213).

When the concept of marketing is used alone, it is generally understood as a commercial activity. However, it is seen that marketing is not only a financial gain and sale, but also many non-governmental organizations (NGOs) and state institutions, especially political actors / political parties, benefit greatly from this field. (Gürbüz and İnål, 2004: 50).

Product, price, distribution and promotion, which are the elements of traditional marketing mix, are also preferred within the scope of political marketing activities (Shama, 1976: 765) and the political marketing mix occurs with the components of political product, political price, political distribution and political promotion (Demirtaş and Orçun, 2015: 42).

The concept of product is expressed in traditional marketing as anything brought to the market for capture, consumption, consideration or use in order to meet a desire and need. This concept includes physical objects, places, services, organizations, ideas and thoughts (Tek and Özgül, 2005: 288). When the literature on political marketing is examined, definitions that emphasize similar points for the conceptualization of the product are seen. Lees-Marshment (2001: 694; 2009: 459-460) defines the political product as “party members, party candidates, party employees, statutes, symbols belonging to the party, party conferences and rallies”. According to Niffenegger (1989: 47), the political product is “the individual characteristics of the candidate, party programs and past policies of the party”. Butler and Collins (1994: 21-22) stated in their studies that the political product is a structure that includes strategic features such as “person / party / ideology, commitment, changeability”. Kolovos and Harris (2010: 7) expressed
the political product as a merger consisting of “ideology and political plans, a party leader and candidates, party managers and party members”. In the context of these definitions, the political product can be defined as a party leader, party candidates and a party program. İslamoğlu (2002: 25) evaluated the political product within the scope of the chairman of the political party, the ideological axis and philosophy of the party, its program and activities, the candidates of the party and its identity. The evaluations made by the electorate from the best to the worst are effective in revealing the total value of the political product. Political choices are also made according to these evaluation criteria. Factors such as the values that make up the society, the place of democracy in practice, and social problems play a role in which of the elements constituting the political product determine our preferences.

In political marketing, the price is the whole of the votes, donations and other services provided to the candidate or the political party during the election period in return for the services undertaken by the party (Tek, 1999: 495). Membership fees, donations, different services, products can be a price, or it can be in the form of supporting the politics defended by the party or the candidate at the time of the election. Voting is a psychological purchase and there is a similarity between purchasing and voting for the mentioned party (Gürbüz and İnal, 2004: 64).

Distribution is a road between the producer and the consumer and also the totality of the activities carried out to deliver the products to the consumer. (Tekin, 2006: 164). In terms of political marketing, distribution is the delivery of political products and related messages (a party program, a leader, a candidate, practices, an organization, a propaganda) to the electorate in the shortest way, at the most appropriate time, in the most economical and an effective way. This distribution can be done in two different ways. The first is that party cadres can directly reach the voters without using any tools. The second is that party cadres contact the voters using any tools (İslamoğlu, 2002: 135). While the importance of the first way stands out in terms of preventing the changes of ideas by third parties before the products are delivered to the voters, facilitating control, avoiding incomplete or misunderstanding, unlike the first way, the second way has some disadvantages. However, using communication tools will allow reaching more voters with less cost in a short time (Divanoğlu, 2008: 112).
Promotion refers to the positive promotion and adoption of products, services, ideas or people to the target market and the scope of promotional activities in traditional marketing (Aytuğ and Özgüven, 2011: 233). Promotion is the marketing tool that is the most obvious feature in the political marketing mix with its various forms (Henneberg, 2002: 18). Promotion for consumers undertakes three important tasks. These are informing, encouraging and reminding (Stanton et al., 1994: 459). The most important marketing mix element that increases the influence of political parties against uncontrollable internal and external factors is promotion. The element that conveys the products and services of the party to the voters and ensures the survival, progress and growth of the political party is the promotion marketing mix (Mucuk, 1998: 185).

2. Development of Political Marketing

There is a general consensus among marketers about the development of political marketing and the parallel development of media and technology. Although the emergence of political marketing dates back to ancient times, it can be said that it started in America at the beginning of the 20th century in modern terms. The election campaign carried out by Franklin D. Roosevelt in 1936 is expressed as a historical process in the emergence of modern political communication (Polat et al., 2004: 17). In Turkey, it is observed that the political marketing and political marketing tools, especially after the transition to multi-party period begins to show itself. It is known that during the 1960s, when political campaigns began to emerge, the election campaigns were carried out through the technology of that day. Another political campaign in this period is seen to be carried out through the printed media (newspaper, poster, etc.) (Aziz, 2003: 83).

Political advertising, which is one of the most important tools of political marketing, entered our lives with the election campaigns Cenajans prepared for the Adalet Party in the 1977 elections so the transfer to those skilled in the art of political campaign in Turkey has been accepted as the beginning. In the 1977 and 1983 elections, making political advertisements through experts has provided positive contributions to political parties in the elections and they have proven themselves (Polat et al., 2004: 71). When viewed from the perspective of political events, political advertisements were made on television for the first time in the 1987 elections. The advertisements prepared by Birikim Agency for ANAP, one of the parties participating in the 1977 elections, and Yorum Agency for the
Sosyal Demokrat Halkçı Party, had a wide impact. The “squeezed lemon” spot, which has become a political symbol, was also used by the SHP leader and the party at every opportunity. Political advertising has become indispensable in Turkish political life with the 1991 elections (Polat et al., 2004: 79).

The rapid development of communication technologies has brought along current marketing methods. Through the Internet, e-mail and smart phones, messages developed for individuals or groups can be delivered. Effective sound, picture, text and audio images can be used as political marketing tools (Polat et al., 2004: 71). Today, the fact that all political parties have web pages and personal social media accounts of leaders and party members are examples of active use of technology. Today, commercial marketing techniques are benefitted from political marketing practices.

3. Political Marketing Process

The process of political marketing involves the creation of plans for political actors to achieve their goals, and it is a process that includes studies that investigating the political market, identifying opportunities, examining the voter behavior, analyzing the work of rival actors and political parties, and examining the conditions of environmental factors (İlarslan, 2017: 32). The stages that include the political marketing process are shown below.

**Environmental Analysis.** In the political marketing process, all bodies involved in the process, together with the candidates, are affected by external environmental factors. These factors affect the decisions, activities and works of the candidates as well as the behavior of the voters and rival candidates in the market also the political parties. Getting the environmental analysis right is an important factor that opens the door to success. Environmental factors in the political marketing process can be classified as international, socio-economic, socio-cultural, legal, political, competitive and technological environment (İslamoglu, 2002).

**Analysis of Voter Behavior:** The voter is the most influential factor in the decisions and behaviors of candidates and parties. For this reason, the factors of voter behavior should be thoroughly investigated and analyzed.

**Voter Segmentation.** It is the process of defining and targeting voters by subdividing them (Davidson & Binstock, 2012: 20). The beginning of the political
campaign is the determination of voter groups. Information from selected groups is very important to retain voters and maintain their tendency to vote. For this reason, the separation of voters into groups, in other words, segmentation is required (Braun, 2012: 12). Geographical, behavioral, psychographic and demographic segmentation methods can be used as segmentation methods in determining voter groups (Baines, 1999: 405).

As a result, dividing the voters into sections with the determined criteria, determining the target voter groups and developing a political marketing plan according to these are the fundamentals of the political marketing process (İlarslan, 2017: 35).

Creating the Political Marketing Mix. Political candidates and parties have to implement a marketing mix that includes various activities in order to deliver the campaigns they have created in line with the demands and demands of the voters to their target audience. Candidates and parties who want to increase their influence over voters with the marketing mix benefit from many marketing factors (İlarslan, 2017: 35).

It is seen that various models have emerged in the literature in terms of how to carry out the political marketing process successfully and the importance of seeing and analyzing voter behavior in this process. Commonly used of these emerging models are described below.

The Kotler Model. Kotler (1975) emphasized that political marketing is not a new methodology in which marketing methods are applied to politics, but there is an increase in the use of these methods with confusion. In this context, he described political marketing as an exchange relationship between the candidate and the voter, where information is received through votes and mutual communication in return for promises.

Niffeneger Model. There are three components in the political marketing process model developed by Niffeneger. The first of these is the candidate or political actors consisting of political parties. The second component is the voters who are affected by environmental factors. It emphasizes the segmentation of the voters in the Niffeneger model. The feedback from voter departments in the model is conveyed to political actors and political actors determine the political marketing programs they present to the target voter groups in line with these feedbacks. The
third component specified in the model, the political marketing program, includes traditional “4P” marketing mix components (Ilarslan, 2017: 37).

*Butler and Collins (1994) Model.* In this model related to the structural and process characteristics of political marketing, product, organization and market factors are examined as structural features (Butler and Collins, 1994: 21-30).

*The Model of Henneberg (2003).* He divided political marketing according to its functions and he proposed a model that includes marketing functions that political candidates or parties can use for different exchange relations in different sub-markets (Henneberg, 2003: 3). This model developed by Henneberg is not a model that directly concerns the political marketing process, but includes various exchanges and communication processes that classify political marketing according to product, distribution, cost, communication, news-management, donation, parallel campaign management and internal commitment management functions. (Henneberg, 2003: 1118). When the literature is scanned, there are also models that have emerged as a result of various studies developed other than the models mentioned.

4. Social Media

Social media is generally defined as a set of internet-based applications that are built on the technological and ideological infrastructure of web 2.0 and it allows users to create content and update and change the content they have created (Comm & Burge, 2009: 2; Kaplan & Haenlein, 2010: 61.; Kim et al., 2010: 216; Akar, 2011: 21; Victor O. et al., 2017: 15). It is an online application platform that facilitates social media interaction, (Vural & Bat, 2010: 3355; O’Leary et al., 2011: 2; Orsburn, 2012: 3) communication and collaboration that allows people to share profiles to connect with each other online, allowing people to see each other as much as they share or allow (Palmer & Koening - Lewis, 2009: 165). Social media are online communication tools that are under user control (Bayraktutan et al., 2014: 62).

4.1 The Concept and History of Social Media

Web 1.0 technology, defined as information networks, is the application, which is the first stage of the World Wide Web, used between 1989 and 2005. As static
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pages and content publishing, the web 1.0 allows only searching and reading information, providing little opportunity for user intervention. The web 2.0 technology, which has a wide range of features as participatory and collaborative, (Kujur & Chhetri, 2015: 134-135) enables users to share information collected collectively from different sources (Hwang et al., 2009: 1040). Web 2.0 is not just a current version of web 1.0, allowing users to interact more with less control. At the same time, it is a technology that allows the mutual content creation with flexible web and creative design possibilities, which are considered as one of the prominent features of web 2.0. Web 3.0, which provides the accessibility of mobile internet, is important as it is a technology that enables to increase the consumer satisfaction and to organize cooperation in social networks (Choudhury, 2014: 8097).

In this context, development through web 1.0 (static), web 2.0 (social), web 3.0 (mobile) offers opportunities along with technology (Chiosa, 2014: 38). It is stated that these important developments in technology will progress as web 3.0 web 4.0-web 5.0, with semantic web applications technology can rapidly interfere with people’s lives (Kambil, 2008: 56,58). As a result of all these technological advances. This process, in which we experience changes in every field such as economy, politics, social relations and culture is named by Castells as “network society” (Castells, 2010: 60).

Looking at the history of the concept of social media, it is seen that it has gone through many different stages until today (Bulut, 2013: 24). Usenet, which provides the opportunity to send messages to active internet users around the world, was founded by Tom Truscott and Jim Ellis in 1979 and lays the foundations of social media. Social media started to be used in 1989, when Bruce and Susan Abelson gathered journalists in an online community on the website Open Diary, and in the same year, the concept of “Weblog” and the next year the concept of Blog emerged. With the rapid development of technology and the increase in internet speed and broadband services, the creation of social networking sites such as MySpace in 2003 and Facebook in 2004 started to create social media used worldwide today (Kaplan & Haenlein, 2010: 60). From a chronological point of view, it is stated that the social network sites are Classmates.com (1995), Sixdegrees.com (1997), Myspace and Facebook (2004), Flickr (2004) and Youtube (2005) (Kim et al., 2010: 217).
The fact that the Internet has a 30-year history and the use of the first websites in the early 1990s reveals that the history of social media is not very old. As a result of technological developments and advances in the software industry, especially the use of web 2.0 technology is seen as a very important step in the development of social media and therefore social networking sites. It is known that the terms social network and social media are used in the same sense. Since social networks are a category of social media, it is stated that these two terms are different from each other (Safko & Brake, 2009: 26). Social networks can be defined as the place where people interact with friends, customers or the target audience, while social media can be defined as the place where video, photo, article or any content is shared even if there is no interaction.

5. Political Marketing and Social Media

Over the past decade, technological improvements and the use of new technological forms and new styles in communication have created a new form of class that each individual must follow to communicate online. Also, social media is the new tool of communication with the people. Therefore, the use of it has spread to political level. Social media has become the main communication tool for advertising and political aim to influence people in order to win voters thanks to its features such as creating dialogue, fast personalized communication and targeting the common goal in the best possible way (Yousif & Alsamydaí, 2012). The chances offered by social media not only helping the development of communication, but also enabling the transfer of ideas and information by engaging citizens with common interests through discussion to accomplish the personal purposes (Shirky, 2011).

Nowadays, digital technology has become an important tool for the political campaign of parties especially candidates. As the candidates and the political parties enhance the social media use in order to supply political information, also, citizens’ ability to use the tool for political participation is increasing. Political parties also use the internet for political campaigns (De Ronde, 2010). websites provide the parties with the opportunity to communicate directly with the public in order to supply information about political actors and current events. Moreover, in recent years, the political parties’ activities have developed significantly though the use of multimedia tools and features of internet. Although the social media use is not only aimed at young voters, only many young people are
informed by them. The general purpose is to remove barriers to the participation in politics by making it easier or more attractive for young people to reach the politicians or political parties. Social networking websites such as YouTube / Facebook that provide a good environment to interact with voters and encourage policies allow users to interact with each other on political issues. These allow 65% of users aged from 18 to 29 to engage and research at least one of the five political candidates with a political engagement during the election campaign (Smith, 2009). Effing, Hillegersberg, and Huibers (2011) also revealed that the politicians who were more on social media got more votes in the Dutch national elections. A significant positive relationship was found between social media use and the number of votes in 9 of the 16 parties so the importance of potential to increase the policies significantly especially for young audiences becomes evident.

6. Current Social Media Tools

Social media are applications that allow users to create personal accounts or profiles, access these profiles easily or as a result of their permission, interact by sending instant messages and notifications, and that can contain various information, especially photos, videos and information. It is stated that social media tools are tools such as e-mails between consumers, forums, discussion forums on the internet (Mangold & Faulds, 2009: 358). Although there are various types of social media such as Youtube and Facebook in the general definition, it is also stated that different social media tools cannot be classified systematically (Kaplan & Haenlein, 2009: 61). For this reason, it can be stated that many social media tools are also used as a wide communication network. Social networking sites can be defined as websites where users can quickly transmit the content prepared by users in an interactive manner. These contents are transmitted through personal profiles and blogs within the network formed between individuals (Yağmurlu 2011: 7). Facebook and Twitter are the most well-known and most active social media tools around the world.

6.1 Facebook

Facebook was founded by Mark Zuckerberg in 2004 for Harvard University students. Facebook, which later included schools around Boston, covered all Ivy League schools within two months and all schools in the United States within the first year (Yağmurlu 2011: 7). Today, Facebook has more than 2 billion users
worldwide and more than 51 million users in our country. 51% of users enter Facebook several times every day. Users have around 130 friends on average. Users spend an average of 700 billion minutes per month interacting on Facebook, and their posts reach 30 billion per month. In addition, 200 million users follow Facebook on their mobile phones either over the internet or through the application they download (Aksu et al. 2011: 200-201). The site allows users to have new friends, to share their photos and thoughts, and to share their personal information. This site, which gives users free usage rights, meets its revenue from advertisements.

The widespread use of Facebook by reaching a wide audience rapidly and its popularity increasing day by day push marketing researchers and academics to do research on this subject (Chen 2014; 1208). Mondal (2013) identified nine factors affecting political participation: psychological and cognitive characteristics, social environment, political environment, modernization and urbanization level, political socialization, participation modes, voting, campaign and cooperation activities. It is stated that voter participation on Facebook is affected by any of these nine factors. So, it was stated that voters in cities voted for candidates with online advertisements in democratic, social and political environments, and they followed the beliefs and political plans of the candidates during political campaign activities (Salvador et al., 2017: 17).

In this sense, Facebook, the modern communication tool of the age that allows candidates and parties to freely share their promises and ideas with the voters, and it offers a wide range of opportunities in terms of ensuring that the messages given reach the target audience, political interaction and fast information exchange (Yousif & ALsamyda, 2012: 85-86).

Facebook posts and electronic word-of-mouth communication, which are widely used in our country as well as in the world, can be effective on consumer purchasing decisions (Yildiz et al., 2016: 161), so it can be said that it is a modern political tool that can bring political parties or candidates together with electoral groups quickly and directly.

6.2 Twitter

Twitter is a social media tool defined as a microblog used to deliver messages to the profile owner’s unique followers, where the messages sent are limited to 140
characters. On the grounds that the limit of 140 characters creates a lot of difficulty in expressing an opinion, it has increased the character limit to 280 since 2017 for Twitter users in order to convey their thoughts more easily with a single tweet. Compared to the more specific area Facebook provides to its users, most of the messages on Twitter are public, searchable, and can be categorized according to content classification (Kaplan & Haenlein, 2010: 67). In this application, where millions of tweets are sent every day, the number of followers of the users can change, they can be included in popular profiles with millions of followers as well as accounts with very few followers. As a mass communication tool, all groups such as politicians, celebrities, organizations, state institutions and news channels can easily use Twitter actively (Bornfeld et al., 2014: 8).

People use Twitter for various reasons. Kim (2011) stated that the use of Twitter is for information seeking, entertainment and social use. Jaidka and Ahmed (2015) stated that successful political parties share their online and offline campaign activities with their followers using Twitter, and McCreery and Smith (2011) stated that there are homogeneous clusters on Twitter according to people’s political opinions (Safiullah et al., 2016: 123). In general, it is stated that using Twitter provides personal benefits such as communicating with friends, sharing ideas, having new friendships, commenting on people, and following current events. It is also stated that it has corporate benefits such as advertising, communicating with similar institutions, creating a corporate network, exploring business opportunities, and creating a brand (Weber, 2009: 9-11). In their study on Twitter, Zhao and Rosson (2009) stated that users use Twitter to communicate with their friends, searching for information and relieve stress, therefore, Twitter is different from other social media applications (Bulut, 2013: 25).

Social media makes it easy to record and share messages containing political opinions. For this reason, researchers try to use the data obtained via Twitter to predict the election results or public opinion (Gayo-Avello, 2013: 651; Jungherr, 2016: 72). The use of Twitter, which is an important platform for political parties to share their opinions with target voters or to announce their campaigns (Safiullah et al., 2016: 122), by politicians has been the subject of many studies especially recently (Caplan, 2013: 6).

Twitter activities related to the performance of political candidates or parties in elections are examined and investigations are made regarding the publication of
the links and messages made on Twitter by the researchers (Pal & Gonavela, 2017: 99). Therefore, Twitter, which allows people to express their political views and opinions (Aharony, 2012: 587; Caplan, 2013: 5; Safiullah et al., 2016: 122), is used by the general public as both a political information source and a political expression tool (McGregor, 2017: 3). For this reason, Twitter, which attracts the attention of politicians, academics who study mass communication and public opinion research, is a powerful platform for the dissemination of many messages through electronic word-of-mouth communication, which allows political parties to share their campaigns with the target audience (Bornfeld et al., 2014: 6).

### 6.3 Instagram

Instagram, a free photo and video sharing application, was founded by Kevin Systrom and Mike Krieger in October 2010. This application, which allows users to use a digital filter on a photo they took when it was established and to share this photo with social media services including Instagram, was purchased by Facebook in April 2012 (Wikipedia, 2018). According to the statistics of Instagram, which has become popular in a short time, the number of users is 715 million on average, and an average of 52 million photos and 5 million videos are shared daily with this application (Statisticbrain, 2018).

Instagram is an application that allows users to share their photos or videos, to like and to comment on what has been shared, and to interact with each other. Instagram, which is preferred especially for today’s modern youth and offers visual communication, draws attention creating brand and product perception by using images. Instagram is seen as an important social media tool as a political communication tool to offer a direct and indirect method to politicians to share their messages and enrich their images, and to help citizens’ loyalty (Glantz, 2013: 695). However, it is seen that there are not enough studies about Instagram as a political communication tool in terms of both political personality and image management (Liebhart & Bernhardt, 2017: 17). Although it is a popular social media application, there is not much research in the literature about Instagram, which is a relatively new application.

## RESULT

Marketing, which includes the processes of producing and delivering products and services in the light of the demands and desires of consumers as a priority, is
a concept that has taken place in different disciplines, which is not only a subject of areas such as economy and business.

The concept of political marketing, which emerged as a result of the adaptations of marketing in the field of politics, includes product, price, distribution, promotion traditional marketing mix elements as political product, political price, political distribution and political promotion.

The common view of marketing scientists that developments in political marketing and media and communication technologies are progressing in parallel has an important place in the field of marketing. Rapid advances in communication technologies have brought new marketing methods and techniques with it. The application of these methods and techniques for the successful management of the political marketing process can be associated with the effectiveness of the use of some political marketing process models. Today, commercial marketing methods are still used in political marketing processes. These can be classified as Kotler Model, Niffeneger Model, Butler and Colins Model and Henneberg Model.

In recent years, technological innovations, developments of it and the use of new tools of communication in many areas have also affected the development of many fields. Social media is one of the new styles of communication with the people in political marketing so allowing people to connect with each other online and sharing and accessing within mutual permissions. The use of social media tools, whose usage areas are becoming more widespread, is also becoming widespread in political areas. Social media tools and websites are rapidly taking their place in the political marketing process as basic communication channels for dialogue, individualized communication, mass movements, public formation, influence, information and political advertising. Within this framework, political marketing practitioners, who use communication technologies and social media tools effectively, will be able to effectively carry out mass movements in line with common goals by ensuring the interaction between the voter and the party in this process.

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EFFECTS OF THE CHANGE IN EXCHANGE RATES AND INTEREST RATES ON NON-PERFORMING LOANS: THE CASE OF TURKEY

Mustafa UYSAL 1

Introduction

Financial institutions fulfill the function of financial intermediaries and ensure the efficiency of the system. The banking sector is one of the leading institutions performing financial intermediation functions. Banks contribute to the sound persistence of the financial system by ensuring the flow of funds between fund suppliers and fund demanders. Moreover, banks make those transactions by lending the funds collected from those with savings surplus toward those who have savings deficit, and charge fees such as interest, commission, dividend in return for this transaction. Therefore, repayment of loans extended by banks is of great importance in order for banks to function properly and to sustain financial stability. Problems to be experienced in loan payments would lead to problems in asset-liability and liquidity management of the banking sector and, ultimately, serious risks in the economy. Pursuant to the Article 5 of “the Regulation on the Principles and Procedure Regarding the Characterization of Loans and Other Receivables and the Reserves to be Allocated for the Same” published in the Official Gazette No. 26333 on 11.01.2006, the loans that are overdue for more than 90 days should be categorized as “non-performing loans” (Official Gazette, 2006). The increase in the NPL ratio brings along some risks for the banking sector. Profitability and liquidity are the most important of these risks. Banks set aside provisions for loans transferred to NPL accounts and write them off as expenses. This situation adversely affects the profitability of the bank. Moreover, in case of default of the borrowed loans on maturity date would increase the NPLs, which may disrupt the cash flow and result in liquidity risk for the bank.

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Besides the mentioned issues, high NPLs also have negative impacts on the real sector. The asset quality of banks with increased NPLs would decrease, and in turn, banks would begin to be less willing to extend loans. This situation would make it difficult for the real sector in the country to acquire resources. On the other hand, banks with decreased profitability due to high NPLs would prefer to increase their deposit interest rates. Subsequently, the resource cost of the real sector would rise (Yüksel, 2016: 42).

Due to the aforementioned reasons, the increase in NPL ratios is one of the most important factors causing deterioration in the asset structure of banks. The deteriorating asset structure would have adverse impacts on financial stability and economic growth (Hasan et al., 2009; Zhang et al., 2016). It is quite essential to examine and determine the factors that cause an increase in NPLs due to their adverse impacts on financial and economic stability. It has become very important to be aware of these factors and implement policies accordingly, especially in terms of more effective management of banks’ loan portfolios, determination of capital requirements, and pricing of loan equivalents and loan products that may be highly exposed to default risk (Mileris, 2012: 497). Therefore, NPLs is an important indicator in macroeconomic terms. Upon considering the importance of NPLs, this study attempts to explain the impact of the developments in bank deposit interest rates and exchange rates, which are among the macroeconomic factors, on NPLs over the period January 2007 and June 2020. Contribution of the study to other studies in the literature involves an investigation of the relationship of NPLs with bank deposit interest rates and foreign exchange rates by performing the FADL cointegration test which derives strong outcomes in spite of the form and number of structural alterations and considers numerous structural breaks. Therefore, this study contributes to the literature in a methodological sense.

The study is comprised of six parts. In the second part, a literature review of the factors affecting NPLs is presented. Data and methodology are introduced in the third and fourth parts, respectively. In the fifth part, the obtained findings of the analysis are reported, and these findings are interpreted in the conclusion part.
Literature

Upon examining the national and international literature on NPLs are examined, many studies are found to determine the association of NPLs with the macroeconomic and bank-specific variables. By considering the bank-specific variables in determining this relationship, the change in the asset structure of banks can be analyzed (Klein, 2013: 4-9). The bank-specific variables consist of factors such as the total size of bank loan management efficiency and bank capital used in the analysis of NPLs, whereas factors such as growth, gross domestic product, real exchange rate, and unemployment constitute the macroeconomic variables. First of all, several studies dealing with the association between bank-specific variables and NPLs are presented below.

Berger and DeYoung (1997) performed the Granger causality test for NPLs and banks' capital amounts in the USA over the period 1985-1994 and detected an inverse causal relationship between these two variables. Podpiera and Weill (2008) examined the relationship between NPLs and efficiency covering the period between 1994-2005 for the banking sector in the Czech Republic. The results obtained from the study supported the “bad management” hypothesis and indicated that the deterioration in cost-effectiveness led to an increase in NPLs.

Boudriga et al. (2009), using macroeconomic and financial data of 59 countries, investigated the factors affecting NPLs and the potential influence of regulatory factors between 2002-2006. The study, firstly, asserted the presence of a robust association between NPLs and bank-specific factors. Also, it was determined that particularly high capital adequacy ratios reduced NPLs, whereas market discipline and regulatory as well as supervisory mechanisms were not effective on NPLs. Besides, there are studies in the literature that deal with the impacts of bank-specific variables such as credit quality, cost-effectiveness, income sources, and income variables before loan loss provision (Hu et al., 2004; Godlewski, 2004).

Studies examining the impact of macroeconomic variables on NPLs are summarized as follows. Espinoza and Prasad (2010) analyzed the data of six member countries of the GCC, using the VAR method over the period 1995-2008. The analysis results detected an inverse association between NPL and growth rate.

Yüksel (2011) analyzed the impacts of the general outlook of the economy, growth rate, exchange rate, interest rate, indebtedness of companies, industrial
production index, and BIST-100 indexes on NPLs. The results concluded that variables such as interest rate, inflation, the share of loans in GDP, and growth had significant impacts on NPLs. Moreover, according to the results obtained from the stress tests, it was determined that the system had become a little more vulnerable to the 2008-2009 Global Financial Crisis. Louzis et al. (2012) explained the relationship of NPLs with growth, interest, and unemployment rates for Greece within the period between January 2003-March 2008. In the study where regression analysis was conducted, a significant relationship was detected between NPLs and those variables.

Castro (2013) investigated the presence of the relationship between macroeconomic developments and bank credit risk for the banking sectors of Greece, Portugal, Ireland, Italy, and Spain over the period between 1997 and 2011. The data used in the study were analyzed via the dynamic panel data approach. Findings indicated that factors such as the increase in GDP, housing price indexes caused changes in credit risk and also, in the 2008 Global Financial crisis period, credit risk was significantly increased.

Klein (2013) analyzed the determinants of NPLs and their impacts on economies of the Middle, Eastern, and Southeastern European countries using the VAR model. In the study, the panel data of 16 EU member states were analyzed between 1998-2011. The analysis results revealed that growth, inflation, and unemployment rates affected NPLs.

Beck et al. (2013), using the data of banking sector in 75 states between 2000-2010, investigated macroeconomic variables affecting NPLs. In the study using dynamic panel data management to analyze the data, it was concluded that variables such as stock prices, exchange rate, and borrowing interest rates had significant impacts on NPLs. Makri et al. (2014) analyzed the data of 14 EU member states using the Generalized Method of Moments (GMM) over the period 2000-2008. The study concluded that the unemployment rate, growth rate, and bank capital size are effective on NFLs.

Chaibi and Ftiti (2015) examined the relationship of NPLs for banks in Germany and France with growth, interest rate, unemployment rate, and exchange rates over the period 2005-2011. The study, in which the GMM method was used, determined that macroeconomic variables affected NPLs. Yağcılar and Demir (2015) examined data from 26 deposit banks operating in Turkey with the panel data.
analysis. Findings determined that NPLs and trading in the stock exchange, scale, loan/deposit ratio, and liquidity were inversely correlated, whereas, interest rates, growth, and capital adequacy ratio were positively correlated.

Abdioğlu and Aytekin (2016) pointed out a positive association of NPLs with the NPL ratio in the previous period, and the solvency ratio, whereas an adverse relationship with the interest applied to the loan, the loan/deposit ratio, inefficiency, and activity efficiency. Anastasiou et al. (2016) analyzed both macroeconomic variables and banking-specific variables affecting NPLs using panel data and the VAR model. The findings revealed an inverse relationship between macroeconomic factors such as unemployment, growth, and taxes, and NPLs after 2008.

Yüksel (2016) examined macroeconomic and bank-specific variables that determine the NPL ratios in the Turkish banking sector using the annual data over the period 1988-2014. Findings determined that the rise in the foreign exchange rates increased the NPLs, whereas the increases in the interest income and growth rates led to a decrease in the NPLs. Gökçe and Sarıtaş (2017) analyzed the impact of the items on the balance sheet of private banks in Turkey on the changes in exchange rates. The study, in which the quantile regression method was used, detected a positive and statistically significant, but financially negative association between the change in the exchange rate and the NPLs.

Tekşen and Çelik (2018) investigated the association between loan types and NPLs. In the study, firstly, they detected a negative association between NPLs and housing & commercial vehicle loans, whereas a positive association between NPLs and non-commercial vehicle loans. Also, the results concluded that inflation, NPL ratio, and asset size variables had significant and positive impacts on the NPL ratios, whereas the crisis variable had a significant and negative impact.

Kılcı and Baygin (2019) examined the relationship between NPLs and interest rates on loans in Turkey. The obtained data over the period of July 2012-December 2018 were analyzed performing the TAR-MTAR cointegration test. In the study, it was found that loan interest rates had a significant, long-term impact on NPLs. Kılcı (2019) investigated the presence of the long-term association between the real buying exchange rate and the NPL ratio over the period of January 2008 - December 2008 performing the Fourier ADL cointegration test. The result of the study detected an association between NPLs and the real exchange buying rate.
Kabataş and Karamustafa (2019) investigated the relationship of NPL ratios with macroeconomic and bank-specific variables in the Turkish banking sector utilizing the quarterly data over the period 2005-2016 via the OLS regression analysis method. Findings revealed an adverse and statistically significant association of the NPL ratio with the variables of growth, unemployment, and return on equity. Notwithstanding, no statistically significant association of the NPL ratio with the variables of inflation, interest rate, real exchange buying rate, return on assets, and total loans/total deposit rate could be detected. Similarly, Torun and Altay (2019) analyzed the data of 25 deposit banks in Turkey over the period 2008-2015 via a balanced static panel data analysis. Findings concluded that inflation, real exchange rate, GNP growth rate of the Eurozone and BIST Index were statistically significant on NPLs; whereas microeconomic variables consisted of real effective interest rate, the share of consumer loans, the ratio of deposits to loans, and the bank size.

Poyraz and Arlı (2019) examined the relationship of NPLs with three different currencies such as USD, GBP, and JPY. The obtained data over the period January 2008 - August 2018 were analyzed performing the ADF (1981) test, the Johansen cointegration test, and the Granger causality test. The analysis results, firstly, detected a long-term association between the USD exchange rate and NPLs and that the USD exchange rate affects NPLs. Secondly, no clear long-term association between the GBP rate and NPLs could be asserted, but it was seen that the GBP exchange rate Granger-caused NPLs. Lastly, no long-term association was observed between the JPY rate and NPLs. Besides the aforementioned studies, unemployment rate, exchange rate, and growth rate were found to be effective on NPLs by several studies in the literature (Vogiazas and Nikolaidou, 2011; Skarica, 2014; Tanaskovic and Jandric, 2015; Konstantakis et al., 2016).

**Methodology**

In the study, the relationships of NPLs with the USD exchange rate, EURO exchange rate, and deposit interest rates, which are financial instruments that can have an effect on these loans, are analyzed. To reveal this effect, it is investigated whether or not cointegration exists between NPLs and the USD exchange rate, as well as the EURO exchange rate and deposit interest rates. In this context, the existence of a cointegration relationship of NPLs with the USD exchange rate, EURO exchange rate, and deposit interest rates are examined via Banerjee et al.
(2017) FADL cointegration test. The variables, which are considered before the cointegration analysis, should be stationary at the same level $I(1)$. Therefore, the ADF (1981) unit root test is performed to determine the level at which variables are stationary. The following equations are utilized in the ADF unit root test:

$$\Delta y_t = \alpha + \gamma y_{t-1} + \sum_{i=1}^{k} \theta_i \Delta y_{t-i} + \omega_t$$  \hspace{1cm} (1)

$$\Delta y_t = \alpha + \gamma y_{t-1} + \sum_{i=1}^{k} \theta_i \Delta y_{t-i} + \mu T + \omega_t$$  \hspace{1cm} (2)

$$\Delta y_t = \gamma y_{t-1} + \sum_{i=1}^{k} \theta_i \Delta y_{t-i} + \omega_t$$  \hspace{1cm} (3)

Equations 1, 2, and 3 above indicate the ADF equations with intercept, with intercept and trend, and without intercept and trend, respectively. The ADF unit root test determines whether or not the coefficient $\gamma$ is statistically equal to zero. It is determined whether or not the series is stationary by comparing the $t$ statistics of the coefficient $\gamma$ with the MacKinnon table critical value. If the absolute value of the $t$ statistic is greater than the absolute value of the MacKinnon table critical value, the series is stationary at the level. The FADL cointegration test is performed to investigate the long-term relationships among the variables of the study. The FADL cointegration test, which was obtained through the inclusion of the Fourier functions to the autoregressive distributed lag (ADL) model (Banerjee et al., 2017: 3-4):

$$\Delta y_{1t} = d(t) + \delta_1 y_{1,t-1} + \gamma' y_{2,t-1} + \varphi' \Delta y_{2t} + \epsilon_t$$  \hspace{1cm} (4)

$$d(t) = \beta_0 + \sum_{k=1}^{q} y_{1,k} \sin \left( \frac{2\pi kt}{T} \right) + \sum_{k=1}^{q} y_{2,k} \cos \left( \frac{2\pi kt}{T} \right) \hspace{1cm} q \leq T/2$$  \hspace{1cm} (5)

In equation 5, $\beta_0$ denotes the deterministic trend, $k$ denotes the singular frequency value, $q$ denotes the frequency, and $T$ denotes the number of samples. The null hypothesis $H_0 : \delta_t = 0$, which claims that the variables are not cointegrated, is tested by comparing the obtained $t$-statistics with the critical values of Banerjee et al. (2017). Furthermore, the Fully Modified OLS (FMOLS) method is used to estimate the coefficients of this relationship among the variables with long-term relationships.
EFFECTS OF THE CHANGE IN EXCHANGE RATES AND INTEREST RATES ON NON-PERFORMING LOANS: THE CASE OF TURKEY

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Dataset

The long-term association of NPLs with fluctuations in exchange rates (USD and EURO buying rate) and interest rates (INT)\(^2\) applied to bank deposits are analyzed within the Turkish banking sector. 162 monthly data are utilized in the study over the period of January 2007 - June 2020. Major financial crises on both national and international scales can account for significant volatility of bank loans, exchange rates, and interest rates. Therefore, the review period of the study is limited to the period between 2007-2020 in order to include the influences of the Global Financial Crisis of 2008 on the variables included in the analyses. The monthly data of the NPL variable in the analysis are obtained from the Monthly Bulletin of the Banking Regulation and Supervision Agency. The data of the exchange rates are obtained from the “Electronic Data Distribution System” of the CBTR.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNPLs</td>
<td>10.364</td>
<td>10.225</td>
<td>11.858</td>
<td>9.065</td>
<td>0.763</td>
<td>0.241</td>
<td>2.156</td>
</tr>
<tr>
<td>LUSD</td>
<td>0.850</td>
<td>0.694</td>
<td>1.938</td>
<td>0.156</td>
<td>0.507</td>
<td>0.610</td>
<td>2.171</td>
</tr>
<tr>
<td>LEURO</td>
<td>1.081</td>
<td>0.993</td>
<td>2.035</td>
<td>0.529</td>
<td>0.424</td>
<td>0.776</td>
<td>2.447</td>
</tr>
<tr>
<td>LINT</td>
<td>2.457</td>
<td>2.355</td>
<td>3.238</td>
<td>1.924</td>
<td>0.308</td>
<td>0.675</td>
<td>2.384</td>
</tr>
</tbody>
</table>

Table 1 indicates that NPLs has the highest value, whereas the USD exchange rate has the lowest value. The standard deviation value of INT, which is one of the important variables that can affect the cost of NPLs, is lower than of other variables that may be effective on NPLs. Although the USD and EURO exchange rates yield the lowest return, they have the highest risk among the variables that can affect NPLs.

Findings

Before conducting the unit root and cointegration analyses regarding the variables, the natural logarithm of each variable is taken. Then, the ADF (1981) unit root test results are listed in Table 2.

2 The data used in the study are compiled from Yaşğılar and Demir, 2015; Gökçe and Sarıtaş, 2017; Torun and Altay, 2019; Poyraz and Arlı, 2019.
Table 2. The ADF Unit Root Test Results

<table>
<thead>
<tr>
<th></th>
<th>Intercept</th>
<th>Intercept and Trend</th>
<th>Intercept</th>
<th>Intercept and Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNPLs</td>
<td>-0.208 (2)</td>
<td>-3.251 (6)</td>
<td>-4.517 (1)</td>
<td>-4.496 (1)</td>
</tr>
<tr>
<td>LUSD</td>
<td>1.506 (12)</td>
<td>-0.990 (12)</td>
<td>-4.715 (11)</td>
<td>-5.088 (11)</td>
</tr>
<tr>
<td>LEURO</td>
<td>1.369 (12)</td>
<td>-0.733 (12)</td>
<td>-9.739 (1)</td>
<td>-4.309 (11)</td>
</tr>
<tr>
<td>LINT</td>
<td>-2.514 (6)</td>
<td>-2.531 (6)</td>
<td>-3.622 (10)</td>
<td>-3.770 (13)</td>
</tr>
</tbody>
</table>

a, b, and c denote the significance levels at 1%, 5%, and 10%, respectively. Values in parentheses indicate the optimal lag length.

According to Table 2, it is determined that all variables in the study are stationary at the 1st difference. In order to determine whether or not a long-term association of NPLs exists with the USD rate, the EURO rate, and INT, which are determined to be stationary at the 1st difference, the FADL cointegration test is performed.

Table 3. The FADL Cointegration Test Results for the Variables

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Min SSR</th>
<th>The FADL Cointegration Test Statistic</th>
<th>Independent Variables</th>
<th>Lags of Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>-5.367</td>
<td>-3.056</td>
<td>LUSD</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>-5.336</td>
<td>-2.438</td>
<td>LEURO</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>-5.355</td>
<td>-0.490</td>
<td>LINT</td>
<td>1</td>
</tr>
</tbody>
</table>

Critical values for the FADL cointegration test are -3.03, -3.38, and -4.07 at 10%, 5% and 1% significance levels, respectively.

The FADL cointegration analysis results regarding the variables are presented in Table 3. According to the calculated values, the null hypothesis between the EURO rate and INT as well as NPLs cannot be rejected, since the test statistics of all variables except for the USD rate are lower than the critical values. Nonetheless, it is observed that the USD rate variable and the NPLs have the same trend in the long-run at a 10% significance level. According to the results, it is observed that NPLs is affected by fluctuation in the USD exchange rate, whereas there is no such impact on the EURO rate and INT variables.
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Table 4. The FMOLS Results of the Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. error</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUSD</td>
<td>1.474</td>
<td>0.057</td>
<td>25.715</td>
<td>0.000</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.944</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4, a significant and positive association is observed between the USD rate and NPLs. Based on this, it can be claimed that a 1% increase in the USD exchange rate would cause a 147% increase in NPLs.

Conclusion

Banks, which are among the institutions that fulfill their intermediary function in the financial system, are considered as the most important institutions that have a crucial place and function in terms of economy. Therefore, negative developments in the banking sector may have an adverse influence on the overall economy.

Therefore, ensuring maximum efficiency in the return of loans extended by banks is required for the banking system's stability as well as the profitability of the banks. Thus, both the risks pertinent to credit and profitability that banks are likely to encounter and the adverse impact of the economy can be prevented. In this study, the monthly data of such variables as non-performing loans (NPLs), the USD exchange rates, the EURO exchange rates, and bank deposit interest rates (INT) are utilized over the period between January 2007- June 2020 in Turkey.

In the study aiming to analyze the long-term relationship of NPLs with USD rate, EURO rate, and INT, the ADF (1981) unit root test is performed on the variables first. According to the test results, it is determined that all variables are stationary at the first difference. Then, the presence of a long-term relationship of NPLs with USD rate, EURO rate, and INT is investigated by conducting the FADL cointegration analysis. According to the results of the FADL cointegration analysis, a long-term association is detected between NPLs and the USD rate, whereas no long-term association is detected between the EURO rate and INT.

The obtained results regarding the relationship between NPL and USD rate is similar to of several studies in the literature (Beck et al., 2013; Chaibiti and Ftiti, 2015; Yüksel, 2016; Gökçe and Sarmat, 2017; Kilic, 2019; Poyraz and Arli, 2019), and the results of the study regarding the relationship between EURO rate and INT complies with of some other studies in the literature (Kabatash and Karamustafa, 2019; Poyraz and Arli, 2019). Moreover, the obtained results regarding
the relationship between NPLs and INT differ from of certain studies in the literature (Louzis et al., 2012; Yüksel, 2011; Kılıç and Baygın, 2019). Therefore, it can be stated that changes in EURO rates and INT do not have any effect on the amount of NPLs in banks.

The FMOLS method is used to calculate the long-term coefficients of the long-term association between NPLs and the USD exchange rate. According to the results, a significant and positive association is detected between NPLs and the USD rate. In general, according to the results of the analysis, it can be claimed that businesses with foreign exchange liabilities higher than foreign exchange assets would suffer financial difficulties along with the increase of the USD exchange rate and they would fail to make their loan payments. Furthermore, as the USD exchange rate causes inflation, it leads to a decrease in purchasing power. Since the decrease in purchasing power adversely affects the sales of the companies, it can be expected that the likelihood of the companies failing to repay their existing loans would increase. It is seen that such a situation has an increasing impact on the amount of NPL in banks. Nevertheless, a similar impact is not observed for the EURO exchange rate. This situation indicates that the receivables of the companies operating at the EURO rate exceed their debts so that the fluctuation in the EURO exchange rate does not cause a problem in repayment of their existing loans.

Besides, the fact that rise or decline in interest rates and as a result of rising or declining loan costs do not have any influence on the amount of NPLs in the banks can be interpreted as the banks have established the necessary collaterals, mortgages, and pledges, as well as making effective loan customer and sector analysis for avoiding from lending to risky customers and sectors. This study can be expanded for the same research period by including more or different macroeconomic variables in the analyses. Many alternative results can be obtained for different periods by differentiating econometric methods.

References


EFFECTS OF THE CHANGE IN EXCHANGE RATES AND INTEREST RATES ON NON-PERFORMING LOANS: THE CASE OF TURKEY

Mustafa UYSAL


THE INDEPENDENT DUMMY VARIABLE MODELS DEALING WITH CHANGES IN PARAMETERS OF A CONSUMPTION FUNCTION

Zeynep OZTÜRK

Introduction

In social sciences and behavioral sciences, most of the variables collected for the studies are categorical. When there is not any quantitative relation among categorical variables, independent variable set in regression equation may be formed by the any combination of categorical or quantitative variables. In a study about categorical variables, dummy variables are formed by giving code 1 to the all participants belong to a certain category and code 0 to the other participants who are not belong to that certain category. (Agresti, 2007: 1-3) divided categorical variables into two types as nominal variables and ordinal variables. Nominal variables separate the classes: e.g. for gender [male (0) and female (1)] etc... The score points of the classes are used for distinguishing them from the each other. Ordinal variables have numeric values showing the numerical order. e.g.: for education level [low (1), intermediate (2), high (3)], for mobile phone brands (1, 2.3….10 – higher point indicates higher interest) etc. These points are used for ordering the levels of the chosen variable. A regression analysis can be applied not only with quantitative explanatory variables but also with the seasonal-effective variables, area-effective variables, categorical variables or classified explanatory variables with quantitative variables. Dummy variables are specified to integrate these categorical variables into the model. These variables which are included in the regression matrix can be seen as artificial variables representing categorical variables. Classical Economists evaluated the consumption just as the consumer’s good purchase and they did not pay attention to the consumption phenomenon

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itself. Generally they analyzed income sharing and production. The importance of the consumption was pointed out for the first time by John Maynard Keynes in 1936. A consumption function shows the relationship among the consumption and the income and the consumption tendencies of the consumers. It also shows the expected level of the total consumption of the expendable income. As the macro economic data are analyzed, it is seen that the changes in consumption rate and the changes in the income rate move in the same direction in general but the changes in consumption rate is minor. Economic factors, population-based factors and behavioral factors affect the consumption expenditures. Suits (1957: 548-551) stated some of the problems related to the usage of the dummy variables and some of the available alternative procedures briefly. The change in the expenditure groups of university students, who are accepted as private consumers and have different income levels, was measured according to gender Zortuk (2009: 25-32). Grotenhuis (2015: 1-18) provided information on how to use and interpret dummy variables and interactions. He had been demonstrated the behavior of dummy variables with examples and applications. The sources discussed by (Hardy, 1993) and (Hardy & Bryman, 2009) can be cited as a basic resource for the regulation of dummy variables, characterization of their distributions, and the statistical results and interpretation of dummy models. The basic and interaction effects of dummy variables showed how it would be more economically useful and easier to interpret (Suits, 1984: 177-180). How and how much the change in parameters affects the parameters of a dummy variable model has not been compared in the literature. So, in this study, a consumption function model with dummy variable was created, the effects of changes in categorical variables on parameters on independent dummy models were observed, and evaluated on three different models (addressing changes in constant term, slope parameter and all coefficients). Independent dummy models were compared and the most suitable model was selected.

Consumption Function

A consumption function shows the desired aggregate consumption degree in each level of the personal disposable income. In this study, estimations of aggregate consumption functions are derived by having regard to the Keynesian consumption function.

The Keynesian is based on three biased assumptions:
1. The function of current income is consumption. $C_t = f(Y_t)$

2. The consumption function may change according to the income. When the income drops, consumption decreases while consumption increases when the income rises.

3. As consumers spend independently, it is not dependent to the consumptions of the other consumers.

The Keynesian Consumption function is given as $C = C_o + cY_d$ in linear form. It is shown that

$C$: Total consumption

$C_o$: Autonomous consumption; where is compulsory consumption with no income for people.

$c$: Marginal consumption propensity; that shows the part that people reserve for consumption while their income changes by one unit.

$Y_d$: Disposable income; that shows the income which is kept for savings and consumption after taxes are deducted from the total income of a person. (Demiral, 2007: 349-366)

**Dummy Variable**

In social sciences, categorical variables are frequently used that have no real numerical relations. The independent variables set in a regression equation may consist of any categorical and quantitative combination. Dummy variables (also known as dual, indicator, and dimidiated, disjoint or categorical variables) are a way to include qualitative information in a regression analyze. Dummy variables are always two variables that use dual (0, 1) coding. Code 1 is assigned to all participants included in a category whereas excluded participants are assigned as code 0.

If the independent categorical variable only has two levels, only one dummy variable is sufficient to obtain the information. The other category that is not defined as dummy variable is named as the reference group. If there is an independent categorical variable that have more than two levels, multiple dummy variables are created to replace the original categorical variable. The first step in
this process is deciding the number of dummy variables in \( j - 1 \) degree which is
the level of the categorical variable. The decision of the un-coded level is gener-
ally arbitrary. The un-coded level is the category in which all the other catego-
ries are compared. Therefore, the un-coded group is generally the biggest group.
The reason to include \( j - 1 \) dummy variables in categorical variable consist of \( j \)
categories is due to the necessities of linear regression model. Especially, accord-
ing to the assumption that there is no relationship between independent vari-
able, none of the explanatory variables may be written as the perfect linear com-
bination of the explanatory variables remaining in the model (Wooldridge, 2013).

The reference groups should be selected for the categorical variables before the
data coding. Only one category should be defined as the reference group for the
each categorical variable. The coefficient added to the dummy variables should be
interpreted according to the reference group. The selected reference group should
depend on the purpose of the research at hand. Also, if a model has several quali-
tative variables with several classes, the determination of dummy variables increases
the number of degrees of freedom. For this reason, the number of dummy vari-
ables to be countered against the total number of observations available for anal-
ysis should be determined accordingly. (Gujarati, 2004; 2014).

The Models with Dummy Variable Approaching to the Changes
in Constant Terms

We assume that the factors defined as dummy variables only affect the constant
term of the relationship. Thus, these dummy variables are included as a differ-
ent variable with their corresponding coefficients. When a regression model is es-
ablished, the categorical variable is included by describing the dummy variables.
Assuming that the categorical variable has only two categories, they can only be
represented by a dummy variable:

\[
M_i = \begin{cases} 
1 & \forall i \in \text{category1} \\
0 & \forall i \in \text{category2}
\end{cases}
\]

In general, quantitative explanatory variables and the model including the cate-
gorical variable with two categories can be written as below:

\[
y_i = \beta_1 + \beta_2 x_{i2} + \ldots + \beta_k x_{ik} + \beta_{x_M} M_i + u_i \quad (i = 1, 2, \ldots, n)
\]  

(1)
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The containment of the term $\beta_{k+1} M_i$ lets to distinguish the constant term in two factor or considering a categorical factor as a related parameter. If all normal regression assumptions are valid for the equation (1), to see this:

\[
E(y_i | M_i = 1) = (\beta_1 + \beta_{k+1}) + \beta_2 x_{i2} + \ldots + \beta_k x_{ik} \\
E(y_i | M_i = 0) = \beta_1 + \beta_2 x_{i2} + \ldots + \beta_k x_{ik}
\]  

(2)

So, the constant term of first category becomes $(\beta_1 + \beta_{k+1})$ that shows the difference in between the constant term values of the two categories (Kennedy, 1986: 174-175). After estimating the parameter vector of the model with any estimation method, the hypothesis about the significance of the parameters can be obtained:

1. Testing the statistical significance of the constant term of the first category:

$H_0 : \beta_1 + \beta_{k+1} = 0$

$H_1 : \beta_1 + \beta_{k+1} \neq 0$

 Generally, F test statistics is used to solve this test.

2. Testing the statistical significance of the constant term of the second category:

$H_0 : \beta_i = 0$

$H_1 : \beta_i \neq 0$

3. Testing whether there is a statistically significant difference between the constant terms:

$H_0 : \beta_{k+1} = 0$

$H_1 : \beta_{k+1} \neq 0$

It might be considered as the test of the constant term. Alternatively, this test may be considered as the test of the statistical significance of the categorical variable. The last two tests could be solved with a $t$–statistic test.

As an alternative, the model is specified as below that is defined with two dummy variables,

$M_{i1} = \begin{cases} 
1 & \forall i \in \text{category 1} \\
0 & \forall i \in \text{category 2}
\end{cases}$

$M_{i2} = \begin{cases} 
1 & \forall i \in \text{category 2} \\
0 & \forall i \in \text{category 1}
\end{cases}$
Thus, the defined model is as below:

$$ y_i = \beta_1 + \beta_2 x_{i2} + ... + \beta_k x_{i} + \beta_{k+1} M_{i1} + \beta_{k+2} M_{i2} + u_i \quad (i = 1, 2, ..., n) $$

(3)

Similar to the equation (2):

$$ E(y_i | M_{i1} = 1, M_{i2} = 0) = (\beta_1 + \beta_{k+1}) + \beta_2 x_{i2} + ... + \beta_k x_{i} $$

$$ E(y_i | M_{i1} = 0, M_{i2} = 1) = (\beta_1 + \beta_{k+2}) + \beta_2 x_{i2} + ... + \beta_k x_{i} $$

(4)

It helps us to distinguish the effect of the constant term in two categories, thus we may call the model (3) correct. However, model (3) causes the “dummy variable trap”. If the model (3) is estimated as the dummy variable trap, then $X$ matrix is defined as:

$$ X = \begin{bmatrix}
1 & x_{i1} & \cdots & x_{i6} & 0 & 1 \\
1 & x_{i2} & \cdots & x_{i6} & 0 & 1 \\
1 & x_{i3} & \cdots & x_{i6} & 1 & 0 \\
1 & x_{i4} & \cdots & x_{i6} & 1 & 0 \\
1 & x_{i5} & \cdots & x_{i6} & 1 & 0 \\
\vdots & \vdots & \cdots & \vdots & \vdots & \vdots \\
1 & x_{in} & \cdots & x_{in} & 0 & 1 \\
\end{bmatrix} = \begin{bmatrix} x_i & x_j & x_{i+1} & x_{i+2} \end{bmatrix} $$

Here, the sample observations of the dummy variables is represented the last two columns. It is like below as $X$ matrix is considered:

$$ x_{it} = x_{i(k+1)t} + x_{i(k+2)t} \quad \forall i = 1, 2, ..., n $$

So, since the values of the first column in the $X$ matrix can be written as a full linear combination of the last two columns, it causes multicollinearity problems. The $X'X$ matrix is not singular, since it is considered to be less than the rank of the $X$ matrix, so the unknown parameters can’t be obtained. (Poo etc., 2003:102-111).

The Models with Dummy Variable Approaching to the Changes in Slope Parameters

Now, we approach to a model in which explanatory variables of categorical factors affect one or more than one coefficients. In this case, the dummy variables are multiplied as “interactive”, which is the corresponding explanatory variable. A regression model that allows the interaction affecting between a categorical factor and quantitative variable is written as below:
Here, it is assumed that the categorical factor only has two categories. The conditionally expected value of the model is:

\[ E(y_i | M = 1) = \beta_1 + (\beta_2 + \beta_{k+1})x_{i2} + ... + \beta_kx_{i k} \]

\[ E(y_i | M = 0) = \beta_1 + \beta_2x_{i2} + ... + \beta_kx_{i k} \]

(6)

This slope or trend represents the difference between the slope values of the two categories for \( \beta_2 + \beta_{k+1} \) and \( \beta_{k+1} \) parameters other than \( \beta_2 \), for the first category.

Again, the test hypothesis are given as below after the model is estimated:

1. In the first category, testing of the statistical significance of \( x_2 \) coefficient:

\[ H_0 : \beta_2 + \beta_{k+1} = 0 \]

\[ H_A : \beta_2 + \beta_{k+1} \neq 0 \]

This test can be used the general F test statistics.

2. Testing of the statistical significance of \( x_2 \) in the second category:

\[ H_0 : \beta_2 = 0 \]

\[ H_A : \beta_2 \neq 0 \]

3. Testing for both two categories to find if there is a significant difference between \( x_2 \) coefficients:

\[ H_0 : \beta_{k+1} = 0 \]

\[ H_A : \beta_{k+1} \neq 0 \]

These last two hypothesis can be tested by using a t-statistics similar as in the previous subchapters.

The Models with Dummy Variable Approaching to the Changes in all Coefficients

It is accepted that, the categorical factor showed by the dummy variables affects both the intercept and all the coefficients of the explanatory variables. The dummy variables should be presented in both summation form and multiplicative form to indicate the effect on the slope, so the effect of the categorical factor on the
constant term can be reflected. Thus, with the assumption that it has a qualitative factor that separates only two categories:

\[ y_i = \beta_1 + \beta_2 x_{2i} + \ldots + \beta_k x_{ki} + \beta_{k+1} d_i + \beta_{k+2} (M_i x_{2i}) + \ldots + \beta_{k+2} (M_i x_{ki}) + u_i \quad (i = 1, 2, \ldots, n) \]  

(7)

The conditionally expected value of the variable in the equation (7):

\[ E(y_i \mid M_i = 1) = (\beta_1 + \beta_{k+1}) + (\beta_2 + \beta_{k+2}) x_{2i} + \ldots + (\beta_k + \beta_{k+k}) x_{ki} \]

\[ E(y_i \mid M_i = 0) = \beta_1 + \beta_2 x_{2i} + \ldots + \beta_k x_{ki} \]  

(8)

According to the equation (8), \( \beta_1 + \beta_{k+1} \) and \( \beta_i \) show the constant terms for the first and second categories in order. When \( \beta_j + \beta_{k+j} \) and \( \beta_j \) (\( j = 2, 3, \ldots, k \)), they show the slopes of \( x_j \) for the first and second categories.

The hypothesis tests are as below to estimate the equation (7):

1. Testing the significance of \( x_j \) (\( j = 2, 3, \ldots, k \)) slope that corresponds to the first category:

   \[ H_0 : \beta_j + \beta_{k+j} = 0 \]

   \[ H_A : \beta_j + \beta_{k+j} \neq 0 \]

   This test can be solved with the general F test statistics.

2. Testing the significance of \( x_j \) (\( j = 2, 3, \ldots, k \)) slope that corresponds to the second category:

   \[ H_0 : \beta_j = 0 \]

   \[ H_A : \beta_j \neq 0 \]

3. Testing for both two categories to find if there is a significant difference between \( x_j \) coefficients.

   \[ H_0 : \beta_{k+j} = 0 \]

   \[ H_A : \beta_{k+j} \neq 0 \]

4. Testing for both two categories to find if there is a significant difference between constant terms.

   \[ H_0 : \beta_{k+1} = 0 \]

   \[ H_A : \beta_{k+1} \neq 0 \]
The t-test statistics is used to solve these tests:

5. Testing for the significance of the model:

\[ H_0: \beta_{k+1} = \beta_{k+2} = \ldots = \beta_{k+k} = 0 \]
\[ H_a: \text{not } H_0 \]

The general F test statistic is used to solve this test.

Results

In this study, the outputs of a study are used which was prepared by Besballi etc. 2017, 2018 that shows Artvin Coruh University students’ income, consumption and contributions on the economy and social structure of Artvin Province, who studied in 2016–2017 educational year. The estimated consumption function for introduction of the relationship between the students’ total consumption and their income is the same as the Keynesian consumption function however, only the notation changes. The econometric model, namely the regression model is:

\[ Y_i = \beta_1 + \beta_2 X_i + \epsilon_i \]

In this formula;

\( Y_i \) : dependent variable, \( i^{th} \) student’s monthly consumption spending,

\( X_i \) : independent variable, \( i^{th} \) student’s monthly income,

\( \beta_1 \): Autonomous (independent from the income) consumption,

\( \beta_2 \): Marginal propensity to consume,

\( \epsilon_i \): The error term,

are shown. The model is established for the regression analyses and the error term is also included beside the dependent and the independent variable. The error term is expected to be minimum and the least squares method (LSE) is used for the calculation and this method makes the parameter minimum. The LS method is used to obtain an estimator value to make the sum of the squares of differences between the observation values of the dependent variable and the estimation values minimum. The statistical significance of the estimated parameters is analyzed with the \( t-test \), \( F-test \) and \( R^2 \) specificity coefficient in the SPSS.
Statistics 25 program. The $t$-test shows whether the estimated parameters are significant or not, the $F$ -test shows the validity of the model and $R^2$ defines the explanatory power of the model. The specificity coefficient is a measure that indicates the percentage of the total changes of the dependent variables explained by the independent variables.

First of all, the consumption function model that shows the relationship between the consumption and income is obtained with linear regression analyses. The parameters, hypothesis test estimations and coefficient of determination of the model are given in the Table 1:

<table>
<thead>
<tr>
<th></th>
<th>$\beta_1$</th>
<th>$\beta_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>353,153</td>
<td>0,424</td>
</tr>
<tr>
<td>Standard Error</td>
<td>11,148</td>
<td>0,013</td>
</tr>
<tr>
<td>T test stat. (Sig.)</td>
<td>31,679 (0,000)</td>
<td>31,863 (0,000)</td>
</tr>
<tr>
<td>F test stat. (Sig)</td>
<td>1015,268 (0,000)</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0,414</td>
<td></td>
</tr>
</tbody>
</table>

According to these estimation results, the obtained consumption function model is:

$$\hat{Y} = 353,153 + 0,42 * X$$

The model shows that Artvin Coruh University students’ autonomous (independent from the income) monthly consumption spending is 353,153 TL and their marginal propensity to consume is 0,42. So, it means that, if these university students’ income increases by 100 TL, 42 TL of this increase is going to be used for consumption whereas 58 TL of it is going to be saved.

In this model, according to the test that examines the significance of the parameters against insignificance ($t$-test), the significance level of $\beta_0$ and $\beta_1$ coefficients is < 0,05 and it is concluded that the coefficients are statistically significant with 95% confidence. Similarly, the significance of the model is tested with $F$ test statistics, and as significance value of $F$ test statistic is < 0,05, so, the model is valid with 95% confidence.
The coefficient of determination of the model is found as 41.4%. According to this result, in the consumption function, approximately 41% of the changes in students’ consumption spending are explained by the changes in students’ income, the remaining 59% of the changes are due to different factors. The explanatory power of the model is low.

Income is not the only factor that affects economical behaviors. Also, gender, marital status etc. are such important qualitative variables that explain economical behaviors. Therefore, the gender is considered as an important variable that affects the consumption, the gender variable is also included in the consumption function model. The model is going to be tested under the dummy variable models that affect the change in the constant term, slope parameters and all coefficients to figure out if there is a difference between autonomous consumption expenditures and marginal propensity to consume by gender.

Primarily, it should be checked that whether there is a difference between students’ average income and average consumption spending according to the gender factor. The proper data analyze method for this situation is the independent two samples t-test. The results are obtained in Table 2. According to Table 2, the significance value for both income and consumption level variables is 0.000<0.05, so there is a difference between average income and average consumption level according to the gender factor. The average income of the female students is 636,22 TL whereas their spending is 610,160 TL. The average amount that female students keep for monthly savings is 26,06 TL. The male students have 759,502 TL average income and they spend 701,017 TL. The male students keep 58,485 TL for monthly savings.

Table 2. The estimations of the Income and consumption spending of students.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>636,222</td>
<td>-3.974</td>
<td>0.000</td>
</tr>
<tr>
<td>Male</td>
<td>759,502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spending</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>610,160</td>
<td>-4.466</td>
<td>0.000</td>
</tr>
<tr>
<td>Male</td>
<td>701,017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The gender is included in the model as a dummy variable to test whether there is a difference in students’ autonomous consumption spending and marginal
THE INDEPENDENT DUMMY VARIABLE MODELS DEALING WITH CHANGES IN
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propensity to consume according to the gender, and the consumption functions
with dummy variable are obtained.

The model 1 is defined as a model that assumes the gender factor affects the
relationship between students’ income and consumption only through autonomous
consumption. The dummy variable is created as Male=1 and Female=0. In this
model, the parameter corresponding to the dummy variable ($\beta$) is included in
the model as an independent variable. The model is defined as below:

Model 1: $\hat{Y}_i = \beta_1 + \beta_2 X_i + \beta_3 D$

In the Model 2, a regression model is established that procures the interaction
between the gender variable and the income variable. This model represents the
situation that the dummy variable affects one or more parameters. The model is
established as the dummy variable and it is multiplied by the corresponding in-
dependent variable.

Model 2: $\hat{Y}_i = \beta_1 + \beta_2 X_i + \beta_3 (X_i \ast D)$

In the Model 3, a joint model is established that procures the interaction be-
tween the gender variable and both the autonomous consumption spending and
the income variables.

Model 3: $\hat{Y}_i = \beta_1 + \beta_2 X_i + \beta_3 D + \beta_4 Z$

In these models

$Y_i$: $i^{th}$ students’ monthly consumption spending,

$X_i$: $i^{th}$ students’ monthly income,

$D$: $D = 0$ female students, $D = 1$ male students as the gender dummy variable.

$Z$: $Z = D \ast X$: it is the dummy variable that shows the difference between male
and female students’ marginal propensities to consume.
Table 3. Expected consumption functions for female and male students and definition of unknowns.

<table>
<thead>
<tr>
<th>Model</th>
<th>Female ($Y_{i}(D=0)$)</th>
<th>Male ($Y_{i}(D=1)$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>$\beta + \beta_1X$</td>
<td>$\beta + \beta_1X$</td>
</tr>
<tr>
<td></td>
<td>$\beta$: Female students' autonomous (independent from the income) consumption.</td>
<td>$\beta$: Male students' autonomous (independent from the income) consumption.</td>
</tr>
<tr>
<td></td>
<td>$\beta_1$: Female students' marginal propensity to consume.</td>
<td>$\beta_1$: Male students' marginal propensity to consume.</td>
</tr>
<tr>
<td>Model 2</td>
<td>$\beta + \beta_1X$</td>
<td>$\beta + \beta_1X$</td>
</tr>
<tr>
<td></td>
<td>$\beta$: Female students' autonomous (independent from the income) consumption.</td>
<td>$\beta$: Male students' autonomous (independent from the income) consumption.</td>
</tr>
<tr>
<td></td>
<td>$\beta_1$: Female students' marginal propensity to consume.</td>
<td>$\beta_1$: Male students' marginal propensity to consume.</td>
</tr>
<tr>
<td>Model 3</td>
<td>$\beta + \beta_1X$</td>
<td>$(\beta + \beta_1) + (\beta + \beta_1)X$</td>
</tr>
<tr>
<td></td>
<td>$\beta$: Female students' autonomous (independent from the income) consumption.</td>
<td>$\beta$: Male students' autonomous (independent from the income) consumption.</td>
</tr>
<tr>
<td></td>
<td>$\beta_1$: Female students' marginal propensity to consume.</td>
<td>$\beta_1$: Male students' marginal propensity to consume.</td>
</tr>
</tbody>
</table>

In these functions, the expected functions for female students are the same for all models. However, the functions change for male students who have a reference variable. The analyze results for these models are given below. In below table, the parameter estimations, hypothesis tests, coefficient of determination and adjusted coefficient of determination are given which belong to the model with dummy variable that approaches to the changes in the constant term.

Table 4. The Estimation Results of the Model 1.

<table>
<thead>
<tr>
<th></th>
<th>$\beta_1$</th>
<th>$\beta_2$</th>
<th>$\beta_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>342,733</td>
<td>,420</td>
<td>39,486</td>
</tr>
<tr>
<td>Standard Error</td>
<td>11,704</td>
<td>,013</td>
<td>13,832</td>
</tr>
<tr>
<td>T test stat.</td>
<td>29,284</td>
<td>31,374</td>
<td>2,855</td>
</tr>
<tr>
<td>Sig</td>
<td>,000</td>
<td>,000</td>
<td>,004</td>
</tr>
<tr>
<td>F test stat (Sig)</td>
<td>514,236 (.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>,417</td>
<td>Adjusted R Square</td>
<td>,417</td>
</tr>
</tbody>
</table>

Model 1 is found as:

$\hat{Y}_i = 342,733 + ,420X_i + 39,486D$
THE INDEPENDENT DUMMY VARIABLE MODELS DEALING WITH CHANGES IN PARAMETERS OF A CONSUMPTION FUNCTION

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According to the model 1, female students’ autonomous consumption spending is 342,773 TL and male students’ autonomous consumption spending is 382,219 TL. Female and male students’ marginal propensity to consume is 0.42. The difference between female and male students’ consumption spending is 39,486 TL. Female students’ (β₁) autonomous consumption function, the difference between female and male students’ autonomous consumption spending (β₃) are statistically significant with 95% confidence as shown in the table. The model is also statistically significant according to the F test statistics. The explanatory power of the Model 1 is 41.7%.

In below table, the parameter estimations of the model with dummy variable approaching to the changes in slope parameters, hypothesis tests, coefficient of determination, adjusted coefficient of determination are obtained.

<table>
<thead>
<tr>
<th></th>
<th>β₁</th>
<th>β₂</th>
<th>β₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>368,114</td>
<td>0.370</td>
<td>0.085</td>
</tr>
<tr>
<td>Standard Error</td>
<td>11,397</td>
<td>0.017</td>
<td>0.016</td>
</tr>
<tr>
<td>T test stat.</td>
<td>32,299</td>
<td>22,113</td>
<td>5,311</td>
</tr>
<tr>
<td>Sig</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>F test stat. (Sig)</td>
<td>531,353 (.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.425</td>
<td>Adjusted R Square</td>
<td>.425</td>
</tr>
</tbody>
</table>

Model 2 is found as:

\[ \hat{Y}_i = 368,114 + 0.370X_i + 0.085(X_i * D) \]

According to the Model 2, female and male students’ autonomous consumption spending is 368,114 TL. The difference between female students’ and male students’ marginal propensity to consume is 0.085. So, 0.455 of per unit increase in male students’ income is kept for savings.

Similar to the male students’ Model 1, the parameters of the Model 2 and the model itself are statistically significant with 95% confidence. The explanatory power of the Model 2 is 42.5%.
In below table, the parameter estimations of the model with dummy variable approaching to the changes in all coefficients, hypothesis tests and coefficient of determination are given.

<table>
<thead>
<tr>
<th></th>
<th>$\beta_1$</th>
<th>$\beta_2$</th>
<th>$\beta_3$</th>
<th>$\beta_4$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>391,083</td>
<td>-53,604</td>
<td>537,141(0,000)</td>
<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>15,053</td>
<td>22,996</td>
<td>0,020</td>
<td>0,027</td>
</tr>
<tr>
<td>T test stat.</td>
<td>25,981</td>
<td>17,122</td>
<td>-2,331</td>
<td>5,043</td>
</tr>
<tr>
<td>Sig</td>
<td>0,000</td>
<td>0,000</td>
<td>0,020</td>
<td>0,000</td>
</tr>
<tr>
<td>R$^2$</td>
<td>0,428</td>
<td>Adjusted R Square</td>
<td>0,427</td>
<td></td>
</tr>
</tbody>
</table>

The estimated model is as below:

$\hat{Y} = 391,083 + 0,344X - 53,604D + 0,135Z$

According to the Model 3, the difference between the male and the female students' autonomous consumption is observed. The female students' expected value of consumption is $\hat{Y} = 391,083 + 0,344X$, the autonomous consumption is 391,083 TL and the marginal propensity to consume is 0,344 (34,4%).

The male students' expected consumption value is $\hat{Y} = 337,479 + 0,479X$, and the autonomous consumption is 337,479 TL and the marginal propensity to consume is 0,479 (47,9%).

Therefore, male students' marginal propensity to consume is 0,135 (13,5%) more than female students' marginal propensity to consume. The difference between male students' and female students' consumption spending is 53,604 TL. Similar to the Model 1, the parameters and the model itself are statistically significant. The explanatory power of the model is 42,8%.
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Table 7: Comparing Models

<table>
<thead>
<tr>
<th>Model</th>
<th>AIC</th>
<th>BIC</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>19937.87</td>
<td>19953.68</td>
<td>0.417</td>
</tr>
<tr>
<td>Model 2</td>
<td>19911.88</td>
<td>19934.97</td>
<td>0.425</td>
</tr>
<tr>
<td>Model 3</td>
<td>19908.44</td>
<td>19934.80</td>
<td>0.427</td>
</tr>
</tbody>
</table>

The Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC) and adjusted R² are methods for selecting a model. According to Table 7, Model 3 with the lowest AIC and BIC values and the largest R squared is preferred as the best model. The model 3 is also important for the evaluation of all parameters.

Discussion

In social science studies, the use of categorical data is more common, in contrast to quantitative data. It is important to evaluate the studies on categorical data statistically. Categorical data can be used both as independent variable and dependent variable in regression models. A dummy variable is created by assigning a value of 1 as a reference group to one of the categories of categorical variables and a value of 0 to other categories. Looking at models with dummy variables, it is also divided into two models as independent dummy variable and dependent dummy variable. In this study, models of independent dummy variables; fixed term, slope parameter and effects on interaction effect. Since the data of a study by Besballi etc. 2017 was used, it was not necessary to give the least squares assumptions of the models, descriptive statistics of the data, sample selection and number. Models made according to the changes in the parameter of the gender factor were created, so comparisons were made. According to the results of the model made according to the changes in the parameters, it is seen that both the marginal tendencies of male and female students and autonomous tendencies to be consumed are different from each other and the gender factor shows a distinctive feature regarding consumption expenditures. When the models are compared, the model approaching the changes in all coefficients is seen as the best model. The study will also inform the researchers who will contribute to the literature of dummy variable models and how to add the parameters to the model.
References


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Zeynep OZTURK


Fifth Edition, South-Western.

COVID-19 AND ITS REFLECTION TO CONSUMER BEHAVIOR

Sevilay USLU DİVANOĞLU¹, Resul ÇELİK²

Introduction

Epidemics, wars, disasters and other natural events that occur at unexpected times around the world pose great threats to the world. The virus, which was first detected in Wuhan, Hubei city of China in December and called “2019-nCoV”, is known as the Coronavirus (Covid-19). The World Health Organization (WHO) announced on February 11 that it was declared as a “pandemic”, which means global epidemic, after naming the disease caused by coronavirus as Covid-19 (BBC, 2020).

With the emergence of the new type of Corona virus in China, the rapid spread of the epidemic throughout the world reveals that the epidemic is a global threat. Among the reasons for the rapid spread of Covid-19 on a global scale, it is seen that the international travels of the infected individuals for tourism, trade, education etc. are effective (Wilson & Chen, 2020: 2). Since the outbreak of Covid-19, the studies and reports published by the World Health Organization are observed with concern by states and citizens (Acar, 2020).

It is estimated that the effects of this epidemic on normal life cannot be fully calculated and the uncertainty regarding how long the epidemic will continue will remain for a long time (Atay, 2020). With the global spread of the Covid-19 Pandemic, various measures are taken by all nation states against the virus with the recommendations of the World Health Organization and the guidance of scientists. Among these measures, entry and exit bans between countries, especially social isolation, and many events, concerts, football competitions, congresses have been canceled, and restrictions have been imposed in many sectors such as

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tourism, transportation etc. In addition, many commercial businesses, including food and health services, were suspended or restricted on production and services.

It is thought that the Covid-19 pandemic, which has been seen to threaten the economic system to a great extent, will permanently change the way people live and work as a result of measures such as partial or complete curfews in the settlements of the countries, entry and exit bans in cities. It is thought that the effects of this worldwide epidemic process on the consumer goods industry will be strong (Yıldız, 2020).

Consumer behavior varies significantly in times of crisis or epidemic that develops globally or on a country basis. The periods when expenses for needs such as food, shelter and health are the highest are the times of crisis. Both employed and unemployed consumers are generally concerned with basic needs such as food, shelter and health (Starr, 2010). Therefore, consumer spending is shifting from an arbitrary purchase drive to purchasing existential needs (Bohlen, Carlotti and Mihas, 2010). Generally speaking, consumers form the strategy of determining their priorities according to basic needs in the expenses of limited financial resources.

Reed and Crawford (2014) examined consumer spending in situations of economic crisis, recession, and recovery. The results show that during the recession, the relative importance of home-made food increased, durable goods and supplies decreased and the importance of renting increased. It has been observed that the fulfillment of physiological needs is the primary concern of consumers. Gannon and Noel (2019), in their study among 27,740 US households consuming unemployment benefits, say that families have the first physiological needs they meet even when they consume their unemployment income. In general, consumers are the people who pay more attention to recessions / crises. Also, it is known that consumers act by calculating the long-term consequences of their expenses during epidemic / crisis periods.

It is seen that the main factor of the change in consumer behavior in recent months is the economic contraction caused by the Covid-19 epidemic in the world. Consumers expect businesses to establish a fast and reliable return system in order to act strategically and to make an impact on them. The primary expectation of consumers in this period that detailed technical information about the products, responsible behavior towards public health and and it seems that
consumers expect support on practical applications that can be performed at home (PazarlamaTürkiye, 2020).

Within the scope of this study, the emergence of the Covid-19 outbreak, other major epidemics worldwide, and the trend of change in consumer behavior were examined. TEPAV (2020), COVID-19 consumer spending by the Central Bank of the Turkish Republic on credit and debit card spending amounts according to expenditure item out of consumers’ weekly/monthly spending and monthly/annual changes with supply/demand trends were set out in the sectorial base. This study is important due to the small number of studies investigating consumer behavior during the COVID-19 pandemic period.

Various Epidemic Diseases (Pandemics) and Covid-19 Throughout History

Epidemic diseases can occur in a country or region, and if early isolation measures are not taken, they can affect the whole world in a short time and they cause many people to become infected and die. Epidemic diseases can be transmitted from person to person, as well as from other living things to humans or from humans to other creatures. Throughout human history, many epidemic diseases such as plague, typhoid, cholera etc. have been seen and these diseases have caused the death of many people. The plague has been one of the epidemic diseases that have affected the whole world the most. The disease, which emerged in China in the 1300s, spread to Europe and caused the death of approximately 75 million people (İbiş, 2020).

Spanish Flu is one of the epidemic diseases, which is considered the biggest pandemic in human history, which has a strong impact on the world. This influenza, originating from the Far East, emerged near the city of Cong-King in the middle of China at the end of 1917 and spread throughout the world and caused the death of approximately 100 million people in a short period of 18 months (Kırık, Var, Özoçoğ, Darıcı, 2020). Although the Spanish Flu, which emerged at the end of the First World War, was effective in 1918, its effects continued in the 1920s in some places. This flu, which spread around the world, had serious political, military and social consequences (Yolun, 2012). In addition, scientists working on diseases say that the Spanish Flu first appeared in Haskell, Kansas State (Acehan, 2020).
Another epidemic is Swine Flu. This disease, which first appeared in Mexico, spread to America and from here to the world. With the change of a kind of flu virus seen in pigs, it was named Swine Flu (TTD, 2020). If we look at the impact of Swine Flu in 2009, it infected approximately 800,000 known people in 191 countries and caused the death of 8238 people (Aslan, 2020).

Cholera Pandemic, the disease called “Asian Cholera”, which emerged in India in the early 19th century, spread throughout the world and caused great troubles in the Ottoman Empire (Nizamoğlu, 2020). The disease, which started to be seen in the lands under the Ottoman protection in 1822, caused the recurrence of the disease and the death of many people in the population moving through migrations, wars, commercial activities and pilgrimage, and also left deep economic effects (Ak, 2011).

Covid-19, which first appeared in Wuhan, Hubei, China in December, according to the latest data announced by the World Health Organization, approximately 20.4 million people have been infected in more than 200 countries worldwide, and this disease has caused over 744 thousand deaths so far. (WHO, 2020).

“Coronaviruses are a large family of viruses that can cause disease in animals or humans. In humans, several coronaviruses are known to cause respiratory infections, ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The New Coronavirus Disease is caused by the SAR-CoV-2 virus” (T.C. Sağlık Bakanlığı, 2020).

The virus can also be transmitted by the inhalation of droplets scattered by infected individuals, coughing, sneezing, by healthy individuals, or by taking the hands to the face area without washing the hands after touching the surfaces they have previously touched (T.C. Sağlık Bakanlığı, 2020).

Although humanity has seen much worse pictures in terms of fatal cases and the number of people with the disease, what makes the Covid-19 outbreak different from others is that there are no other cases registered in the last 100 years when economic activities were suspended for a non-war reason and on a large scale (Escarus, 2020).

Multi-layered supply / value chains as a reflection of developed trade relations and intertwined production networks between countries. For this reason, it is
seen that the fact that countries have established a close network with each other from one end to the other is one of the factors that shocks the economies in the world simultaneously. It is not only the damages caused by the virus that are exported from one country to another, but the disruption of the production and transportation of goods in production and trade is rapidly becoming widespread with devastating effects (Escarus, 2020).

For this reason, epidemic diseases, wars, internal conflicts, terrorist incidents, etc. not only affect the countries where they occur, but can cause the crisis to reach global dimensions. In times of crisis, consumer behavior and needs can change rapidly and panic situations that arise can cause major losses in the economy (Kösker, 2017).

**Consumer Behavior in the Covid-19 Era**

The truth is that the pandemic period has changed many things about our lives from politics, education, economy to consumption and continues to change rapidly. It is seen that many behaviors or habits that did not take place in our lives before the pandemic have started to become our new normals. Changes in our thoughts and behaviors after the pandemic that has entered our lives rapidly cause consumer habits to change rapidly (Genç, 2020). It is seen that our changing habits are now accepted by the society as the “New Normal”.

One of the important facts that we have definitely learned with the pandemic is that our brain tries to keep us alive. Although we are modern and advanced individuals with the developing technology, our brain works with its own unique condition. When we have worries about our lives, people move away from rational thinking and start living with the motive to protect their own life. This situation directly affects human behavior and thus consumer behavior. His panic buying during the pandemic period was an example of this. When faced with risky and out-of-control situations during pandemic situations, human nature tries to take control and feel safe.

With Covid-19, the rapid evacuation of the shelves in the markets, the purchase of surplus products from pasta, oil, flour, sugar, etc., is seen as a strong reflection of consumer behaviors that the human brain acts with the instinct of protection (Genç, 2020). A similar situation is observed in the purchase of personal
health and hygiene products, and the consumer wants to see him/herself safely with this stock.

Business enterprises that want to make the consumer feel safe against their products, which place the concept of trust at the center of all economic activities, have started to take some serious steps. Among these, the “Covid-19 Safe Production Certificate” and the “Covid-19 Healthy Tourism Certificate” issued by the Turkish Standards Institute (TSE) allow businesses to offer their products and services to the consumers in reaching domestic and foreign markets. TSE (2020) stated that the companies that received the first safe production certificate have been operating in the cities of Gaziantep, Konya, Bursa and Malatya.

For example, Yataş Group, which is entitled to receive Covid-19 Safe Production Certificate, has stated the importance not only for their customers but also for the health and safety of their colleagues and their families. They stated that showing the respect to human by strictly taking the necessary precautions and hygiene measures for his staff at all stages of the process from the production process to the delivery of the products (Pazarlama Türkiye, 2020). The new steps taken by businesses can predict changes in consumer behavior during and after the pandemic.

There are deep concerns that COVID-19 may cause a permanent long-term change in consumer spending behavior in the global system. For instance, Haacker (2004) points out a permanent change in consumer behavior resulting from the HIV / AIDS epidemic. It is seen that there are some changes after the black plague epidemic such as the end of feudalism and serfdom and the inclusion of women in the workforce after World War II and the increase in online shopping after Sars epidemic (Esacarus, 2020). It is seen that changing consumer behavior during the epidemic period and a worldwide decline in spending and domestic demand will pose a great challenge for the global economy.

Research company McKinsey & Company reveals how consumers control their habits in a global study on the spending habits of consumers due to the Covid-19 crisis between March 15 and April 6, 2020. According to the data of this study, it was understood that some sectors developed in the Covid-19 crisis, while a large part of the sector was struggling with the crisis (Jones, 2020).

In the Covid-19 period, it is seen that basic needs are centered in consumer spending. According to the research conducted by McKinsey & Company, consumers
spent more expenses on their basic needs such as food, health, cleaning and hygiene during the pandemic period compared to before the epidemic. At the global level, consumers have stated that they will increase their home entertainment spending after the epidemic ends. As the Chinese measures gradually lifted, it is seen that there is a return to consumer expenses before Covid-19 in many items such as health expenses and fuel. However, in their answers to the research, consumers say that they will focus on basic needs in their expenses and that they will reduce their expenses in other categories (Jones, 2020).

Covid-19 worldwide epidemic as a result of changing consumer behavior has led to the significant changes on Turkey. Because epidemics or recessions can affect all nations in the globalizing world, not the region where crises occur.

Table 1: Approaches to the public at Covid-19 Crisis in Turkey

As indicated in Table 2, McKinsey stated that the pandemic affects 43% of Turkey’s population income negatively, 47% of the population abstains from purchasing new products and making investments, and 56% of the population states that they reduce their expenses.

On the other hand, during the pandemic period, as a result of measures such as people’s attention to physical contact and curfews, physical shopping has declined.
to serious dimensions. Covid-19 has kept consumers away from physical contact and directed them to e-commerce and significantly accelerated the transformation process from physical commerce to virtual commerce (Ticimax, 2020). It is known that in the epidemic period, online spending has increased and even if it is limited, the use of cards is preferred instead of paper money in order to prevent the disease.

The first case of supply of consumption curves can be seen in Turkey date March 11, 2020 and can be obtained from a variety of data requested size and In order to keep track of data instantly, TCMB Credit Card and Debit Card Spending Amounts allow up-to-date follow-up thanks to regularly presented weekly data. In addition, according to the data of Interbank Card Center (BKM) Card Monitor research 2017, it is known that 7 out of every 10 people use cards for their expenses. It is seen that it is possible to monitor the effects of the Covid-19 pandemic on consumer spending behavior through the data announced weekly on TCMM Credit Card and Debit Card expenditure amounts (TEPAV, 2020).

The number of transactions in card expenses in the week of the first case and the following week of March 20 was 143 million and 123 million, respectively. In these transactions, 21.3 billion TL and 19.6 billion TL were spent. Compared to the week of March 9, the number of transactions increased by 10% and the amount of expenditure increased by 3% compared to the week of March 13, that is, the first week of the case, and in the week of March 20, these rates decreased by 14% and 8%, respectively (Dündar, 2020, 1-2).

As the reason for this decrease seen in the week of March 20, The first week of panic purchase made by consumers, who have seen cases in Turkey, and the need to continue the measures taken are considered to be effectively directed to the basic needs of consumers with the restriction of many activities.

It is seen that the total expenses made in the first 3 weeks of March 2020 increased by 19% compared to the same period of 2019 (Dündar, 2020).
According to the CBRT’s TEPAV calculations data, it is seen that consumer expenses in the market / shopping center and basic food products increased compared to the previous year with the first case in March 2020 and the implementation of the measures / restrictions taken afterwards (Dündar, 2020). According to the data in Table 2, it is seen that the expenses made in the market / shopping center and basic food products in the first week increased by 20% compared to the previous week to 4.413 Billion TL, and in the following week, 4.413 Billion TL was spent by increasing 19%.

Health, personal care and cleaning products are among the changes in consumer behavior caused by people closing home during the pandemic process. In statements made especially by Republic of Turkey Ministry of Health Scientific
Committee and by experts to prevent disease that suggestions such as washing hands and clothes frequently and cleaning surfaces have increased the demand for personal care and cleaning products. As a result of increasing demand, in the first week, the expenses made increased by 11% compared to the previous week and were 953 million TL, in the next week, it is seen that 932 million TL was spent with a decrease of 2%.

With the rapid spread of Covid-19 on a global scale, the spending by consumers has started to decrease rapidly as of February, due to the countries closing the borders mutually, airway transportation is risky and the contamination rate is high. It is observed that the expenses made by airlines decreased by 11% in the first week of the case and 35% in the second week. In addition, as a result of restrictions and cautionary decisions, accommodation expenses decreased by 11% and 40% respectively in the first and second weeks of March compared to the previous week. Dündar (2020) says that when a comparison is made according to 2019 expenses, accommodation expenditure decreased by 9%, airline expenditure by 20% and agency / transportation expenditure by 22% in March 2020.

Today, with strong investments in technology, users can safely meet their needs in many areas over the internet. Thanks to the importance given to the internet infrastructures of these institutions, which are frequently used by consumers such as education, health, clothing, banking, online education, transportation has become easier (Localveri, 2020). It is understood that the measures taken for the control of the pandemic and the calls to stay at home have increased the spending of the consumers over the internet or by phone. It is seen that online shopping in card expenses increased by 8% to 4.2 billion TL in the week of March 13, when the epidemic first broke out compared to the first week of March, and reached 4.832 billion TL in the week of May 15 with an increase of 14% compared to the week of March 13. It is understood that the increase in the expenses made on the Internet is a strong indicator that consumers are rapidly turning to e-commerce.

In March, it is observed that clothing and accessories expenditures decreased by 47%, food expenditures by 42% and spending in casino / drinking places decreased by 53%. It is observed that the closure of shopping malls for a certain period of time, removing the seating arrangement in restaurants, providing only package service and temporarily suspending the activities of entertainment centers cause a decrease in the expenses made by consumers in these sectors.
In general, it is understood that the priorities of purchasing in March caused a rapid change in consumer spending. In this period, it has been observed that consumers diverted their expenses, especially health products and basic food, to these products, and rapidly reduced their expenses, especially in the airlines, travel agencies / transportation and entertainment sector.

*Figure 1: Number of debit and credit card transactions and their expenditure amount, February 7 - May 15, 2020*

When the values in Figure 1 are examined, it is seen that 17.3 billion TL was spent using the card in the second week of May, and it increased by 4% compared to the previous week. It is seen that the number of expenses made increased by 10% to 99 million. When compared to 2019, it is seen that the amount of expenditures made between 13 March - 15 May 2020 is 19%. With the normalization plan announced at the beginning of May, when the number of transactions decreased by 16%, it is seen that the amount of expenses made by consumers caught 2019 in the first week and exceeded the value obtained in the second week of May compared to the same week of 2019.

Among the total expenses of 17.297 billion TL by the consumers in the week of May 15, 4.489 billion markets and shopping centers, 1.650 billion electronic goods, 1.298 billion service sector, 1.408 billion various foods and 947 million clothing and accessories expenses are seen. It has been observed that 4.832 billion of total expenditures were made through the internet and 890 million by telephone. In the week of May 15, when compared to the previous week, the expenses of markets and shopping centers decreased by 0.2% and Electrical-Electronic Appliances and Computers decreased by 1%, so these decreased online shopping by 3%. In the week of May 15, when the normalization plans were announced, there was a decrease in a very small number of sectors compared to the previous weeks. It was understood that the highest decrease was in gasoline and fuel station expenses.
with 7%. In the same week, the highest increase was seen in the expenditures of airlines, private pensions and clothing and accessories, respectively.

**Result**

The Covid-19 pandemic caused an unexpected crisis in the world, and it is seen that in these periods, consumers’ personal reflexes direct them to the effort of survival and try to ensure “self-sufficiency”. Accordingly, it is seen that the rapid change in the behavior of the consumers also changes in the consumption behavior. It is known that the most important change in the pandemic on consumer behavior is that it directs social life and commercial life to digitalization and arbitrary expenses to be replaced by existential needs expenses.

Consumers have started to spend their social lives at home due to the measures taken during the pandemic period, and this has shown that e-commerce supports a large increase in the world. Compared to the pre-epidemic period, it is seen that consumers increasingly continue to shop online during the weeks when the epidemic started and during the month of May, as announced by the normalization plans. It is understood that especially the increasing e-commerce directs even people aged 60 and over who live far from technology to this area and it causes these people to meet with technology.

Due to the panic created by the Covid-19 pandemic around the world, it is seen that the physiological needs expenditures, which consumers give priority to their physiological needs, have increased in March, April and May 2020 compared to the same period of 2019. Consumers have increased their spending especially in basic food, health, personal care and cleaning products during the epidemic period, and there is a decrease in the demand for airline, accommodation and clothing products.

In this study, the effect of COVID-19, which is a disease with a high rate of transmission compared to other epidemic diseases, on consumer behavior has been evaluated according to the product and product groups. In this study, which was carried out by using qualitative research management, current articles and news sources about the current agenda were used along with the literature. For future studies on this subject, what consumers expect from brands and products can be done with a quantitative study to investigate what they will constantly change in their lives with Covid-19.
References


SECTION V

PUBLIC FINANCE
GOVERNMENT REVENUES AND EXPENDITURES NEXUS: NEW EVIDENCE FROM GIIPS COUNTRIES

Fatih AKÇAY¹, Sevinç YARAŞIR TÜLÜMCE²

Introduction

The relationship between public revenues and expenditures in public economics is very important due to the concept of budget deficits. Budget deficits cover both public revenues and expenditures. Public revenues and expenditures are at the center of fiscal policy from a public economics perspective. Fiscal policy aims to ensure macroeconomic stability, economic growth and equality in income distribution. While public expenditures made to achieve these goals reflect the political choices of governments; public revenues constitute the financing aspect of these public expenditures. Most of the public revenues are based on taxes, particularly in developing countries.

The difference between public revenues and expenditures is defined as budget deficit. There are basically two reasons for budget deficits. The first reason is high expenditure and the second one is low revenue. Regardless of the reason, budget deficits have many negative economic, social and political effects. Combating with budget deficits is vital to eliminate these negative effects. In order to eliminate the budget deficits, it is necessary either to increase the revenues or to decrease the expenditures. Even two methods can be applied at the same time. However, in order to decide which policy to implement, it is necessary to determine the direction of causality between public revenues and public expenditures.

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Governments use the budget as a planning tool to fulfill their functions and increase the welfare of society. Therefore, the better they analyze the causality relationship and direction between the government’s revenues and the government’s expenditures, the easier they will be able to manage their budget deficits (Rezaei, 2014: 1-2).

In the following parts of this paper, the theoretical and empirical literature between public revenues and expenditures is discussed. The fourth part represents the data, methodology and includes empirical findings. The last part concludes with policy implications for the causal linkage between public revenues and expenditures for GIIPS countries.

**Theoretical Background**

The role of the government has increased in overcoming the total demand shortage when the Keynesian approach existed. However, the size of the public sector in countries has expanded with the implementation of expansionary fiscal policies during recession periods. In addition, as a result of preventing Keynesian policies with the phenomenon of stagflation, the effects of budget deficits on economic growth and economic stability have begun to be questioned again.

At this point, one of the main problems of public finance is to analyze the relationship between public revenues and expenditures. This is because budget deficits that occur as a result of public expenditures exceeding revenues are closely related to revenues and expenditures variables. In this context, determining the direction of causality between public revenues and expenditures is very important in the sustainability of budget deficits. Because the different way of financing high budget deficits has different economic consequences. Budget deficits, especially financed by borrowing or high taxes, bring about various economic problems.

The existence of budget deficit problems in countries brings to mind the following questions: The first one is whether it is possible to finance the budget deficit by increasing taxes. Second, is reducing public expenditures the solution to the budget deficit problem? Thirdly, what should be done if public revenues or public expenditures are determined independently of each other? Finally, if there is an interaction between public revenues and expenditures, how can the budget deficit problem be resolved? All of these issues are discussed in the public revenue and expenditure theoretical literature.
In this context, the tax-spend theoretical literature contains four different hypotheses regarding the direction of causality between two variables. These hypotheses are the tax-spend (revenues-expenditures), the spend-tax (expenditures-revenues), fiscal synchronization and institutional separation (fiscal independence) hypothesis.

A) The tax-spend hypothesis: The basis of this hypothesis is based on the studies of Buchanan and Wagner (1977) and Friedman (1978). In the studies of Buchanan and Wagner (1977,1978), it is stated that an increase in tax rates due to financial illusion has effects on public expenditures. According to Friedman (1978), high taxes mean high public expenditures that cause larger budget deficits. It is claimed in this hypothesis that increasing taxes will cause more expenditures and budget deficits cannot be reduced when taxes are increased. Because increasing taxes only increase expenditures (Narayan, 2005: 1205). For this reason, taxes should be reduced. If there is a reduction in taxes, the spending levels of governments also decrease. Otherwise, governments spend more than the tax they collect. As a matter of fact, governments like to spend (Rezaei, 2014: 3). The empirical finding of this hypothesis is that it shows the existence of a causality running from public revenues to public expenditures.

B) The spend-tax hypothesis: The causality is running from expenditures to revenues in spend-tax hypothesis which proposed by Barro (1974,1979) and Peacock-Wiseman (1979). It is based on the assumption that expenditures are determined before revenues. Barro (1974, 1979) states that financing budget deficits with borrowing/taxes will have the same effects on the economy. But rational individuals know that increasing public spending today will be financed by future tax increases. Therefore, according to Barro, budget deficits bring future tax increases. Peacock-Wiseman (1979) see the reasons for the increase in public expenditures as extraordinary cases and crisis. Therefore, it forms the basis of the hypothesis that governments will increase public expenditures and that increased expenditures will be financed by high taxes. Expenditures increasing as a result of crises and extraordinary situations increase taxes. Public expenditures that increase in times of crisis are replaced by private expenditures. Increasing public spending does not return to its original level after the crisis. As a result, tax increases become permanent (Obeng, 2015: 4).

C) Fiscal Synchronization Hypothesis: In this hypothesis proposed by economists such as Musgrave (1966) and Meltzer and Richard (1981), it is argued that
governments make decisions on public spending and taxes simultaneously or together. In this hypothesis, there is a feedback effect between public revenues and expenditures (Obeng, 2015: 4). To decrease the level of fiscal deficits, raising revenues and declining spending simultaneously is the optimal policy (Tashevska, 2018: 469). The existence of a bidirectional causality between the two variables is the empirical finding of this hypothesis.

D) Institutional Separation Hypothesis: The basis of this hypothesis, claimed by economists such as Baghestani and McNown (1994), is that public revenues (taxes) and expenditure decisions are taken independently of each other. The empirical assumption of this hypothesis is that there is no causality between the two variables. In addition, in this hypothesis, the relationship between public revenues and expenditures is determined by economic growth reflecting the institutional distinction (Al-Qudair, 2005: 33). However, the fact that two variables do not affect each other may occur not only from an institutional point of view but also for various reasons.

Each of these hypotheses offers different arguments for the existence of budget deficits and the role of the government in the economy. In addition, each hypothesis has different policy implications and benefits. However, the empirical findings of these hypotheses differ in the investigation of the relationship between government revenues and expenditures.

The Overview of Empirical Literature

There is no clear evidence for empirical analysis of the relationship between government revenues and expenditures in the literature, and even quite complex results are observed in empirical studies. Although there are many studies on government revenues and expenditures nexus, there is no consensus in the empirical literature. Results vary from country to country, as well as within countries.

The studies that put forward the tax-spend hypothesis are; Huang and Tang (1992) for Taiwan, Park (1998) for Korea, Chaudhuri and Sengupta (2009) for India, Etia and Mbazima (2008) for Namibia, Young (2009) for the USA, Garcia (2012) for Spain, Rezaei (2014) for Iran, Obeng (2015) for Ghana, Darrat (1998) for Turkey, etc. The studies revealing the validity of the spend-tax hypothesis are; Anderson et al. (1986) for the USA, De Haan and Siermann for Netherlands (1993), Kollias and Makrydakis (1995) for Greece, Hondroyiannis and

In addition to these studies, there are also some studies involving different country groups but presenting more than one hypothesis findings. Some selected studies from different country groups are listed below in chronological order.

In Owoye study (1995), Income-expenditure hypotheses are tested with cointegration, Eangle Granger, ECM methods for the G7 countries between 1961-1990 years. Some findings are; there is a bidirectional causality relationship in 5 out of 7 countries, and there is a causality from public revenues to expenditures in Japan and Italy. Chang et al. (2002) analyzes the relationship between public expenditures and taxes by Johansen cointegration method in 10 industrialized countries. Cointegration between variables is valid in 7 countries. In addition, the existence of a causality from government revenues to expenditures is detected in the USA, South Korea, UK, Japan and Taiwan. In South Africa and Australia, there is a causal relationship from government spending to revenues. It is expressed in the study that incomes and expenditures are determined independently from each other in New Zealand and Thailand.

Narayan (2005) reveals with ARDL method in 9 Asian countries that the Tax-spend hypothesis is valid in Nepal in the long and short term while it is valid in the short term in Singapore, in Indonesia and Sri Lanka. On the other hand, in the long run, evidence of the Fiscal neutrality hypothesis in other countries as well as the Spend-tax hypothesis in Indonesia and Sri Lanka are also found. In the study conducted by Narayan and Narayan (2006) for 12 developing countries, with Toda Yamamoto causality method it is revealed that there is the validity of the Tax-spend hypothesis for El Salvador, Chile, Venezuela and Mauritius.
It is also pointed out that there is evidence of neutrality for Peru, South Africa, Guatemal, Uruguay and Ecuador.

Wolde-Rufael (2008) tests the validity of income and expenditure hypotheses with Toda Yamamoto causality test in 13 African countries. Findings demonstrates the validity of the tax-spend hypothesis in Ghana, Ethiopia, Kenya, Nigeria, Mali and Zamnia; the validity of the Fiscal synchronization hypothesis for Mauritius, Swaziland and Zimbabwe; the validity of the Fiscal neutrality hypothesis for Rwanda and Burundi. The Spend-tax hypothesis is valid for Burkina Faso. Owoye and Onafowora (2010) analyze the relationship between public revenues and expenditures between 1970-2008 in 22 OECD countries using ARDL and Toda Yamamoto methods. While the Tax-spend hypothesis is valid in 8 out of 22 countries, the Institutional separation hypothesis is valid in 12 countries in the long run according to the causality findings. In the long run, there is no evidence to support the Fiscal synchronization hypothesis, and in the short term, evidence of Fiscal synchronization is available in only 5 countries. Magazzino (2012), the relationship between public revenues and expenditures between 1980-2011 is analyzed using the panel cointegration method within the scope of panel data analysis for ECOWAS countries. The existence of bi-directional causality is observed only in Mali among the countries. The Tax-spend hypothesis for 5 countries and the Spend-tax hypothesis for 5 countries are among the findings. In 4 countries, the Fiscal neutrality hypothesis is supported.

In the government revenue-expenditure nexus literature, Bolat (2014) first attempt to analyse EU 10 countries with panel bootstrap causality test which reports individual country results. After that, many other researchers applied the test for different panel data of countries. In addition to Mutascu (2015) study for PIIGS countries, Esener (2019) for 22 developed and developing countries, Tashhevska et al. (2020) for 5 countries of Southeast Europe etc., some of panel analysis have the findings of one or more member of PIIGS countries. For instance, in Bolat (2014) study, spend-tax hypothesis is valid for Portugal while tax-spend hypothesis is valid for Italy. Similar to Bolat (2014), Mutascu (2015) finds spend-tax hypothesis for Portugal, tax-pend hypothesis for Italy. But Esener (2019) finds neutrality for both Italy and Portugal. This result is compatible with Gurdal et al. (2020) that examines the tax revenue government expenditure nexus in G7 countries for the period of 1980-2016 by using panel causality approaches. Their findings show unidirectional causality between tax revenue and
government expenditure. In terms of individual results, there is not any causal relationship in Italy. Therefore, there is no consensus in the literature and the results may differ due to the differences in group of countries, methodology, time period and variables.

Data, Methodology and Findings

The casual link between government revenue and government expenditure for highly indebt GIIPS countries (Greece, Ireland, Italy, Portugal and Spain) is investigated by using the Toda-Yamamoto (1995) method and Fourier Toda-Yamamoto method which takes structural shifts into account in a causality analysis developed by Nazlioglu et al. (2016). For GIIPS countries, general government expenditure and general government revenue data as a percentage of gdp are obtained from Eurostat database for the period 1995-2019.

Prior to test causal relationship, firstly unit root tests implemented to series. Both conventional unit root test and unit root test that take structural breaks into account were used. There are three types of unit root tests in the literature that take structural breaks into account. The first is the unit root test that takes into account the one sharp break, the second is the unit root test that allows two sharp breaks, and the third is the unit root test, which takes into account the gradual break. In our study, we employ no shift Augmented Dickey-Fuller (ADF) (1979) unit root test and ADF unit root test with Fourier approximation developed by Enders and Lee (2012). By using a small number of low frequency components from Fourier approximation, it can capture the basic characteristics of a series with one or more breaks without the need to assume that the break number or break dates are known in advance (Enders ve Lee, 2012: 196). Table 1 shows the unit root tests findings, which indicates the strong evidence of stationary for the first difference of variables.
Table 1. Unit Root Tests Results

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<td>Fourier</td>
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<td>-4.640***</td>
<td>-4.372**</td>
<td>-4.863***</td>
</tr>
<tr>
<td>Spain</td>
<td>-3.559*</td>
<td>-5.105***</td>
<td>-3.697**</td>
<td>-4.518***</td>
</tr>
</tbody>
</table>

Note: ***, ** and * indicate the rejection of the null hypothesis of ADF tests at the 1%, 5%, 10% levels of significance, respectively. Critical values of the unit root test that does not consider structural breaks; -4.39 (1%), -3.61 (5%) and -3.24 (10%). Critical values for the Fourier ADF test are taken from Enders and Lee (2012).

Causality Tests

In this study, we examine the relationship between government revenue and government expenditure with Toda-Yamamoto and Fourier Toda-Yamamoto causality tests which are developed from Granger causality test. These approaches are based on Granger causality test which is invented VAR(\(\rho\)) system. To overcome some problems of traditional Granger causality test, Toda-Yamamoto offered alternative approach (Durusu-Ciftci, 2018: 58). The Toda-Yamamoto method is based on the VAR(\(\rho \pm d\)) model. Here, \(\rho\) is the lag length and \(d\) is the maximum degree of integration of the variables. This model is written as shown below:
where the null hypothesis \( H_0: \beta_1 = \cdots = \beta_p = 0 \) is tested. The null hypothesis is tested by the wald statistic with \( r \) degrees of freedom and asymptotic \( \chi^2 \) distribution. \( y_t \) represents the dependent variable consisting of \( K \) explanatory variables, \( a \) represents the intercept terms vector, \( \beta \) are the coefficient matrices and \( \varepsilon_t \) are white noise residuals.

Equation (1) does not include any structural breaks. Enders and Jones (2016) stated that if structural breaks are ignored in the VAR model, the null hypothesis would be rejected incorrectly. Enders and Jones (2016) employ Fourier approximation in VAR framework to overcome this problem and simplify determination of the date, number and form of breaks.

Nazlioglu et al. (2016) extend the Toda-Yamamoto testing approach with gradual structural shifts using a Fourier approximation. The assumption of the intercept terms \( a \) being constant over time is relaxed and the developed version of equation (1) by including gradual structural shifts is redefined:

\[
y_t = a(t) + \beta_1 y_{t-1} + \cdots + \beta_{p+d} y_{t-(p+d)} + \varepsilon_t
\]  

(2)

Unlike the standard VAR model, \( a(t) \) is a function of time. In other words, \( a(t) \) depends on time. The following equation is found by expanding the model with the Fourier approach, which is used for smooth breaks and does not need to know the number and date of breaks:

\[
a(t) = a_0 + \sum_{k=1}^{n} \gamma_{1k} \sin \left( \frac{2\pi kt}{T} \right) + \sum_{k=1}^{n} \gamma_{2k} \cos \left( \frac{2\pi kt}{T} \right)
\]  

(3)

where \( n \) shows the number of frequencies, \( \gamma_{1k} \) and \( \gamma_{2k} \) is the amplitude and displacement of the frequency, respectively. Also as shown in Nazlioglu et al. (2019) Equation (4) is found by substituting equation (3) in equation (2):

\[
y_t = a_0 + \gamma_1 \sin \left( \frac{2\pi kt}{T} \right) + \gamma_2 \cos \left( \frac{2\pi kt}{T} \right) + \beta_1 y_{t-1} + \cdots + \beta_{p+d} y_{t-(p+d)} + \varepsilon_t
\]  

(4)

where, the null hypothesis of the test shows the Granger non-causality and it is tested with the Wald statistic. However, Nazlioglu et al. (2016) stated that bootstrap critical values were produced to increase the power of the test in small samples. Akaike or Schwarz information criteria are used to determine the lag length
### Table 2. Causality Tests Results

| Countries | Causality Tests | Exp $\rightarrow$ Rev | | | | | | Rev $\rightarrow$ Exp | | | | |
|-----------|-----------------|----------------------|---|---|-----------|---|---|---|---|---|---|---|---|---|---|
|           | $p$ | $k$ | WALD | $\chi^2$ | p-value | bootstrap p-value | WALD | $\chi^2$ | p-value | bootstrap p-value | WALD | $\chi^2$ | p-value | bootstrap p-value | WALD | $\chi^2$ | p-value | bootstrap p-value |
| Greece    | TY  | 1   | 0.080 | 0.777 | 0.0792 | 0.0175 | 0.676 | 0.696 |
|           | Fourier TY GC | 1    | 0.590 | 0.442 | 0.419 | 0.576 | 0.448 | 0.450 |
|           | Single frequency | 1    | 0.279 | 0.597 | 0.503 | 0.059 | 0.808 | 0.773 |
|           | Cumulative frequency | 3    | 6.029 | 0.110 | 0.222 | 3.196 | 0.362 | 0.410 |
| Ireland   | TY  | 1   | 2.858 | 0.091* | 0.099* | 0.651 | 0.420 | 0.445 |
|           | Fourier TY GC | 1    | 0.421 | 0.516 | 0.467 | 0.409 | 0.522 | 0.501 |
|           | Single frequency | 1    | 0.416 | 0.241 | 0.308 | 20.382 | 0.000*** | 0.026** |
|           | Cumulative frequency | 3    | 4.196 | 0.241 | 0.308 | 3.196 | 0.362 | 0.410 |
| Italy     | TY  | 1   | 0.675 | 0.411 | 0.431 | 1.316 | 0.251 | 0.276 |
|           | Fourier TY GC | 1    | 7.795 | 0.050** | 0.096* | 4.567 | 0.206 | 0.245 |
|           | Single frequency | 3    | 9.489 | 0.023** | 0.090* | 8.919 | 0.030** | 0.115 |
|           | Cumulative frequency | 3    | 9.489 | 0.023** | 0.090* | 8.919 | 0.030** | 0.115 |
| Portugal  | TY  | 1   | 2.593 | 0.459 | 0.507 | 40.192 | 0.000*** | 0.000*** |
|           | Fourier TY GC | 1    | 0.436 | 0.509 | 0.505 | 0.945 | 0.331 | 0.339 |
|           | Single frequency | 3    | 5.321 | 0.150 | 0.249 | 11.258 | 0.010*** | 0.073* |
|           | Cumulative frequency | 3    | 5.321 | 0.150 | 0.249 | 11.258 | 0.010*** | 0.073* |
| Spain     | TY  | 1   | 2.593 | 0.459 | 0.507 | 40.192 | 0.000*** | 0.000*** |
|           | Fourier TY GC | 1    | 4.263 | 0.234 | 0.291 | 23.113 | 0.000*** | 0.004*** |
|           | Single frequency | 3    | 10.974 | 0.004*** | 0.033** | 19.247 | 0.000*** | 0.003*** |

Note: TY: Toda-Yamamoto causality test. Fourier TY GC: Fourier Toda-Yamamoto Granger Causality test. ***, **, and * represent statistical significance level of 1, 5, and 10 percent, respectively. Maximum $k$ and $p$ are set to 3, then Akaike information criterion is used to determine optimal $k$ and $p$. Bootstrap $p$-values are based on 1000 replications. TY test is based on equation (1) and estimated with $d_{\text{max}}$ equal to 1. Fourier TY test is based on Eq. (4).
ρ and can be used to determine the number of frequency k in equation (4) (Nazlioglu et al., 2016: 172).

Causality test results between government expenditure and government revenue are reported in the Table 2 and Table 3. While the Toda-Yamamoto test ignores the structural breaks and takes only the intercept term as a deterministic term, the Fourier Toda-Yamamoto test can detect the structural breaks with the Fourier approximation. According to Gormus et al. (2018), the Toda-Yamamoto test shows less distortion in small samples (such as T is about 20 observations). In addition, when the sample size is around 50, the Fourier Toda-Yamamoto test with a single frequency is appropriate but if the sample size goes around or larger than 100 cumulative frequencies of Fourier Toda-Yamamoto is more reliable. Supporting that structural breaks occur in longer time periods, as the number of observations increases, it is recommended that the results of the Fourier Toda-Yamamoto test be interpreted if the Toda-Yamamoto test rejects the null hypothesis while the Fourier Toda-Yamamoto test accepts the null hypothesis. However, if Toda-Yamamoto and Fourier Toda-Yamamoto tests reject the null hypothesis together, it can be stated that the robustness of the result is supported (Gormus et al., 2018: 103-104). Therefore, this study considers the single frequency results of Fourier Toda-Yamamoto approach.

Table 3 illustrates the summary of causality results. There is not any causal relationship (fiscal independence hypothesis) between government revenue and government expenditure for Greece and Ireland. Both TY and Fourier TY single frequency indicate same findings which means robustness of results is supported. For Portugal, there is unidirectional causality running from government expenditure to government revenue that supports spend-tax hypothesis. In Spain, there is also one-way causality but direction of causality is running from government revenue to government expenditure which implies tax-spend hypothesis. TY and Fourier TY results diverge for Italy. Considering the finding of TY, tax-spend hypothesis is supported for Italy that causality is running from government revenue to government expenditure. According to the Fourier TY single frequency, institutional separation hypothesis which means non-granger causality finding is obtained. Mutascu (2015) investigate the causal relationship for GIIPS countries by using bootstrap panel Granger causality. For Portugal (spend-tax) and Ireland (no causality), same findings are obtained that amplify the power of result. Also
for Italy, TY result (tax-spend) is compatible with panel results. For Greece and Spain findings become different.

**Table 3. Summary of Causality Tests**

<table>
<thead>
<tr>
<th>Countries</th>
<th>TY</th>
<th>Fourier TY GC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rev … Exp</td>
<td>Single frequency</td>
</tr>
<tr>
<td>Greece</td>
<td>≠</td>
<td>≠</td>
</tr>
<tr>
<td>Ireland</td>
<td>≠</td>
<td>≠</td>
</tr>
<tr>
<td>Italy</td>
<td>→</td>
<td>≠</td>
</tr>
<tr>
<td>Portugal</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Spain</td>
<td>→</td>
<td>→</td>
</tr>
</tbody>
</table>

**Conclusion**

One of the economic problems especially in developing countries is the existence of budget deficits. Budget deficits are related to both public revenues and expenditures of the state. For this reason, the relationship between public revenues and expenditures is of great importance in ensuring macroeconomic balance and sustainability of budget deficits. In this case, we examine the GIIPS countries that face debt crisis with huge budget deficits after global financial crisis, 2008.

In countries with high budget deficits, determining the direction of the relationship as well as the relationship between public revenues and expenditures help to solve the problem. If there is a causal relationship from expenditures to taxes, it should be known that today’s expenditures will increase the taxes in the future because increase in spending in the country increases the taxes. However, it should not be ignored that future tax increases may also have negative economic effects. At this point, it should be emphasized that each income-expenditure hypothesis focuses on different policy implications and different points. Therefore, the relationship between public revenues and expenditures is considerably important for decision makers in determining economic policies and is also important for economists in understanding and solving the problem.
In this study, the direction of the relationship between public revenues and expenditures for the years 1995-2019 in GIIPS countries is tested with time series techniques by using Toda Yamamoto and Fourier Toda-Yamamoto causality tests. There is strong evidence for unidirectional causal relationship running from government expenditure to government revenue in Portugal. The main reason for the budget deficit is primarily the planning of public expenditures in Portugal. In order to reduce budget deficits, these governments should not make unnecessary expenditures. Budget deficits can be reduced on the basis of efficiency and productivity of expenditures by focusing on spending policies. Spending without creating resources makes the sustainability of budget deficits difficult.

On the contrary, in Spain, causality is running from government revenue to government expenditure. The tax policies are more important for budget deficits in Spain. In this case, tax reforms such as tax deduction and widening of the tax base are needed to reduce the budget deficits. For Greece and Ireland there is not any causal relationship between fiscal variables. So that, revenue and expenditure as a tool of fiscal policy should be determined independently. Therefore, in Greece and Ireland, the policy to be implemented regarding budget deficits is based on reducing public expenditures and increasing taxes.

References


INTRODUCTION

In order to ensure a qualified relationship between the creditor state and the obligor or responsible, both parties have some duties. The obligations designed by the state within the framework of the principle of clarity and definiteness should be fulfilled in a timely manner by the obligor or responsible. Otherwise, public revenues may be interrupted and thus public services may be disrupted. However, in cases such as force majeure, which occur beyond the will of the obligors, the state provides the necessary convenience to the obligors and may go beyond the usual process.

In this study, the concept of force majeure, its factors and the results of the cases that are submitted to the court due to force majeure, will be discussed. Thus, how the force majeure will affect the relationship between the state and the obligor will be seen in line with the judicial decisions.

THE CONCEPT OF FORCE MAJEURE

The concept of “mücbir sebep” in Turkish is the equivalent of the expression of “force majeure” in French. It is also used as the equivalent of the expression “act of God” in English and in Turkish, this expression refers to the natural events that occur as force majeure (Yolcu, 2011: 14)

According to the definition made by the Turkish Language Association, force majeure is expressed as the unexpected events beyond the will of the obligor, which
are against the measures to be taken by anybody, unavoidable and constitute an impediment to the payment of the debt.

In line with the above definitions, also in law, force majeure is mentioned as the situations that individuals or legal entities cannot avoid even if they want to (Erol, 2012:202)

As well as being a common concept used in the branches of law in the Turkish legal system, force majeure is dealt with by each branch of law within its own function. For example; while the effect of force majeure on contracts is considered in the legislation of law of obligations2 (Kaya, 2016: 1579), in the regulations on valuable paper in the legislation of commercial law3, in the SSI / Legislation of labor law, in the duration of submission of the SSI premium declarations4, and in the legislation of debt enforcement and bankruptcy law, in the regulations5 on enforcement and bankruptcy proceedings.

Force majeure, which has a significant effect on tax procedures and principles, can often be confused with difficult situation. In article 17 of the Tax Procedure Law, under the heading of “grant a delay”, it is ensured by the Ministry of Finance that those who cannot fulfill their duties related to tax transactions due to being in a difficult situation can be given extra time. However, neither the definition of the difficult situation has been included, nor any sampling counts similar to the force majeure situation has been performed. While the force majeure is dealt with more detailed regulation, the difficult situation is mentioned only nominally (Kılıç and Şekerci, 2015: 864).

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2 For example, if the parties of the contract agreed on the sale of the whole product to be obtained from an agricultural land, and despite taking all measures, if the product was completely destroyed as a result of the flood before harvesting, then it is called force majeure and the debt is cleared (Kaya, 2016: 1579).

3 If the submission or protest of the check or the equivalent determination within the legally specified periods cannot be achieved due to an obstacle that is impossible to overcome, such as the legislation of a state or any force majeure, the specified periods for these transactions are extended (TCC Article 811/1).

4 Within the scope of force majeure, SSI premiums can be postponed and payment periods can be extended (General Communiqué of Tax Procedure Law No. 518).

5 Pursuant to the President’s Decree No. 2279, it has been decided to stop the enforcement and bankruptcy proceedings carried out throughout the country on the grounds of force majeure, not to execute the party and follow-up proceedings, new enforcement and bankruptcy proceedings, and the execution and enforcement of precautionary attachment orders.
According to the article 17 of the Tax Procedure Law the effect of the difficult situation on the durations has been emphasized as follows: “those who will not be able to fulfill their duties regarding tax transactions due to being in a difficult situation, can be granted a delay by the Ministry of Finance as long as it not more than one fold of the legal period and if the legal period is less than one month, not exceeding one month.”. In addition to that, for this delay to be granted:

1. Before the deadline expires, a written request must be submitted.

2. The excuse mentioned in the request must be deemed worthy of acceptance by the authority that will grant the delay.

3. If the delay is granted, the collection of the tax should not get in jeopardy.

Unlike the situations considered force majeure, difficult situation refers to subjective situations. Difficult situation is a coincidental event that occurs outside the will and discretion of the person, and it is a special situation only for that person, with a narrower area of influence than force majeure. Therefore, difficult situation can be mentioned as individual events that are impossible to prevent and perceive beforehand like force majeure, which can make it difficult or even impossible for individuals to fulfill certain duties and responsibilities (Parlak, 2006: 10).

The differences between force majeure and difficult situations, which have an effect on the fulfillment of obligations by the obligors, can be summarized as follows (Köktaş and Buyrukoğlu, 2015: 52);

- While force majeure situations are included in the law, difficult situations are not included in the law.
- While the effect of force majeure on failure to fulfill the tax duty is absolute, the effect of the difficult situation is relative.
- While the administration has no discretionary power regarding the acceptance of force majeure situations, when they occur, it has the discretionary power in the acceptance of difficult situations.
- While in cases of force majeure, the extension of the period will be determined by the continuation of the force majeure, in difficult situations, the period may be extended by not exceeding one fold of the legal period.
Case And Elements Of Force Majeure

Although there is no definition of force majeure in the laws, force majeure situations according to article 13 of TPL are as follows:

- **Severe accident, serious illness in a level that will prevent the fulfillment of any of the tax duties and imprisonment.**

Although the word “severe” has been used in cases of severe accident and severe illness, which are expressed as force majeure, the definition or degree of the expression mentioned in our laws has not been clarified.

In order to talk about serious accidents and serious illnesses, as well as being directly personally affected, the person must be unable to think, speak or see and continue his daily (Tosuner and Arıkan, 2019: 142). Obligors who are exposed to force majeure must prove their cases of “severe illness, severe accident” in order to benefit from their rights of force majeure.

According to the Internal Circular of the Tax Procedure Law dated 12.25.1986 and numbered 1986/9 of the Ministry of Finance, the reports submitted in proving the severe illness;

A- From the Provincial Health Directorates or the Hospital Chief Physicians who have issued the report, whether the disease specified in the reports received from hospitals (including private hospitals) is a severe disease that will prevent the fulfillment of tax duties;

B- Regarding the reports issued by official health institutions other than hospitals (such as Government Medical, Health Center), from Provincial Health Directorates; On the other hand, as the reports submitted to prove the force majeure must have been received from the above-mentioned institutions, the reports received from private doctors will not be taken into consideration. Likewise, although the state of imprisonment is considered as force majeure in Article 13, the legislator has not mentioned conviction here. Because conviction is a certain and final decision. Article 407 of the Civil Code stipulates that every adult person who receives a punishment binding freedom of one year or more will be restricted and accordingly, the authority in charge of executing the penalty has to declare that this convict has begun to serve his sentence and immediately inform
the wardship authority to take the necessary actions for appointing a custodian fort his convict. (Kılıç and Şekerci, 2015:849).

• **Disasters such as fire, earthquake and flood that will prevent the fulfillment of tax duties,**

In Article 13 of the TPL, disasters such as fire, earthquake and flood are counted as force majeure, but the concept of “disaster” has not been clarified (Kılıç and Şekerci, 2015:851). Although it is a word of Arabic origin in Turkish, disaster is expressed as destruction caused by various natural events and in the dictionary of Turkish Language Association, “natural disaster” is defined as; Each of the disasters such as flood, storm, earthquake, hail that cannot be prevented by humans. Although it is not specified in article 13 of the TPL, the fact that the disaster is expressed as “disasters such as” also leads to the conclusion that other natural disasters (landslides, avalanches, etc.) can be considered as force majeure. However, force majeure is a controversial issue and some of these reasons are natural disasters and can be known by everyone and by tax offices. On the other hand, personal force majeure claims must be documented and proved by the obligors and those responsible (Öner, 2017: 112). The most important thing here is that in order for a disaster to be accepted as force majeure with the presence of force majeure, it has to directly affect the obligor personally, issues about their close relatives close relatives will not be considered as force majeure (Taşkan, 2019: 245).

• **Mandatory absences that occur against the will of the person,**

The lexical meaning of absence is expressed as “non-appearance; disappearance; loss”. Compulsory absence as a force majeure means that the person has to move away from a place due to reasons other than his own will, and cannot fulfill his taxation duties within this period (Berber, 2014: 49). If the obligor, tax officer or criminal addressee is unable to fulfill their tax duties or cannot use their rights due to various reasons (epidemic, quarantine, general strike, lockout, compulsory military service, failure to enter the country, etc.), there is a compulsory absence within the scope of the Tax Law 13/3 (Erol, 2012: 210). Since the cases of compulsory absence are related to the obligor / responsible personally, similar to other force majeure cases, the person concerned has to prove⁶ and certify the compulsory absence, in order to benefit from the force majeure institution (Berber, 2014: 51).

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⁶ In the decision based on 2017/428 and numbered 2017/636 of the Council of State Tax Law Offices, “The fact that the notebooks and documents are lost can be proved with a loss
• Books and documents that are lost due to reasons beyond the will of the owner,

According to the article 253 of the TPL, those who are obliged to keep a notebook are obliged to keep the notebooks and documents written in the third part for a period of five years, starting from the calendar year following the relevant year. The notebooks, documents and records of the obligor or tax responsible must essentially be in their workplaces and, when requested within the statute of limitations, they must be submitted to the tax inspectors or personnel authorized to inspect (Erol, 2012: 211). The books and documents held by the obligors may be out of control due to unintentional reasons and, as a result, they may not be able to access the notebooks. In these cases, it is possible to apply force majeure against the taxpayer in accordance with Article 13 of the TPL (Çekin, 2016: 60).

There is no clear definition in our laws regarding the elements of force majeure. According to the TPL article 13, the elements of force majeure can be listed as follows (Tosuner and Arikan, 2019: 141).

1-Faultlessness (No fault of the obligor)
2-Unforeseeable (Sudden occurrence of the issue)
3-Irresistibility (Inability of the obligor to prevent the event)
4-Reality (Prevention the obligor from fulfilling his tax duty)

In order for the force majeure to occur, the 4 elements listed above must come together. If even one of these elements is absent, it will not be possible to talk about force majeure. For example, if the obligor / tax responsible has a personal fault in the occurrence of the event that causes the force majeure, it will not be considered as force majeure. As a matter of fact, the Supreme Court has defined force majeure in a decision it has given as “in order for an event to be considered as force majeure, it must be unforeseeable, irresistible and must have come from an external factor”. As an example of this definition, the 13th Department of the Council of State made the following decision;

7 Assembly of Civil Chambers, decision dated 03.20.2013, E. 2012 / 11-1096, K. 2013/382
it was decided as “... as it is seen that the case is filed with the request for the annulment of this decision upon the decision that the subject is evaluated within the scope of force majeure within the scope of subparagraph (e) of paragraph 1 of Article 10 of Law No. 4735, ... the case was dismissed on the grounds that the conditions of unforseeability and unavoidability do not occur together, as there was no contradiction to the law, and this decision was appealed by the plaintiff. APPROVAL of the decision of the court...”

The elements of force majeure has been mentioned in a decision of the General Assembly of the Administrative Law Divisions of the Council of State; “stating that the plaintiff party suffered damaged due to the demolition of the lodgings that they were staying in as a result of the earthquake on 3.13.1992 in ..., it is claimed that the damage should be compensated by the administration that has a service defect by purchasing the housing that does not have the necessary technical competence. However, it is clear that the damage should be regarded as force majeure, it is far from fault, unpredictable, irresistible, force majeure, which is a real event that occurs outside the activities of the administration ...”

**Effects Of Force Majeure**

Possible effects of force majeure on tax law and other branches of law come out as time, penalties, tax cancellation, tax assessment reasons, VAT reduction, preservation and submission duty, late fee and default interest, depreciated goods, extraordinary depreciation, real estate tax, special consumption tax, fees and stamp tax (Biyan, 2020: 134-184), in this study, the periods, penalties, tax cancellation, preservation and submission duty of force majeure will be mentioned and the possible effects will be revealed.

Force majeure is an external de facto situation that temporarily removes the will of the parties to fulfill their duties, obligations or obligations depending on a certain period of time (Çekin, 2016: 79). In terms of tax law, the obligor / tax responsible must fulfill his duties and responsibilities regarding tax within the specified periods, and he has the obligation to act within the periods specified in the law in order to benefit from the advantageous situations defined by the law as rights. Likewise, the administration is obliged to do its work and actions within the periods specified in the law. The effect of force majeure on time periods come out in 3 different forms as administrative, legal and judicial periods. Since it is
stipulated in Article 15 of the Tax Procedure Law that the periods will not work in cases of force majeure; for an obligor who is faced with a force majeure situation, this situation will stop the processing of the periods, and after the force majeure situation is eliminated, the periods will continue to work from where they left off, and the transactions and assignments will be valid as if they were done on time (Berber, 2014:110).

The effect of force majeure on administrative periods refers to the periods defined by the law to the administration. As a matter of fact, in Article 14 of the Tax Procedure Law the administration has been given a responsibility by mentioning that: “In tax transactions, periods are determined by tax laws. In cases that are not clearly written in the law, this period is determined by the administration that will make the notification and notified to the relevant person, provided that it is not less than 15 days.”

In the presence of force majeure, the application of prescription also plays an important role.

As it is known, the timeout of accrual is regulated in the TPL, while the collection prescription is regulated in the Law No. 6183 on the Procedure for Collection of Public Receivables. According to Article 102 of Law No. 6183, “If the public receivable is not collected within 5 years from the beginning of the calendar year following the calendar year in which its maturity coincides, it will expire. The statute of limitations in the special laws regarding fines are reserved. “In the 103rd article, although the interruption of the statute of limitations is regulated, force majeure is not included among the situations that cut the statute of limitations. Again, in Article 104, it is stated that the statute of limitations will not work and the force majeure state has not been mentioned.

However, in the 8th article of Law No. 6183 titled “Notifications and calculation of periods”, there is a statement that “Unless there is a provision contrary to this law, the provisions of the Tax Procedure Law are applied in the calculation of the written periods and the notification”. Based on this article of law, the payment period of the tax accrued late due to force majeure is also prolonged. For this reason, a late fee is not charged for tax that is accrued late.

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9 Article 104 - If it is not possible to prosecute the obligor due to his being in a foreign country, fraudulent bankruptcy or liquidation of his estate, the statute of limitations shall not apply as long as these circumstances continue.
For example, in the written statement made by the Ministry of Treasury and Finance on 08.24.2020, “Those who have a obligor registration as of the date of the flood in Giresun due to the last flood disaster in Giresun, will be held in force majeure between 8.22.2020 and 11.30.2020 in terms of the implementation of tax laws” and the effect of force majeure on time periods was emphasized, following the latest flood in Giresun. The period accepted as force majeure has been declared as 3 months and 9 days, and during this period, no penal sanction will be imposed on the obligors due to the obligations that the obligors could not fulfill. In addition, the time limit and the fulfillment of tax duties will also be extended by the specified period.

For example, the decision of the Council of State regarding the penalties related to force majeure is as follows;

The decision of the 7th Chamber of the Council of State, No. 1998/993 Basis, 1999/3059; ... It is related to the request of reversal of the court decision rejecting the lawsuit filed with the request of cancellation, based on force majeure, of the irregularity penalty imposed due to the failure to submit the declaration of the Tourism Investment and Foreign Trade Bank regarding the bank and insurance transactions tax. Related chamber; “… as the situation causing the declaration not to be submitted is not certified or proved by a court decision or a document issued by authorized public institutions, it has not been considered possible to evaluate the incident within the scope of force majeure, and the court decision is in place as there is no inaccuracy in the infraction penalty.

As seen in the relevant decision, the absence of force majeure does not prevent penalties from being imposed. In the event of a contrary situation, the obligor / responsible will not face penal sanctions.

The decision of the Council of State regarding tax liabilities is as follows;

In the decision of the 3rd Chamber of the Council of State, 1990/2312 basis, 1992/342; Regarding the decision taken by the obliged party that the final 2-month rest report he received from the day he was discharged would be considered as force majeure in the fulfillment of his tax duties: “… in the case, the plaintiff, who was an income obligor due to his self-employment activity, on the day of 2.7.1989 ... was operated on with the diagnosis of stomach cancer, was discharged on 3.10.1989, but it was deemed appropriate to come to
the clinic every 15 days and rest for two months and foreseen to rest for 20 days from 5.11.1989, in the letter dated 4.6.1990 sent by the relevant health institution upon the interim decision of the courts, it was stated that the patient in question needed rest for 2.5 months, therefore, it was accepted that the severe disease state continued for 2.5 months from the date of 3.10.1989 when the patient was discharged, after the end of 2.5 months, the following month should be regarded as the period during which tax duties will be fulfilled and on the other hand, consists of a request for reversing the decision of the Tax Court that annulled the smuggling penalty by accepting the declaration given on 5.25.1989 and 6.25.1989 on the grounds that it should be accepted that it was given within the legal period.

The effect of force majeure on the judicial process can be explained as follows; “if the person proves that he missed the time of filing a lawsuit due to an event other than his fault and if this event meets the conditions of force majeure, then the opportunity to file a lawsuit must be granted. At the same time, considering the functions of administrative cases to ensure that the administration acts in accordance with the law, it can be said that granting a new right to individuals for the right to file a lawsuit that cannot be used due to force majeure is a requirement of the rule of law and the purpose of existence of administrative cases.” (Gündüz, 2019: 261-262).

Conclusion

Turkish tax laws impose some responsibilities on taxpayers within the framework of the principle of legality in taxation. These responsibilities, which are explained under the heading of the taxpayers’ duties in the tax procedure law, can sometimes be interrupted against the will of the taxpayers. As a result of these troubles, which are generally described as force majeure and difficult situations, the state has needed to make some regulations. Thus, the penal sanctions, taxation process, statute of limitations, tax duties and judicial process can be redesigned according to the regulations.

With the concept of force majeure defined in the tax procedure law, the Ministry of Treasury and Finance is authorized to declare force majeure in cases that occur outside the will of the obligor. Using this authority, the ministry also suspends the obligations and responsibilities of the obligor during the force majeure

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10 For more information see: (Balci, 2009: 229-243).
period. In other words, the deadlines delay, the obligations and the judicial process do not run during the force majeure period. Thus, obligors do not face criminal sanctions. Judicial decisions are concluded in favor of the obligor in matters referred to the judiciary in the case of force majeure. This shows that the effect of force majeure on the tax process is certain.

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FORCE MAJEURE AND ITS EFFECTS IN LINE WITH JUDICIAL DECISIONS

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Tax Procedure Law No. 213


FOREIGN DEBTS AND AIDS: 
A THEORETICAL RESEARCH IN 
TERMS OF REASONS AND TYPES

Hasan TÜRKAL1

Introduction

State can become indebted, when ordinary revenues, such as taxes, duties and charges which are the resources of public sector finance, cannot be provided in an adequate level, or with economic, financial and social reasons. When investment-saving equality cannot be formed due to the inadequate level of accumulations in the country, economy faces with several problems. In these conditions, internal resources are not sufficient to eliminate these problems and foreign resources are needed. Together with the improvement of international economic and financial relations, in order to provide the socio-economic developments that public sectors aspires after: when domestic debts are not enough for the development finance, foreign indebtedness has become a preferable and normal public revenue. In economy, foreign indebtedness s a type of indebtedness that increases current resources but when it is paid, it decreases the national revenues and resources. Underdeveloped countries prefer foreign indebtedness for various reasons such as clearing current accounts deficit, administering the payments of foreign debts regularly and providing new resources. In order to provide and protect the economic balance, developed countries may use foreign aids for earning markets that they can sell their industrial goods and raw materials that they need. It is not easy to separate foreign debts and foreign aids theoretically. However, the major difference of foreign aids from foreign debts is that it can be provided in more favorable terms in comparison with commercial loans. In this study, both foreign debts and aids defined. Furthermore, the reasons in terms of borrowing and creditor nations emphasized and the types of foreign debts and aids analyzed.

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FOREIGN DEBTS AND AIDS: A THEORETICAL RESEARCH IN TERMS OF REASONS AND TYPES

Hasan Türkal

I. Concept Of Foreign Debts And The Reasons Of Foreign Indebtedness

A. Concept Of Foreign Debts

The indebtedness that has been loaned from foreign markets or from people from foreign passports or from the type of foreign currency can be defined as the foreign indebtedness. (Akdoğan, 2011: 461; Orhaner, 2007: 243). Foreign indebtedness can be described as providing real or financial revenues from foreign resources by a state or a public institution, or, providing foreign credits from resident institutions or people in foreign countries by resident institutions and people in the country. In economy, the type of debt that increases current resources when it has loaned but decreases the national revenues and resources when it is paid, is called foreign indebtedness (Batırel, 2007: 162, Meriç, 1993: 9-22). Foreign debt has similar meaning with “external financing”, “outsourcing” and “foreign aids” (Dikeç, 1989: 43) and it is a resource that a country has provided from a foreign country with the condition that both principal and interests will be repaid in a given time (Demir, 2009: 42). Nowadays, indebtedness has become one of the most significant resources for the public finance (Can, 1998: 131). In kind transfers and advance loans from the developed countries are considered as foreign debts as well. Foreign aids are credits that have been given to the developing countries as grants or have been provided in more favorable terms than market conditions such as low interests and long term. In broad term, foreign aids are the capital flows and all other facilities that have been provided by mostly the developed countries and international institutions to the developing countries in order to support their defenses or economic and social developments. Moreover, all kinds of monetary, capital in kind and services can be provided to the developing countries as foreign aids (Erçel, 1992: 7-17).

B. The Reasons Of Foreign Indebtedness

1. In Terms Of Creditor Countries

In terms of creditor or aid donor countries, the reasons of debts can be classified as political, military, economic, cultural and historical, humanitarian and ethical reasons (Tüğen, 1991: 23-24);

i. Political Reasons: Loans can be utilized as a foreign policy instrument in political credits. There are several examples of loans based on complete political goals.
The debts that predominates these quality and purpose can be defined as political debts. Developed countries debit the underdeveloped countries with political motives deliberatively (Kutlu, 1995: 98). For instance: by driving them into debt, leaders of other countries can be used with political, economic and military purposes by looking after USA's commercial interests (Perkins, 2015: x; Korkmaz and Aybarç, 2019: 625).

ii. Military Reasons: Military reasons can take part in aforementioned political reasons predominately. For example, in a speech in American congress, American senator Fulton said that: “reason of giving military aids to Turkey, Greece and Pakistan is that these countries provide hundreds of cheap soldiers to United States.” In this regard, in a letter that Nelson A. Rockefeller wrote to US President Eisenhower, he mentioned about how American policies should be in several regions and how military policies should be conducted in accordance with his suggestions: “We must continue the measures designed to create and strengthen our military alliances. In order to strengthen and if possible, to broaden these alliances we must draw up a programme of economic development extensive enough for us to have in Asia, Africa and other underdeveloped areas. First of all, we should pick out the countries with anti-communist governments friendly to us, which are already bound to the US through stable long-term military agreements. In this case governmental subsidies and credits may take the form mainly of military appropriations. The hooked fish needs no bait.” (Değer, 1993: 339-346).

iii. Economic Reasons: In economy-based credits, creditor nations pursue to create market and raw material zones for their economies. These type of credits contribute to the protection of economic balance and economic development for the creditor nation. Economic and political reasons intertwine with each other frequently in terms of creditor countries. While Marshall aids emerged as a political aid and a credit system in order to limit the Soviet hegemony in Europe, in the meantime, with President Truman’s quote, it had aims “to prevent troubles that could appear in American economy after the war” as well (İnce, 1996: 94). On condition to be used in projects that have higher income than the taxes which will be repaid, level of real national income can be increased through foreign debts (Şener, 1996: 200; Pınar, 2011: 42).
FOREIGN DEBTS AND AIDS: A THEORETICAL RESEARCH IN TERMS OF REASONS AND TYPES
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iv. Cultural and Historical Reasons: Religious, lingual, historical and cultural connections between different countries can play an active role for economic relations, foreign aids and credit relations.

v. Humanitarian and Ethical Reasons: The aids to the countries that have experienced scarcity, famine and natural disasters are evaluated in the aids and credits due to humanitarian and ethical reasons. The credits due to cultural and historical reasons and humanitarian and ethical reasons are limited. Loans can be transformed into a tool of imperialism within the systematic applications of powerful countries. Experiences progress in accordance with the idea that powerful may only be wealthy by exploiting the weak (Birdal, Ulutan, 1992: 7).

2. In Terms Of Borrowing Countries
Foreign debts that have been borrowed by means of receiving credits from official or private institutions (Kirmanoğlu, 2009: 41) contribute to two purposes such as clearing both foreign trade and budget deficits (Bulutoğlu, 2004: 296). Until utilizing and paying the debts, opportunity cost of foreign debts has been delayed (Musgrave, et.al. 234). When foreign debts borrowed, they increase available resources while they decrease both national income and national resources when they were paid with principal and interests. In other words, when foreign debts borrowed, foreign resources transferred to the economy but when principal and interests paid for these debts, domestic resources transferred to foreign countries.

There are various reasons for a country to turn towards foreign resources before or instead of domestic resources. These are (Evgin, 2000: 1-4; Acar, 1990: 16-22; Uluatam, 2003: 428-430; Demir, 2009: 23-29; Due, 1963: 533-537; Ulusoy, 2013: 60-61; İnce, 2000: 11-33; Bülbül, 2019: 363-364; Çapık and Kösekahyaoglu, 2019: 415):

i. Inadequacy of Domestic Resources and Impossibility of Supplying National Requirements from Domestic Resources: In underdeveloped countries, low levels of real income not only limit savings, by extension, level of investments but also they limit the expansion of markets and capital accumulation develops slowly. This condition clearly reveals how economic growth and development works are conducted in difficult conditions in underdeveloped countries where per capita income and savings are quite insufficient.
ii. **Foreign-Dependency of both National Economy and Demand Structure:**

If a national economy is lacking foreign exchange reserves that will import investment goods in order to accomplish the developmental aims, it will have to apply foreign debts or sources of credit in order to accomplish this trade.

iii. **Other Some Economic and Social Reasons:** Countries can apply to foreign debts due to economic and social reasons such as closing budget deficits (Sönmez, 1987: 31) with resources, savings, foreign trade (Berksoy, 1989: 58-60) or balance of payments (Bakkal and Oktayer, 2003: 218; Keçeligil, 2019: 124), providing finance for defense expenditures, provider and protector effects of economic balance, financing big investments and reforms (Emil, 2003: 36), creating optimized effects for the distribution and usage of resources, aiming to channelize savings into certain investments, providing finance for debt maturity, and finance of extraordinary expenditures like natural disasters and war (Zilioğlu, 1984: 5; Eğilmez, 2019: 107).

Foreign debts, principal and tax payments will be paid as foreign exchange (Bülutoğlu, 2008: 423). Following this impact, it will be beneficial to use the foreign debts that have been loaned from foreign countries by enduring certain economic and political burdens, for especially competitive, productive investment fields that will provide foreign exchange inflow (Bilici, 2019: 128). Expenditures-dampening policies will affect the economy growth negatively during the repayment phase of these debts. Furthermore, foreign debts in high numbers may affect investments in a deterrent way (Hjertholm, 2001: 10; Bilginoğlu ve Aysu, 2008: 12). (Please look into the some following examples of empirical studies about the relationship between foreign debts and economic growth: Turan, 2019; Woo and Kumar, 2010; Checherita and Rother, 2010; Cecchetti et al., 2011). When loan administration is not good enough, it will cause the amounts of foreign debts increase to high amounts with each passing day in developing countries (Eker, 1997:3 00).

**II. Types Of Foreign Debt**

Foreign debts are divided into sometimes two, sometimes three groups in accordance with their term. Foreign debts that are divided into two groups are classified as short-term and long-term debts. Foreign debts that are divided into three groups, on the other hand, are classified as short-term (floating), medium-term and long-term loans. If the term of a debt is equal to a year or shorter than a year,
then, these credits will be evaluated as a short-term debt. If the term is longer than a year, then, these credits will be evaluated as medium and long-term debts (Merkez Bankası, 1994: 100).

Dividing debts in accordance with terms is significant in terms of the resources of these debts as well. While short-term debts will be met from money markets, long-term debts will be met from capital markets (Tural, 1992: 33).

Within the scope of short-term debts, generally credits that, provide to eliminate payment problems in international trade and trade of goods, take part. Foreign exchange accounts with letter of credit that have been opened by Central Bank of Turkey in a short-term, accounts in commercial banks, short-term policies, acceptance credits and letters of credit are short-term debt instruments for the foreign residents. Moreover, prefinancing export credits, and banker and mail credits are evaluated as short-term foreign debts as well (Merkez Bankası, 1994: 101).

Most frequent and common medium and long-term foreign debts are development credits, untied and tied credits, export credits, debt discharging and refinancing credits (Açba, 1991: 23-29, İnce, 1996: 101-113; İnce, 2000: 158-169);

**A. Development Credits**

Development credits are the credits that have been loaned to the underdeveloped countries by several countries and international institutions. Moreover, these credits have been loaned to these countries in more favorable terms. These development credits have particular importance to underdeveloped countries but different type of these credits from the other countries are not even a question. When other credit types stipulated more favorable terms than the market conditions, they have been evaluated within the scope of development credits.

There are two types of development credits as program and project credits (İnce, 1996: 102-103, Açba, 1991: 23-25);

**1. Program Credits**

Generally, program credits are available for the usage of resident importer institutions within the countries and they are provided with bilateral agreements.
When importing goods and services from a certain country is stipulated, these type of credits are named as tied program credits (Merkez Bankası, 1994: 101).

Program credits have generally consisted of the credits that have been loaned to developing countries for financing their imports. Relevant countries can reserve these credits to buy products, necessary for their annual requirements, such as raw materials, accessories and machines or semi-products. These credits, depending upon to country and products, have been loaned as untied credits usually. Although they usually have been used for the loaned years, they can be used for the following years for the unused parts.

There are various different opinions about benefits and disadvantages for borrowing or creditor countries of program credits (Ulusoy, 2013: 71). Program credits are beneficial for the national economy of a borrowing country in terms of balanced development. Thus, required raw materials and accessories for the conducted investments can be provided easily.

2. Project Credits

Project credits have been used particularly for certain productive and infrastructure investments in underdeveloped countries. These credits have been loaned to these countries by international institutions or states in order to materialize private and public investment projects of these countries. (Acar and Dulupçu, 2003: 332-333). Project credits are intended to provide the finance of goods and services imports in order to materialize a project. If those credits are provided by governments with bilateral and multilateral agreements, these project credits are called as “official (senior) project credits”, if those credits are provided from vendors or foreign banks, these are called as “commercial project credits. In the practice of project credits, loan agreements are conducted in three ways (Ulusoy, 2013: 71):

aa. The agreement has been signed between the creditor country or institution and borrowing country. The government that prepares the agreement, on the other hand, transfers the credit to public or private institution that will materialize the project.

bb. Creditor country makes agreement separately with the relevant government and public or private institution that make investments. In this regard, the government that has been financed is responsible towards the government that provides finance.
There is an agreement between creditor country, the country that has been financed and investor institution that will tie these three sides. Therefore, the relevant government that has been provided with finance and the institution that will materialize the project with the relevant government have been tied with collective responsibility to creditor country.

B. Untied Credits – Tied Credits

Whether the usage of credits is dependent upon conditions is significant for division. If these are analyzed separately (İnce, 1996: 25-26; Ulusoy, 2013: 71-72):

1. Untied Credits

If the credits that have been provided to developing countries are paid in foreign currency by the creditor country, and if borrowing country is completely free to use these funds whatever she desires and whichever country she wants to use, these cases are called as untied credits. Since borrowing country has an opportunity to provide goods and services that are required for the finance of development in more favorable terms and at the cheapest price, no problem occurs in untied credits. The real problem emerges in tied credits.

2. Tied Credits

Financing that has been provided as produce loans is tied credits. Tied credits can be divided depending upon country and origin as well. While attachment can be towards the country, it can emerge as attached to the goods as well. Moreover, attachment of both goods and country is possible as well. In this case, debt can only be used for imports of certain goods from the creditor country. In tied credits, if the provided finance is not indicated for the certain goods and borrowing country may buy any goods they want from the creditor nations, this type of tied credit will be “credit attached to country”.

If the goods that will be purchased are indicated by the creditor country in advance, this type of tied credit will be “credits attached to both country and goods”. In these type of credits, the determination of goods that will be purchased, by the creditor nation is about the goods that are desired within the export policy of creditor nation.
C. Export Credits

Export (seller’s) credits are the credits that have been provided by the firms or institutions that have been established with this purpose to the countries that plan to buy goods and services from the developed countries (İnce, 1996: 105). Seller’s credits are usually designated as short-term credits. Interest rates, on the other hand, are slightly higher than the other credits. Moreover, in addition to the costs, the direct risks such as insurance expenses on creditors are reflected in the prices as well. In the end, heavy costs emerge in terms of the institutions that benefit from these credits. These credits are generally reflected to purchase required equipment for the establishment of industrial facilities.

D. Debt Reliefs And Refinancing Credits

There is a slight difference between debt reliefs and refinancing credits in form and frequently, they have been used similarly in the literature. That difference is: maturing liability is postponed instead of paying the debt in debt reliefs, while maturing liability has been paid with a new finance that has been provided by the creditor nation and this new finance is counted as a new debt. This renewed debt is tied to a certain payment plan (Ulusoy, 2013: 73-74).

The requirement of external financing increases during the terms when balance of payments relapses due to repayments of foreign debts, principal and taxes. Moreover, economic environments of a country may not be favorable for payments of foreign debts. The reason is to eliminate temporary troubles and bottlenecks that will be faced in payments of foreign debts and to prevent payments of debts to create alternative demand for the foreign exchange resources of the country. If the debt reliefs and refinancing credits are evaluated as separate headings (İnce, 1996: 105-106, Açba, 1991: 26-27):

1. Debt Reliefs

Debt relief credits are the credits that have been provided to delay unpaid foreign debts although their maturity date is expired or to meet financing of these debts again. Relief credits have materialized to extend the debt dues by not paying installments of principal and taxes that their maturity date is expired.
Creditor countries that have accepted the debt reliefs have several reasons to accept these. Once, transformation of a borrowing country into a state that cannot pay all of her debts and burdens of this country whether she applies moratorium or not may cause crises in terms of her domestic policies. Mostly, a creditor country does not desire such a condition for herself as well.

2. Refinancing Credits

The credits that have been loaned in order to postpone the former debts are called as the refinancing credits. The purpose of these credits are to pay debts that their maturity date is expired and postpone these debts into ensuing years by opening a credit with the same amount in exchange for a low interest rate in comparison with interest in first credit. During the terms that developing countries have difficulties in repayment, it is obligatory for them to apply these debt reliefs and refinancing credits in order to continue investment initiatives that they started or elude the difficulties of balance of international payments. Therefore, when the debts of these countries increased and problems of payment began to manifest, these credits became crucial for developing countries.

E. Foreign Aids

Developed countries can use foreign aids both for providing and protecting economic balance, and gaining markets that they can sell their industrial products, and resources of raw materials that they have required (İnce, 2000; 142). It is not easy to divide foreign debts and foreign aids certainly (Eker et al., 2005: 86). However, the most significant difference of foreign aids from foreign debts is that they are provided in more favorable terms than commercial loans. Interest rates of foreign aids are mostly lower and their repayment periods are longer as well. Moreover, payments of principal and taxes start after a certain first period without payment. Since grants are the unreturned funds, their feature as an aid is clearer. Since political reasons have been regarded more than the other credits (Türk, 1997: 278), the feature of political debts in foreign aids has increased.

Foreign aids can be analyzed as bilateral or multilateral aids, grants, technical aids, financial aids or food aids, and military aids (Açba, 1991: 27-29, İnce, 1996: 101-107).
1. Bilateral Aids – Multilateral Aids

In respect of institutional resources, foreign aids are divided into bilateral aid and multilateral aids.

a. Bilateral Aids

Bilateral aids are the funds that have been provided from public resources in compliance with an aid agreement that has been made by a donor country and a recipient country. Donor countries usually use these aids to materialize certain goals of their foreign policies. Thus, political pressure are heavy in bilateral aids. Furthermore, these type of aids mostly condition the purchase of export goods of donor country.

b. Multilateral Aids

Multilateral aids are, on the other hand, the aids that have been provided through international financial institutions. The funds in kind of aids that have been provided by these institutions are usually obtained from their equity capitals. World Banks and International Bank for Reconstruction and Development (IBRD) are the spearheads of institutions that have provided multilateral aids. The banks, apart from their equity capital, may provide funds by selling bonds and may give credits to member countries with these funds.

2. Grants

Grants are the aids that has no condition of repayment (Ulusoy, 2013: 71). The grants of developed countries to underdeveloped countries are usually conducted as in kind transfers. The majority of grants are comprised of excess of exports. However, all of them do not have the characteristics of a grant, in fact, most of them have the characteristics of debts with domestic currency. The country with export surplus debits the country that has taken these grants with her domestic currency. And, these provided funds have been used in the expenses that the donor country will conduct in recipient country. It is clear that this type of resource is not a grant. An exceptional type of grant is the direct subvention.
2. TECHNICAL, FINANCIAL AND FOOD AIDS

a. Technical Aids

Technical aids are supportive activities such as transfer of know-how, project and consultancy services or the education of personnel from underdeveloped countries. United Nations Organization conducts technical aids in various fields such as public health, agriculture, industry and education through specialized agencies such as World Health Organization (WHO), Food and Agricultural Organization (FAO), United Nations Industrial Development Organization (UNIDO) and United Nations Development Program (UNDP) (Ulusoy, 2013: 74-75).

b. Financial Aids

Easy terms of international payments that have been provided to underdeveloped countries in order to finance their imports of goods and services from financial aids. Mostly, financial aids have been used as a tool for donor countries, which provide these aids, to increase their exports (For an extensive knowledge about worldwide, international financial institutions, please vide: Önen, 1996: 17-105).

c. Food Aids

Food aids express sold agricultural surplus to underdeveloped countries in exchange for their own domestic currencies which are not convertible in accordance with USA's PL. 480 program. These domestic currencies which have been collected for the American government cause negative reactions due to the reason that these collection of domestic currencies pave the way for American government to intervene the internal affairs of these governments.

For a while, food aids to extremely poor countries have been provided as grant by the developed countries in order to increase their humanitarian and political prestige. The impact of the pressure of public opinion in developed countries to their governments for the realization of these type of foods aids is great.

d. Military Aids

The aids that have been made with military purposes, and amounts and conditions have not explained with secret agreements are considered within the military
aids. The significant part of military aids is comprised of vehicles and equipment which are provided to allied countries.

Evaluation

Financing public activities domestically with ordinary public revenues is essence. However, not being able to establish investment-saving equality due to inadequacy of accumulations within the country causes several problems in economy. Since internal resources are insufficient to eliminate these problems, foreign resources are necessary for the national economy. Foreign dependency of both production and economy is one of the most significant reasons for the increase of foreign debts and these debts increase with openness. It is necessary to canalize these increasing debts with each passing day to investments and industrialization in order for them not to cause a foreign payments crisis. The priority of investments should be directed to export sectors in order for industrialization and foreign resources not to be cut. Underdeveloped countries apply foreign indebtedness in order to clear current accounts deficit, conduct the payments of foreign debts regularly and provide new resources.

The countries that have great amounts of debts have begun to question the issue of foreign debts along with the payment issues. However, due to the increase of foreign debt interests, disadvantageous position of foreign trade rates, the reduction of price in export goods because of excessive desire of selling these goods, this questioning cannot prevent the direct flow of crucial part of value added funds from the indebted developing countries to industrialized countries.

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FOREIGN DEBTS AND AIDS: A THEORETICAL RESEARCH IN TERMS OF REASONS AND TYPES

Hasan TÜRKAL


AN ANALYSIS OF SOCIAL INTERACTION AND SOCIAL MULTIPLIER: JUSTICE SERVICES IN TURKEY

Sevilay Ece GÜMÜŞ ÖZUYAR¹

Introduction

According to Schelling’s critical mass model, some people are always involved in actions, while some people act when enough people do that action and affect the society (Scheinkman, 2007: 1833). This model of Schelling has encouraged social scientists to investigate how human behavior and characteristics as a microeconomic element affect the society as whole. Based on this idea, life satisfaction theorists have investigated how and in what direction people in a society affect each other with their personality traits and behaviors, and they have reached the social multiplier factor formed as a result of social interactions.

In this manner, the aim of this study is to make social interaction analysis and to identify the existence and size of social multiplier factor for Turkey by using justice service, which is considered as pure public good in literature. The accuracy of the listed objectives are tested using one-way ANOVA, multinominal logistic regression and binary probit regression methods. The data set used is obtained from the Life Satisfaction Surveys conducted by TURKSTAT between 2004 and 2012.

This study consists of four chapters. When the first chapter of this study detail argue social interactions and social multiplier concepts, the second section briefly explains the type of public goods and services that the data set used in the assessment belongs to. While the third part includes the data and methods applied to achieve the aforementioned goals, the last chapter summarizes the findings of the study and mentions the limitations and opportunities of the study.

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Social Interactions and Social Multiplier

In many cases there are certain rules that people living in communities have to follow. These rules are determined by mutual agreement by the groups in which individuals belong, using various political decision-making mechanisms. Even if people who benefit from these rules as well as those who suffer damage due to these rules, if they still want to continue their existence in the group, they have to obey these rules. In other words, if the benefit that a person will obtain individually is maximized by overlapping with the general situation, people continue to act together. Yet, their partnership will also affect each other’s benefits or results.

At this point, the effects of each of the individuals in the society on each other get involved; so on this line social interactions are the effects of individual preferences or behavior patterns on a particular group (Scheinkman, 2007: 1). This group can be a family or a circle of friends, settlement or country. The effects of each individual on others are analyzed in terms of the effect on $y$ of an additional unit of change $x$, which is economically called marginality. Videlicet, the impact that each additional person creates in society due to their personality traits, behaviors and other reasons is called social multiplier and social interactions that create social multiplier forces are a measure of how a person’s utility is affected by whether other individuals do the same thing (Cutler ve Glaeser, 2007:1). It can change the preferences of individuals, shape their expectations and even interfere with the intensity of the utility to be obtained (Manski, 2000:118). These direct interactions become more visible, especially if there is a spreading effect that affects individuals in the same or the same direction (Kroft, 2006: 23).

Social multipliers are also considered to be an indicator of the strategic complementarity of agents interacting with each other, which is also an explanation of how individual traits create social behavior patterns (Burke, 2008:1). This multiplier effect can also be calculated by the ratio of the change between the variances of the groups to the change between the within-group variances in a data set. The result found is equal to the F-statistic value found with a standard one-way ANOVA statistic, as long as there is no discarded variable because there is a correlation in the data set (Kroft, 2006: 3, 22). This value is higher than 10 in large sample groups that may correspond to a country (Cutler ve Glaeser, 2007:3) and the social multiplier effect is relatively smaller for the elements that have a

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2 For theoretical mathematical inferences by finding the social multiplier Burke, 2008.
widespread effect such as crime and education (Glaeser et al., 1996: 508). Graham & Hahn (2005) argues that the multiplier, which has a value significantly greater than 1, has strategic complementarity arising from the internal dynamics and interactions of the community. The analysis of the social interactions achieved by the individual responses given by individuals within the framework of their own socio-demographic and economic characteristics and opinions is done through the coefficients of the independent variables used in the models.

For example, Glaser et al. (1996) created a regression model to determine the effect of crime rates in major American cities, and analyzed the effects of human behavior and characteristics by saying 1 for the occurrence of the event and 0 for the non-occurrence. The formula for the model is given below (Glaser et al, 1996: 515-516):

\[
\frac{1}{\sqrt{n}} \sum_{i=1}^{n} (a_i^t \cdot p) \rightarrow N \left(0, \frac{2-\pi}{\pi} \cdot p(1-p) \right)
\]  

\text{(2.1)}

- \(n\) = Individuals
- \(a_i^t\) = Actions of the individuals
- \(n\) = function of normally distributed group variance (limit)
- \(p\) = mean of the actions (limit)

According to this model, if the individual performs the action, the probability of crime becomes \(p\), if not, it becomes \(1-p\), and the individual’s action affects the group he / she belongs to as much as the probability of \((1- \pi)\).

In this case, when two people in the society decide to act, the probability of action of the individuals who act will affect the society they are in as much as the probability of \((2- \pi)\) divided by group variance multiplied by the individuals’ probability of action. That is, each individual who acts affects the society to a degree varying with the size of the society. Bikhchandani et al (1992), Topa (2001), Dufllo & Saez (2003), Ioannides & Zabel (2003), Graham (2008), Ichino & Falk (2006), Hoxby & Weingarth (2006) make inferences supporting the aforementioned finding by conducting studies in different fields (fashion, workforce, etc.) but similarly for social interaction and social multipliers.

So, if each individual affects the society, and the society in general affects the individual, the existence of a strategic interaction created by actions for personal
benefit maximization should not be denied. Although strategic behavior extends the subject to game theory based on trade-offs, the notion of strategic behavior enables individuals to emerge in their social preferences in the set of situations where the notion will show itself at the lowest level. For this reason, in this study, it was preferred to make an analysis over a pure public good and service.

**Justice Service as a Pure Public Good**

Even though there is no consensus of opinion on how to classify the goods and services produced by the public sector (Rosen & Gayer, 2008: 53), goods and services for which no one is excluded from their consumption, no competition in their consumption, and which are subject to common consumption are called pure public goods and services (Samuelson, 1954: 387-388, Trogen, 2005: 173). Very few goods carry the mentioned characteristics, which can be listed as national defense, diplomacy, public order and social order and justice as public goods and services in the economic literature (Musgrave, 1959: 44; North, 1981: 23; Holcombe, 1997: 11).

Among these mentioned pure public goods, the only good that has no private equivalent in the market is justice. In addition, since the justice service is subject to the collective and equal consumption of the whole society, it has a superiority compared to other goods and services in order to reveal social perceptions (Gümüş Özuyar et al, 2020: 301). Also, the justice service provides special utility to individuals who benefit while providing social utility to the whole community (Cohn, 1985). In this context, it is more related to individual value judgments compared to other public goods. Since it is the subject of philosophy which situation an individual considers as fair, the concept of justice changes according to the environment in which a person grows up and where he or she lives, personality traits, education level, social status or religion in which he or she defines himself. However, the provision of justice services is carried out only by the public in a uniform manner. So here, in this study, the reason for choosing the justice service is all the nuances explained above.

**Data and Methodology**

“Development of an informative, cumulative body of empirical research on social interactions will require clear thinking and adequate data” (Manski, 2000: 132). To
carry out this work, for exactly this reason, TÜİK 2004-2012 Life Satisfaction (LS) questionnaires are selected for social impact analysis, where direct questions are not asked and therefore no strategic behavior is displayed. Also another reason for using LS data is the absence of any other data set which consist the responses regarding both to what extent citizens are satisfied with the provision of public goods, to what extent these individual satisfaction levels affect each other and what kind of effects they have on society in Turkey.

In fact, although surveys on life satisfaction have been conducted by TURKSTAT since 2003, there is no similarity between the questions asked in the 2003 survey and the survey questions of the following years. For this reason, 2003 data are not included in the analysis for this study. In the years after 2012, LSS is not defined by the urban-rural distinction across Turkey, it has been carried out in some provinces. In short, the questionnaire, which has a two-level clustering layer, has been made 81 stratified. In addition, the number of individuals surveyed in 2013 has increased approximately 28 times compared to 2012. Therefore, throughout this study, only the surveys conducted between 2004 and 2012 are used in order to ensure integrity between the obtained data sets and to avoid statistical Type I problem.

A total of 62,933 people participated in the LSS held between 2004 and 2012, but 39,924 of these participants answered all questions in the questionnaire. The least participation in the survey was in 2010 with 3,818 people, while the highest participation was in 2012 with 5,064 people. The number of participants in other years is very close to each other.

3 Type I error arises when the null hypothesis rejected even though it was correct. Such errors are called “risk” or “probability of first type error” and are denoted by the “α” level. The probability of error of the greatest permissible “α” is usually the starting point of the hypothesis testing (Büyüköztürk, 1993: 418). In stratified (subset) sampling; total sample divided into units and after measurements such as mean and variance for each stratum separated, the units are combined for the total sample. Therefore, the possibilities vary depending on the choice of different subset (layer) in each stratification method (Duflo et al., 2008: 3934). Both the enlargement of the sample width and the change in the stratification system in 2013, when evaluated together with the analyzes before this date (2003-2012), can change the statistical power values (Type I Error). Yet, in order for a sample to find its explanatory value, it must reach at least 80% power value (ie. Hsieh et al, 1998: 1623-1624). Therefore, the year of 2013 is excluded from the analysis due to the strong opinion that the inclusion of the 2013 data in the 2004-2012 data may decrease the power value.
AN ANALYSIS OF SOCIAL INTERACTION AND SOCIAL MULTIPLIER: 
JUSTICE SERVICES IN TURKEY
Sevilay Ece GÜMÜŞ ÖZUYAR

Table 1. Number of people participating in the survey between 2004 and 2012, 
according to their satisfaction level

<table>
<thead>
<tr>
<th>Satisfaction with Justice Services</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>113</td>
<td>82</td>
<td>120</td>
<td>122</td>
<td>110</td>
<td>155</td>
<td>198</td>
<td>167</td>
<td>141</td>
<td>1,208</td>
</tr>
<tr>
<td>2</td>
<td>2.858</td>
<td>2.769</td>
<td>3.023</td>
<td>2.811</td>
<td>2.832</td>
<td>2.379</td>
<td>2.652</td>
<td>3.381</td>
<td>5.066</td>
<td>25.380</td>
</tr>
<tr>
<td>3</td>
<td>987</td>
<td>878</td>
<td>854</td>
<td>684</td>
<td>771</td>
<td>689</td>
<td>581</td>
<td>586</td>
<td>790</td>
<td>6.820</td>
</tr>
<tr>
<td>4</td>
<td>684</td>
<td>642</td>
<td>578</td>
<td>489</td>
<td>532</td>
<td>508</td>
<td>476</td>
<td>496</td>
<td>552</td>
<td>4.959</td>
</tr>
<tr>
<td>5</td>
<td>171</td>
<td>184</td>
<td>130</td>
<td>96</td>
<td>117</td>
<td>243</td>
<td>184</td>
<td>232</td>
<td>202</td>
<td>1.559</td>
</tr>
</tbody>
</table>

19,107 of the participants are women and 20,818 of them are men. It is believed that the close participation of the genders ensures that the effects of the gender factor on the perception of quality and satisfaction in public services can be revealed with a very low margin of error. While 30,067 of the individuals participating in the survey are married; 6,747 of them are single. The spouse of 1,947 participants died and 824 participants were divorced. And 0.85% of the respondents stated that they live separately from their spouses. In addition, 28,920, or 72.4% of the participants reside in urban areas and 27.56% in rural areas. Considering the educational status of the individuals participating in the questionnaire, it was seen that the majority of the participants consisted of people who have not completed any school / cannot read and write / can read and write but cannot finish school, and individuals who graduated from primary and open primary school or primary education / open primary education / general secondary school / vocational secondary school. Among these, the number of graduates of primary school and open primary school is 15,426. In total, only 6% of the individuals participating in the questionnaire consist of at least college graduates that can be qualified as highly educated. When the income levels of the individuals who participated in the survey are examined, it is found that the participants generally have very low, low, low-medium or high-medium earnings. Most of these people are low-income individuals with 9,353 people. Individuals with very high income have the lowest percentage with 5.97%.

One-way ANOVA statistics are applied in order to determine the social multiplier values. The status of each satisfaction level which has been evaluated according to the “satisfaction” level, which is the dense frequency, as well as the transition between
satisfaction levels is determined by the multinomial logistic regression method\(^4\). With the multinomial logistics model, it is aimed to determine how individuals’ socio-demographic characteristics and expectations and the thoughts of feeling safe at home differ according to each level of satisfaction with the provision of justice service. With the Hausman-McFadden (1984) test, it is tried to observe whether there is a difference between the parameters of the model and the parameters of the models obtained by removing the levels of the satisfaction with justice services from the model separately. For this purpose, the second level with the highest frequency of satisfaction with forensic services from “1” to “5”, ie “I am satisfied with the level of justice service provided” is taken as the base and the test is conducted.

In addition to all these, the principal component analysis should not be conducted within the scope of this study, since the data have a fragile normal distribution structure and are found to be linear. Since the binary probit model is a regression analysis type that can be applied for both normally distributed and non-showing data, it does not conflict with principal component analysis and can be seen as an alternative. With the robust White test, it is determined that there was no changing variance problem and the dependent variable structure is given a structure with 1 and 0 in the case of “Satisfied - Not Satisfied” from the 5-point Likert scale, and the dual probit method can be used.

As it was mentioned before, the analysis of the social interactions achieved by the individual responses given by individuals within the framework of their own socio-demographic and economic characteristics and opinions is done through the coefficients of the independent variables used in the models. For this reason, the utility function is extracted with binary probit regression\(^5\) analysis and de-

\(^4\) Since the p values (Prob > Chi2) shown for satisfaction levels are greater than 5%, it is concluded that there is no significant difference between the predicted parameters. In this case, since the IIA assumption is not broken, it is certainly determined that the multinomial logit regression method can be chosen in this study. In addition, when the dependent and independent variables and the frequency densities of these variables are examined, it is seen that the frequencies of some variables are lower than the frequencies of the other dependent and independent variable levels. However, it has been understood that the reliability of the multinomial regression to be established is not in jeopardy due to the fact that the crossover frequencies can compensate this difference. Therefore, it is understood that multinomial logit regression analysis can be used because the dependent variable, satisfaction with justice services, is a qualitative variable in a categorical structure with more than two levels and the frequency values of the independent variables are quite high variable levels. Since the value of _hatsq for the relevant regression model is 0.608 > 0.10, the null hypothesis is accepted. In other words, no variables required in the model are left out, and no unnecessary variables are included in the model. As a result, there is no specification error in the model.

\(^5\) Since the value of _hatsq is 0.384 > 0.10, the null hypothesis is accepted. The “fitstat” statistics
mand components are determined. Demand components are also elements of social interaction that show how the satisfaction of individuals with the provision of individual justice services has an impact on society. Social interaction factors enable the determination of the social multiplier for each demand component within the scope of this study.

The model considered as the basis for the utility function is established as follows:\(^6\):

\[
JSS_i = \alpha + \gamma \ln G_i + X_i \beta + \epsilon_i
\]  
(4.1)

Since the main objective of this study is to reveal the factors affecting the citizens' satisfaction with the justice service, the socio-demographic and economic characteristics, which are considered as independent variables, are also included in the analysis:\(^7\):

\[
B_i = \alpha + \gamma \ln G_i + X_i \beta + \epsilon_i
\]  
(4.2)

Thus, social interactions (marginal effects) are detected.

Findings

In this study, the dependent variable of the multinomial regression analysis, the citizen satisfaction levels for the provision of justice services are classified as “very satisfied”, “satisfied”, “moderate”, “dissatisfied” and “so dissatisfied”. In order to construct the model, the dependent variable level with the highest frequency value “satisfied” is taken as the base outcome (cornerstone). Therefore, since the estimated number of regression equations is one less than the number of satisfaction levels, which is the dependent variable, the result of four separate multinomial

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6 Similarly, in field studies such as Mitchell and Careson (2005) Levinson (2009) and Lora (2016), the utility function from the model was defined. JSS satisfaction with justice services for the person responding to the questionnaire, \(lnG_i\) derivative of income to find marginal effects, \(X_i\) socio-demographic characteristics for each individual i, \(\epsilon_i\) error term

7 \(B_i\) future expectation for the person i responding to the questionnaire, \(lnG_i\) derivative to find marginal effects of income, \(X_i\) socio-demographic characteristics for each individual i, \(\epsilon_i\) error term
equations are created. The chi-square value (Wald Chi2) was calculated to be 5245.99 and the p value (Probe> Chi2) to be 0.00 <0.01. These values indicate that the model is statistically significant.

In this context, the coefficients of the multinomial logit regression of the established model and the relative risk ratios (RRR) showing marginal effects are shown in Table 2 for each dependent variable level.

### Table 2. Relative risk ratios (RRR) showing coefficients and marginal effects of multinomial logit regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Very Satisfied</th>
<th>Moderate</th>
<th>Dissatisfied</th>
<th>So Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>RRR</td>
<td>Coefficient</td>
<td>RRR</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Constant</td>
<td>(-1.869)***</td>
<td>0.154***</td>
<td>0.1699***</td>
<td>0.194***</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>(-0.185)</td>
<td>0.831</td>
<td>0.042</td>
<td>0.959</td>
</tr>
<tr>
<td>2006</td>
<td>0.133</td>
<td>1.142</td>
<td>0.124**</td>
<td>0.882**</td>
</tr>
<tr>
<td>2007</td>
<td>0.071</td>
<td>1.073</td>
<td>0.412**</td>
<td>0.662**</td>
</tr>
<tr>
<td>2008</td>
<td>0.015</td>
<td>1.016</td>
<td>0.322**</td>
<td>0.724**</td>
</tr>
<tr>
<td>2009</td>
<td>0.454***</td>
<td>1.575***</td>
<td>0.550**</td>
<td>0.704**</td>
</tr>
<tr>
<td>2010</td>
<td>0.837***</td>
<td>2.309***</td>
<td>0.276**</td>
<td>0.758**</td>
</tr>
<tr>
<td>2011</td>
<td>0.570***</td>
<td>1.769***</td>
<td>0.404**</td>
<td>0.667**</td>
</tr>
<tr>
<td>2012</td>
<td>0.094</td>
<td>1.099</td>
<td>0.241**</td>
<td>0.785**</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Income</td>
<td>(-0.126)</td>
<td>0.882</td>
<td>(-0.073)</td>
<td>0.929</td>
</tr>
<tr>
<td>Middle Income</td>
<td>(-0.030)</td>
<td>0.971</td>
<td>0.071</td>
<td>1.074</td>
</tr>
<tr>
<td>High Income</td>
<td>(-0.021)</td>
<td>0.988</td>
<td>0.125**</td>
<td>1.133**</td>
</tr>
<tr>
<td>Very High Income</td>
<td>0.157</td>
<td>1.017</td>
<td>0.118**</td>
<td>1.125**</td>
</tr>
<tr>
<td>Settlement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>(-0.022)</td>
<td>0.978</td>
<td>-0.203**</td>
<td>0.816**</td>
</tr>
<tr>
<td>Gender</td>
<td>(-0.169)***</td>
<td>0.844***</td>
<td>(-0.124)***</td>
<td>0.883***</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>0.085</td>
<td>1.089</td>
<td>(-0.138)***</td>
<td>0.871***</td>
</tr>
<tr>
<td>Widow</td>
<td>0.102</td>
<td>1.108</td>
<td>(-0.221)***</td>
<td>0.801***</td>
</tr>
<tr>
<td>Divorced</td>
<td>0.169</td>
<td>1.184</td>
<td>(-0.022)</td>
<td>0.978</td>
</tr>
<tr>
<td>Separated</td>
<td>(-0.381)</td>
<td>0.683</td>
<td>0.058</td>
<td>1.060</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school/open primary school</td>
<td>(-0.043)</td>
<td>0.958</td>
<td>0.110**</td>
<td>1.138**</td>
</tr>
<tr>
<td>general education/open education</td>
<td>(-0.229)**</td>
<td>0.794**</td>
<td>0.424**</td>
<td>1.528**</td>
</tr>
<tr>
<td>vocational secondary school/open high school</td>
<td>(-0.160)</td>
<td>0.852</td>
<td>0.630**</td>
<td>1.877**</td>
</tr>
<tr>
<td>two or three year college</td>
<td>(-0.292)</td>
<td>0.747</td>
<td>0.785**</td>
<td>2.191**</td>
</tr>
<tr>
<td>four year college or faculty</td>
<td>(-0.148)</td>
<td>0.862</td>
<td>0.863**</td>
<td>2.709**</td>
</tr>
<tr>
<td>MS/PhD</td>
<td>0.23</td>
<td>1.234</td>
<td>1.476**</td>
<td>4.376**</td>
</tr>
<tr>
<td>Expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td>(-0.465)**</td>
<td>0.627**</td>
<td>0.330**</td>
<td>1.391**</td>
</tr>
<tr>
<td>Worse</td>
<td>(-0.056)</td>
<td>0.855</td>
<td>0.598**</td>
<td>1.818**</td>
</tr>
<tr>
<td>No idea</td>
<td>(-0.137)</td>
<td>0.872</td>
<td>0.116**</td>
<td>1.122**</td>
</tr>
<tr>
<td>Feeling Safe at Home</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>(-1.810)**</td>
<td>0.163**</td>
<td>0.044</td>
<td>1.045</td>
</tr>
<tr>
<td>Neutral</td>
<td>(-1.464)**</td>
<td>0.231**</td>
<td>0.690**</td>
<td>1.904**</td>
</tr>
<tr>
<td>Not-secure</td>
<td>(-1.484)**</td>
<td>0.317**</td>
<td>0.541**</td>
<td>1.717**</td>
</tr>
<tr>
<td>Very insecure</td>
<td>(-0.390)*</td>
<td>0.670*</td>
<td>0.673**</td>
<td>1.959**</td>
</tr>
</tbody>
</table>

*** statistically significance at 0.01 level, ** significant at 0.05 level * significance at 0.1 level.
The fixed values represented in the model and the positive and significant coefficients of the independent variables indicate that there is a shift from the basic level of satisfaction with justice services, which is the dependent variable, to the relevant level of the independent variable analyzed. Negative but significant coefficients show that there is a trend from the level of the relevant independent variable to the basic level of the satisfaction with justice.

As a result of the analysis of the individuals who are very satisfied with the provision of the justice service in Table 2, Part 1, according to the satisfied individuals, the main coefficient value expressed as constant was calculated as -1.869. This situation reveals that individuals who state that they are very satisfied with the justice service actually have a preference for their satisfaction. In other words, individuals who declared that they are very satisfied with the justice services with a different discourse prefer their satisfaction level 0.154 times more to their very satisfaction level if the justice service is increased by one unit. Similarly, when the delivery of the justice service is improved on a unit, individuals prefer moderate satisfaction to satisfaction, dissatisfied to satisfied, and so dissatisfied to satisfied as well. The most striking finding in this preference is that the desire to be satisfied is low for the levels who state that they are not satisfied, and the higher the desire to be satisfied for the levels who state that they are satisfied.

When evaluations are made in terms of social interaction, the coefficients of independent variables should be examined. Since satisfaction with justice services has a negative coefficient in 2005, the likelihood of individuals being satisfied with legal services decreases in the mentioned year compared to 2004. Looking at the relative risk ratio (RRR) value, it is seen that this decrease is 0.831 times or 18.5%. However, since the coefficient showing this relationship is not significant (p = 0.215 > 0.1), it can be said that there is no significant difference between the satisfaction of individuals who are very satisfied with the provision of justice service in 2005 and those who are satisfied. On the other hand, in 2006, 2007, 2008 and 2012, it is observed that there is no significant difference between the satisfaction of individuals who are very satisfied and those who are satisfied since their p values are meaningless. When looking at the change in satisfaction in 2009, 2010 and 2011, it is seen that the individuals who are very satisfied are approximately 45% to 84% more satisfied than the individuals who declared that they are satisfied. In other words, there is a tendency to be very satisfied with the provision of mentioned services in these years. When the satisfaction levels of the
individuals who are moderately satisfied with the justice and those who are satisfied are compared on the basis of years, it has been determined that all coefficients are negative. Negative coefficients show that there is a flow from the relevant argument level to the baseline level. In other words, individuals who are moderately satisfied with legal services tend to be more satisfied with these services over time.

There is a significant and significant change between the satisfaction of individuals who are satisfied with the provision of the justice service and those who are moderately satisfied for all other years, except 2005, for which p value is found to be significant. Between 2006 and 2012, moderately satisfied individuals have a desire and tendency to reach a higher level of satisfaction over time. When the satisfaction levels of the individuals who are not satisfied with the justice services between the years 2005 and 2012 are compared with the individuals who are satisfied, it is seen that all the coefficients are negative, as is the moderate level of satisfaction. However, among these years, statistically significant coefficients are obtained only in 2006, 2007, 2008, 2009 and 2011; and the probability of being satisfied with legal services is 16.9%, 38.4%, 39.8%, 23.5% and 15.5% higher than the probability of dissatisfaction, respectively. Considering the situation of individuals who are not satisfied with the provision of the justice service compared to the individuals who are satisfied, it was found that the p values for all years except 2005 were statistically significant. In 2006, 2007 and 2008, individuals were more likely to be satisfied with the justice service than they were not at all; but it is observed that individuals are more likely to be so unsatisfied with the services in 2009, 2010, 2011 and 2012.

In addition, in the light of all these calculations, the transition between satisfaction levels in each year is also considered. With the coefficient and relative risk ratios found in the multinomial regression model, these gradation calculations are made in order to understand how many percent of the individuals at which satisfaction level are more likely to switch to the upper or lower satisfaction level in which years. In the case that the rate found in the calculations is greater than 1, it indicates the willingness to remain at the level of satisfaction that we already have compared to 2004, and if it is less than 1, it indicates the willingness to move from the current satisfaction level to the questioned satisfaction level.
According to the results given in Table 3, individuals who are not satisfied with the provision of justice in 2005 generally do not tend to move to higher level of satisfaction. However, it is understood that the year 2005 is not useful in terms of comparing the satisfaction trends, as all values for this year are statistically meaningless in the model created. Yet, still it has been figured out that especially in 2006, 2007 and 2008, individuals want to move to higher level of satisfaction. In 2009, 2010, 2011 and 2012, individuals who are not satisfied and those who declared that they are moderately satisfied show a willingness to move to a higher level of satisfaction. Those who are not satisfied at all do not want to change their level of satisfaction, except in 2010.

Considering the income levels of the individuals who are very satisfied with the provision of justice and the individuals who are satisfied; it is seen that low, middle and middle-upper income levels have negative coefficients, while high and very high income levels have a positive coefficient. In this case, low-income and middle-income individuals become more willing to be satisfied by leaving their own satisfaction level when their income increases by one unit; but individuals who are in high and very high income levels do not change and not willing to change their level of satisfaction as a result of a one-unit increase in their income. Additionally, it is observed that individuals who state that they are moderately satisfied with legal services are less sensitive to changes in income. The fact remains that, while a one-unit increase in income increases the level of satisfaction for low-income individuals among the moderately satisfied individuals, the clarity of the relationship cannot be mentioned due to the insignificance of the coefficients. When the relationship between income levels and satisfaction is examined for individuals who are satisfied with legal services and those who are
not, it is understood that individuals with all other income levels, except low-income individuals, do not change their level of satisfaction, in other words, they continue to be dissatisfied with legal services.

Considering the satisfaction with the justice service in terms of settlement, it is determined that the individuals living in the city are 0.022 times more satisfied with the justice service than the individuals living in the countryside, but this effect on satisfaction is not statistically significant since the p value is 0.751 > 0.01. For the individuals who stated that they were satisfied with the justice at a moderate level compared to satisfied individuals, the ones in the city prefer to remain at a statistically significant level (20.3%) compared to the rural ones. In other words, individuals in rural areas who state that they have moderate (almost nötr) satisfaction are 0.816 times more satisfied when the provision of legal services is increased by one unit.

When the satisfaction level of the individuals who are not satisfied with the provision of justice services is evaluated, as can be seen in Table 2 (Section 3), while the individuals in the city insist on not being satisfied with the service level provided, the individuals living in the rural areas increase their satisfaction level by 79.9%. When the satisfaction changes of individuals who are not satisfied with the provision of justice according to the place of residence are examined, it is seen in Table 2, Section 4, which the coefficient is negative and significant for the individuals living in rural areas. This situation shows that those living in rural areas are 77.5% satisfied with legal services compared to those living in urban areas.

To examine the gender-satisfaction relationship, as can be understood from Table 2, Part 1, while men are 15.6% more satisfied with the provision of legal services compared to women, it is seen in Part 2 of the same table that men are 0.117 times more likely to stay at the medium satisfaction level than women. When the satisfaction with justice is examined in terms of gender in general, it is seen that women tend to be satisfied with legal services in each satisfaction level comparison. When the relationship between marital status of the individuals participating in the questionnaire and their state of being very satisfied and satisfied is examined on the basis of the single variable; it is observed that the coefficients for the levels of “married”, “lost their spouse” and “divorced” were positive and negative for the “separated” level. From this, it can be seen that compared to single
individuals, individuals who are married, have lost their spouses and divorced prefer to remain very satisfied.

When the relationship between the state of being very satisfied, satisfied and the educational status of the individuals is analyzed on the basis of individuals who are considered as the first level in education, “who do not graduate from any school, who are illiterate, who can read and write but cannot finish school”, it is found that the coefficients are negative at all education levels except graduate and doctoral level. This shows that as the education level of citizens increases, their tendency to be very satisfied with justice service provision decreases. Also, as the level of education increases, individuals’ satisfaction tendencies tend to maintain their satisfaction level or move towards a lower or lower level of satisfaction.

In addition, the dual probit regression method is applied within the scope of this study.

<table>
<thead>
<tr>
<th>Table 4. Binary Probit Analysis for the Provision of Justice Service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1: Citizen Satisfaction with the Provision of Justice Service</strong></td>
</tr>
<tr>
<td><strong>General Satisfaction</strong></td>
</tr>
<tr>
<td><strong>General Expectations</strong></td>
</tr>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td><strong>Income</strong></td>
</tr>
<tr>
<td><strong>Settlement</strong></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td><strong>Maritual Status</strong></td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td><strong>Feeling Safe at Home</strong></td>
</tr>
<tr>
<td><strong>Wald chi2</strong></td>
</tr>
<tr>
<td><strong>Prob&gt; chi2</strong></td>
</tr>
</tbody>
</table>

Numbers in parentheses under the coefficients represent marginal effects
*** statistically significance at 0.01 level, ** significant at 0.05 level
* significance at 0.1 level.

In order to determine the social multiplier, the change between between-variance and within-variance must be determined, as explained earlier. Since the result found
is equal to the F statistic value found with a standard one-way ANOVA statistic (Kroft, 2008: 723-724), as long as the variances are not correlated with each other in the data set, one-way ANOVA statistics are given in Table 5.

Table 5. One-way ANOVA Test Results

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Prob&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>102.60</td>
<td>8</td>
<td>12.83</td>
<td>16.23</td>
<td>0.00</td>
</tr>
<tr>
<td>Within groups</td>
<td>31564.33</td>
<td>309</td>
<td>160.97</td>
<td>0.7908</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31668.0088</td>
<td>317</td>
<td>0.7932</td>
<td>0.7932</td>
<td></td>
</tr>
<tr>
<td>Bartlett's test for equal variances. Chi2 (8)= 217.1700 Prob&gt;chi2 =0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Prob&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1511846</td>
<td>8</td>
<td>3034879</td>
<td>38.3</td>
<td>0</td>
</tr>
<tr>
<td>Within groups</td>
<td>315168242</td>
<td>399</td>
<td>0.79949</td>
<td></td>
<td>0.79949</td>
</tr>
<tr>
<td>Total</td>
<td>31668.0088</td>
<td>399</td>
<td>0.7932</td>
<td>0.7932</td>
<td></td>
</tr>
<tr>
<td>Bartlett's test for equal variances. Chi2 (4)= 117.1260 Prob&gt;chi2 =0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When these statistics are examined, it is seen that the strongest factor in social multiplier in terms of satisfaction with judicial services is the settlement. In other words, the area where citizens’ satisfaction with the property of justice has the highest effect on society is actually related to the place where individuals live. Later, they appear as factors affecting the whole society in terms of expectation for the future, gender, feeling safe at home and income, satisfaction from justice services. Although marital status and education have similar social multiplier effects, the fact that education has a lower social multiplier compared to other independent variables in line with field studies is considered acceptable due to the positive spillover effect on the whole society. The variable with the lowest social impact was calculated as years. Education, feeling of safe at home and income are the strongest factors, respectively, according to the results of the Kruskal Wallis test, which is applied due to the high fragility of normality and the inability to fully prove normality. Social interactions, which show how the benefit of a person creating social multiplier forces is affected by whether other individuals do the same thing or not (Cutler & Glaeser, 2008. 1) are expressed with marginal effects on the sample size representing the population in the binary probit regression.
method. When evaluated from this point of view, it is determined that one unit increase in income and education levels affects satisfaction with justice services by 14% and 6%, respectively. That is, while a one-unit increase in income decreases citizens’ satisfaction with the provision of justice services by approximately 14%; One-unit improvement in the education status of citizens (for example, becoming a secondary school graduate from primary school) reduces satisfaction with justice services by 6%. In addition, a change that will occur if people feel safe at home or not feel safe at home affects the satisfaction of justice services by 7%.

When social interactions are considered in terms of where the citizens live, it is seen that living in the countryside creates a 3% increase in satisfaction with justice services compared to living in the city. When trying to determine the factor that increases the satisfaction of the citizens from justice services by one unit in terms of their gender, it is determined that only being a “woman” affects the satisfaction of justice services by 7%.

Looking at the relationship between future expectations and the aforementioned variables, it is observed that as income and education levels increase, people’s expectations for the future improve. Contrary to the satisfaction of the people living in the rural areas with the justice services, it has been observed that their expectations are lower than the individuals living in the city, and living in the countryside has a 4% effect on their expectations. It is understood that women are more optimistic than men in terms of expectations.

**Results**

According to the findings obtained in this study, the socio-demographic and socio-economic characteristics and opinions of the individuals described as the demand component generally indicate the presence of a positive multiplier. In fact, the strongest social multiplier effect is the place of residence and gender, while the social multiplier is less than 10 due to the spill-over effect of education. These results are in parallel with the work of Cutler and Glaser (2007) and Kroft (2006). Social interaction coefficients are obtained through the relative risk ratios of binary probit regression analysis. These strong interactions determined in the study confirm the argument of Frank (1997: 1840-1844) that they are very strong in the social interactions created by personal elements in the consumption of goods and services that no one is excluded from their consumption.
References


AN ANALYSIS OF SOCIAL INTERACTION AND SOCIAL MULTIPLIER:
JUSTICE SERVICES IN TURKEY
Sevilay Ece GÜMÜŞ ÖZUYAR


SECTION VI

ECONOMICS OF ENERGY AND HEALTH
27

TESTING THE POLLUTION HAVEN HYPOTHESIS FOR DEVELOPING COUNTRIES: ECOLOGICAL FOOTPRINT APPROACH

Ali Eren ALPER¹, F. Özlem ALPER²

1. Introduction

Mankind’s relationship with the natural environment began with the existence of the first human and had been maintained in the form of natural balance throughout a long time. Following the natural balance that lasted for a long time, the development of economic activities along with the agriculture and industrial revolution has marched the relationship with the natural environment into different phases. The improvement of economic activities not only fostered the well-being of mankind but also caused the deterioration of its natural balanced relationship with the environment. As a result of the agricultural revolution, which was the first revolution that humanity went through, mankind became an active member of nature, rather than a passive bystander. The rise in agricultural production and the acceleration of mankind’s transition to settled life boosted urban life and, accordingly, urban economies began to develop. Due to the rise in demand triggered by economic development, improvements in production activities result in the processes that lead to natural environment degradation.

Along with the industrial revolution, which is humanity’s second great revolution that laid the foundations of today’s socio-economic life, there has been a great transformation in the economic order. Based on such a transformation process, changes in the consumption structure required changes in the structure of

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production activities. Along with the changes in the production-consumption structure, there has been a significant increase in the amount of waste dumped into the natural environment. Accelerated natural resource usage, especially in the use of coal, has caused inevitable increases in environmental degradation.

In Figure 1, it is seen that the economy is connected to the natural environment through three different channels. The natural environment constitutes the basis of the production and consumption process, which is among the main elements of the economic order, with the production factors and environmental opportunities it offers. It affects production through production factors and affects consumption directly with the environmental opportunities it offers. Also, wastes generated as a result of production and consumption processes are dumped into the natural environment in various ways (Hussen, 2004).

The liberalization of international trade and capital movements since the 1980s, when globalization movements began to gain momentum, have accelerated the integration of the world economies with each other. Following the First Industrial Revolution, two industrial revolutions between 1870 and 1990 and the Industry 4.0 revolution, which we have been in since 2011, have boosted the speed of integration of the world economies. This situation has become a crucial
opportunity for developing countries that experience capital constraints in their economic growth and development processes, and it has been adopted as the most influential solution regarding foreign direct investments (FDI) in these countries.

FDI contributes to the capital accumulation of host countries, increases the level of employment and national income, and improves the balance of foreign trade and payments. Besides, it promotes global competitiveness by transferring technology, knowledge, and management skills to the host countries. The utilities generated by FDI in the host countries have been examined many times by researchers. FDI inflows have been detected to increase market access, provide technology transfer, and hence, trigger economic growth (Lee, 2013; Ssali et al., 2019). Due to the opportunities provided by the FDI, developing countries attach importance to these investments and take some incentive measures to attract them toward their economies.

Besides the advantages that FDI provides to developing countries, it also brings along some disadvantages. This situation tends to vary according to the composition of foreign investment. If the foreign investment involves pollution-intensive production facilities, such investment would reduce the environmental quality in the host country.

Stringent environmental policies implemented in developed countries that adopt an environmentally-friendly development approach impose environmental costs on dirty industries and create certain obstacles for them. Despite this attitude of developed countries, most developing countries apply lenient environmental policies and prioritize economic growth. At this point, countries with lower environmental costs are becoming attractive for dirty industries.

As a result of the concerns caused by climate change and global warming issues, it has been claimed that FDI has potential adverse impacts on environmental quality. The pollution haven hypothesis (PHH) claims that multinational companies engaging in heavy pollution activities tend to establish factories or shift their existing facilities to developing countries with poor environmental regulations. Thus, the increase in FDI entries to these countries would cause higher environmental pollution.

Aliyu (2005) discussed the environmental impacts stemming from the PHH in general terms and examined them in three dimensions. The first dimension refers
to the relocation of dirty industries in developed countries to other countries that do not maintain environmental regulations or practices as stringent as developed countries. Accordingly, global trade encourages the transfer of dirty industries to countries with poor environmental regulations. The second one involves the possibility that industrial wastes generated in developed countries would be collected in developing countries so that these countries turn into waste storage. The third and last dimension is about the uncontrolled processing of non-renewable natural resources such as petroleum and forest products by multinational corporations in countries with lenient environmental regulations.

Various empirical studies have found that the PHH is prevalent in different developing countries (Pao and Tsai, 2011; Ren et al., 2014; Shahbaz et al., 2015; Gökş and Aslan, 2019; Assamo et al., 2020). On the other hand, some studies (Al-Mulali and Täng, 2013; Täng and Tän, 2015; Abdouli and Hamami, 2017) asserted contrary findings. According to these studies, FDI makes an affirmative contribution to the environmental quality of the host countries by encouraging the use of energy-efficient technologies and better environmental management practices. Thus, within the framework of the empirical literature, there is no clear consensus about the relationship between environmental pollution and FDI. Therefore, studies that would contribute to this domain are needed.

This study aims to examine the validity of the PHH in the group of developing countries consisting of Mexico, Indonesia, Nigeria, and Turkey (MINT). The main reason for selecting MINT countries as the analysis group is that these countries are classified as the new quadruple of the world economy and countries with very high economic development potential, as stated by the British economist Jim O’Neill, who first introduced this country group.

The study would contribute to the literature in two aspects. The first one is the use of ecological footprint (EF) as an environmental pollution measure. Various studies in the related literature used carbon dioxide ($CO_2$) as pollution measure. Nevertheless, analyses based on a single criterion are inadequate to represent a wide variety of pollution sources (sulfur dioxide, suspended particulate matter, destruction of forest lands and fishing grounds, etc.) emerging in today’s production processes. Therefore, the policy implications about the obtained empirical results of the EF approach developed based on six subcomponents are more reliable. Secondly, modern time-series techniques that take structural breaks into consideration are utilized instead of conventional time-series methods that do not take structural breaks into account.
### Table 1: Selected literature review

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Country</th>
<th>Period of Study</th>
<th>Methodology</th>
<th>Variables</th>
<th>PHH Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pao and Tsai (2011)</td>
<td>Brazil, Russia, India, China</td>
<td>1980-2007</td>
<td>Pedroni Cointegration</td>
<td>$CO_2$, EC, FDI, GDP, GDP$^2$</td>
<td>✓</td>
</tr>
<tr>
<td>Omri et al. (2014)</td>
<td>54 countries</td>
<td>1990-2011</td>
<td>GMM</td>
<td>$CO_2$, FDI, GDP, TO, UR, FD, ER, CS</td>
<td>✓</td>
</tr>
<tr>
<td>Zhu et al. (2016)</td>
<td>Indonesia, Malaysia, Philippines, Singapore, Thailand</td>
<td>1981-2011</td>
<td>Quantile Regression</td>
<td>$CO_2$, EC, FDI, GDP, GDP$^2$, TO, POP, FD, IS</td>
<td>X</td>
</tr>
<tr>
<td>Sarkodie and Strezov (2019)</td>
<td>China, India, Iran, Indonesia, South Africa</td>
<td>1982-2016</td>
<td>Panel Quantile Regression</td>
<td>$CO_2$, FDI, GDP, EC</td>
<td>✓</td>
</tr>
<tr>
<td>Baktaş and Çetin (2017)</td>
<td>Mexico, Indonesia, South Korea, Turkey, Australia</td>
<td>1982-2011</td>
<td>Panel VAR</td>
<td>$CO_2$, EC, FDI, GDP, GDP$^2$</td>
<td>✓</td>
</tr>
<tr>
<td>Balsalobre-Lorente et al. (2019)</td>
<td>MINT</td>
<td>1990-2013</td>
<td>Panel data</td>
<td>EE, FDI, GDP, GDP$^2$, RNW, UR</td>
<td>✓</td>
</tr>
<tr>
<td>Khan et al. (2020)</td>
<td>China, India, Pakistan</td>
<td>1970-2016</td>
<td>Panel and time series</td>
<td>GDP, GDP$^2$, FDI, EC, EF</td>
<td>✓</td>
</tr>
<tr>
<td>Mert and Çağlar (2020)</td>
<td>Turkey</td>
<td>1974-2018</td>
<td>Hidden Cointegration</td>
<td>$CO_2$, FDI</td>
<td>X</td>
</tr>
<tr>
<td>Nadeem et al. (2020)</td>
<td>Pakistan</td>
<td>1971-2014</td>
<td>ARDL</td>
<td>$CO_2$, FDI, GDP, GDP$^2$, UR, SO$_2$</td>
<td>X</td>
</tr>
<tr>
<td>Sadik-Zado and Ferrari (2020)</td>
<td>26 OECD countries</td>
<td>1995-2011</td>
<td>Pooled Mean Group Estimator</td>
<td>$CO_2$, EPS, TO, GDP</td>
<td>✓</td>
</tr>
</tbody>
</table>

3 EC, energy consumption; GDP, gross domestic product; TO, trade openness; UR, urbanization; FD, financial development; ER, Exchange rate; CS, capital stock; POP, population; FD, financial development; IS, industrial structure; EF, ecological footprint; RNW, renewable energy; EPS, environmental policy stringency; ✓, validity of PHH; X, invalidity of PHH.
2. Literature Review

Most empirical studies on the relationship between FDI and environmental pollution aim to test the PHH. According to the PHH, multinational corporations operating in sectors with heavy pollution tend to establish or relocate their activities in developing countries with lenient environmental regulations. Therefore, PHH argues that FDI entries contribute to pollution in developing countries. On the contrary, the pollution halo hypothesis suggests that FDI entries may lead to emission reduction by promoting the use of energy-efficient technologies and better environmental management practices (Grossman and Krueger, 1991; Keller, 2004; Keho, 2016).

According to Grossman and Krueger (1991), FDI may affect environmental quality in the host country through changes in the scale of the economy, changes in production techniques and changes in the industrial structure. The first of these impacts, the scale effect, indicates that higher FDI inputs would support more production, and therefore more energy production, leading to increased emissions (Cole and Elliott, 2003). The technical effect states that FDI would increase environmental quality by allowing the use of advanced and clean technologies (Liang, 2008). Lastly, the composition effect indicates that FDI may have either a positive or negative impact on the environment as FDI entries increase, depending on whether or not the economy shifting towards polluting sectors (Pazienza, 2019).

Empirical evidence for the PHH reveals contradictory results at both the single-country and multi-country levels. Some studies uphold the PHH, whereas others determined that the PHH does not hold. In Table 1, the studies conducted on the PHH over the past decade are presented.

3. Methodology

3.1. The Fourier Unit Root Test

The fact that the series contains unit roots causes random shocks to have permanent impacts on long-term coefficients. Therefore, it is essential to determine the order of integration of the series prior to conducting the regression analysis. For determining the degree of integration of the variables in this study, The Fourier KPSS (FKPSS) test developed by Becker et al. (2006) is performed. The FKPSS test can detect not only sharp structural changes but also smooth changes, and
the date, number, and form of structural changes do not influence the reliability of the test. Becker et al. (2006) has taken the data-generating process into account which is specified in Equations 1 and 2.

\[ y_t = X_t^\prime \beta + Z_t^\prime \gamma + r_t + \epsilon_t \]  

(1)

\[ r_t = r_{t-1} + u_t \]  

(2)

Here, \( \epsilon_t \) denotes the stationary error term, whereas \( u_t \) denotes the independent identically distributed error terms with variance \( \sigma_u^2 \). \( Z_t = [\sin \left( \frac{2\pi kt}{T} \right), \cos \left( \frac{2\pi kt}{T} \right)] \) indicates the vector containing trigonometric terms, in which \( t \) denotes the trend term, \( T \) denotes the number of observations, and \( k \) denotes the frequency value.

In order to calculate the test statistics required to test the stationarity null hypothesis \( (H_0: \sigma_u^2 = 0) \), either one of Equation 3 and 4 is estimated at the first phase and the residuals are obtained.

\[ y_t = \alpha_0 + \gamma_1 \sin \left( \frac{2\pi kt}{T} \right) + \gamma_2 \cos \left( \frac{2\pi kt}{T} \right) + \epsilon_t \]  

(3)

\[ y_t = \alpha_0 + \beta_t + \gamma_1 \sin \left( \frac{2\pi kt}{T} \right) + \gamma_2 \cos \left( \frac{2\pi kt}{T} \right) + \epsilon_t \]  

(4)

While the null hypothesis of level-stationarity is tested with Equation 3, the null hypothesis of trend-stationarity is tested with Equation 4. Test statistics are calculated with the help of Equation 5.

\[ \tau_u(k) \text{ or } \tau_s(k) = \frac{1}{t^2} \sum_{t=1}^{t} \frac{\epsilon_t(k)^2}{\sigma^2} \]  

(5)

To determine the optimal frequency value, the value yielding the minimum residual sum of squares (RSS) is chosen. If the data generation process does not involve nonlinear trends, the standard KPSS stationarity test is stronger than the FKPSS stationarity test. Therefore, Becker et al. (2006) proposed to test the null hypothesis \( (H_0: \gamma_1 = \gamma_2 = 0) \) suggesting the absence of nonlinear trend with the F-test statistic specified in Equation 6.

\[ F_t(k) = \frac{(SSR_0 - SSR_1(k))/2}{SSR_1(k)/(T-q)} \]  

(6)

\( SSR_1(k) \) denotes the minimum residual sum of squares obtained from either Equation 3 or Equation 4; \( SSR_0 \) denotes the minimum residual sum of squares of the regression for which the null hypothesis is valid, and \( q \) denotes the number of
independent variables. The critical values, which are required for F-statistics, take place in Becker et al. (2006).

### 3.2. Fourier-Shin Cointegration Test

Since Granger (1981) and Engle and Granger (1987), great importance has been given to cointegration tests in order to determine the long-term relationship among variables in the empirical literature. Despite the popularity of cointegration analysis, many methods test the existence of a cointegration relationship in the alternative hypothesis versus the null hypothesis suggesting the absence of a cointegration relationship. Nonetheless, Shin (1994), and Phillips and Ouliaris (1990) claimed that testing the presence of cointegration relationship in the null hypothesis would be conceptually more appropriate. Besides, since cointegration tests determine the long-term relationships among the variables, it would be more appropriate to use datasets that include a wider time interval, but the longer the time interval of the analyzed dataset, the more likely the relationships would undergo structural changes. As also stated in Bartley et al. (2001), if an existing break in the deterministic trend is not taken into consideration, the cointegration test would tend to reject the null hypothesis suggesting the existence of a long-term relationship. In order to cope with such a problem, probable breaks are tried to be determined by including a dummy variable to the regression analysis. Carrión-i-Silvestre and Sansó (2006) followed a similar methodology, allowing for a single break in both deterministic terms and cointegration vectors. Nonetheless, the performance of the test statistics depends merely on the assumption of a sharp break and the accuracy of the estimated breakpoint. This is a crucial issue since, in fact, macroeconomic variables can exhibit a wide variety of structural breaks in unknown quantity and shape. Since the assumption of an existing sharp break is a subjective and a specific approach to the investigated case, it may lead to a major modeling error as much as neglecting the breaks (Tsong et al., 2016).

The cointegration test, which was introduced to the literature by Tsong et al. (2016) with the Fourier function, investigates the existence of a cointegration relationship in the null hypothesis unlike many cointegration tests [Gregory & Hansen, 1996; Hatemi-J, 2008; Johansen et al., 2000] in the literature. In this respect, the Fourier cointegration test derives reliable results despite the form and number of structural changes (Yılancı, 2017).
Tsong et al. (2016) developed the Fourier Shin (FSHIN) cointegration test, which derives reliable results despite the breaks whose structure, number, and period are unknown, by including the Fourier trigonometric functions to the test developed by Shin (1994) based on KPSS unit root analysis and that examines the cointegrated relationship between series in the null hypothesis.

In the FSHIN cointegration test, cointegration regression in Equation 7 is taken into consideration.

\[ y_t = d_t + x_t \beta + \eta_t, \ t = 1, 2, 3, \ldots, T \]  

(7)

In Equation 7, \( \eta_t = y_t + u_{1t}, x_t = y_{t-1} + u_t, \) and \( x_{t-1} + v_{2t}. \)

Also, \( u_t \) denotes the zero-mean, independent, identically distributed error terms with variance \( \sigma_u^2, \) whereas \( y_t \) denotes a random walk process with zero means. \( d_t \) in Equation 7 can be defined as \( d_t = \delta_0 + f_t \) if there is a constant term in the model, and \( d_t = \delta_0 + \delta_1 t + f_t \) if both the constant term and trend value are included. Here, \( f_t \) refers to the Fourier function.

\[ f_t = \alpha_k \sin\left(\frac{2k\pi t}{T}\right) + \beta_k \cos\left(\frac{2k\pi t}{T}\right) \]  

(8)

In Equation 8, \( k \) denotes the Fourier frequency value, sin and cos are nonlinear terms, and \( t \) and \( T \) are the trend value and the number of observations, respectively. In the analysis, the null hypothesis is expressed as \( H_0: \sigma_\delta^2 = 0 \) (existence of cointegration relationship), whereas the alternative hypothesis as \( H_a: \sigma_\delta^2 > 0 \) (absence of cointegration relationship).

Equations 7 and 8 are revised under the null hypothesis as in Equation 9, and a model is established in which the cointegration relationship is analyzed.

\[ y_t = \alpha_0 + \sum_{k=1}^{n} \alpha_k \sin\left(\frac{2k\pi t}{T}\right) + \sum_{k=1}^{n} \beta_k \cos\left(\frac{2k\pi t}{T}\right) + \chi_t \beta + v_{1t} \]  

(9)

The term \( n \) in Equation 9 denotes the optimal frequency value. The FSHIN test statistics are calculated with the help of Equation 10.

\[ C_f^n = T^{-2} \bar{\delta}_1^2 \sum_{t=1}^{T} S_t^2 \]  

(10)

The term \( S_t = \sum_{t=1}^{T} \bar{\delta}_t \) in Equation 10 denotes the partial sum of least squares error terms from Equation 9, whereas the term \( \bar{\delta}_1^2 \) is the consistent estimator of the long-run variance of the term \( v_{1t}. \)
4. Model and Empirical Results

The model shown in Equation 11 is utilized in the study.

\[ \ln EF_t = \alpha_1 + \alpha_2 \ln FDI_t + \alpha_3 \ln GDP_t + \alpha_4 \ln URB_t + \varepsilon_t \]  \hspace{1cm} (11)

Information of the variables used in the analysis is presented in Table 2.

<table>
<thead>
<tr>
<th>Data</th>
<th>Data Period</th>
<th>Data Source</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological Footprint</td>
<td>1970-2016</td>
<td>Global Footprint Network</td>
<td>EF</td>
</tr>
<tr>
<td>Foreign Direct Investment</td>
<td>1970-2016</td>
<td>World Bank</td>
<td>FDI</td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>1970-2016</td>
<td>World Bank</td>
<td>GDP</td>
</tr>
<tr>
<td>Urbanization (% of Total Population)</td>
<td>1970-2016</td>
<td>World Bank</td>
<td>URB</td>
</tr>
</tbody>
</table>

Table 3 presents the FKPSS unit root test results. According to the results of the stationarity test, it is determined that all the variables included in the analysis are not stationary at a 5% significance level. Table 4 presents the stationarity test results at the first differences of the variables. It is seen that all series included in the analysis become stationary at their first differences. F-tests are also performed for the series with the first differences and it is determined that trigonometric terms are significant. Accordingly, it is determined that all variables are stationary at their first differences \([I (1)\).]
Table 3: FKPPS Unit Root Test Results (At Level)

<table>
<thead>
<tr>
<th>Country</th>
<th>Series</th>
<th>Frequency</th>
<th>MinKKT</th>
<th>FKPS</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>LNEF</td>
<td>1</td>
<td>1.348</td>
<td>0.249(4)</td>
<td>27.149</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>1</td>
<td>3.871</td>
<td>0.254(4)</td>
<td>32.547</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>2</td>
<td>14.247</td>
<td>0.579(7)</td>
<td>17.631</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>72.597</td>
<td>0.631(8)</td>
<td>27.893</td>
</tr>
<tr>
<td>Indonesia</td>
<td>LNEF</td>
<td>1</td>
<td>3.124</td>
<td>0.497(4)</td>
<td>31.547</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>1</td>
<td>2.217</td>
<td>0.525(6)</td>
<td>81.015</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>1</td>
<td>1.963</td>
<td>0.723(9)</td>
<td>19.469</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>3.079</td>
<td>0.257(3)</td>
<td>34.579</td>
</tr>
<tr>
<td>Nigeria</td>
<td>LNEF</td>
<td>1</td>
<td>7.257</td>
<td>0.573(9)</td>
<td>47.501</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>1</td>
<td>6.214</td>
<td>0.874(2)</td>
<td>22.497</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>2</td>
<td>9.031</td>
<td>0.445(3)</td>
<td>38.214</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>5.564</td>
<td>0.381(4)</td>
<td>36.207</td>
</tr>
<tr>
<td>Turkey</td>
<td>LNEF</td>
<td>1</td>
<td>19.279</td>
<td>0.314(8)</td>
<td>54.631</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>1</td>
<td>4.364</td>
<td>0.749(7)</td>
<td>17.235</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>1</td>
<td>21.479</td>
<td>2.647(5)</td>
<td>11.459</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>17.214</td>
<td>1.149(4)</td>
<td>27.367</td>
</tr>
</tbody>
</table>

Note: The values in parentheses indicate the bandwidth obtained by the Newey-West method. The critical values for the FKPS test are determined as 0.1720, 0.4152, 0.4480, 0.4592, and 0.4626 at a 5% significance level, and the frequency values of 1, 2, 3, 4, and 5, respectively. The critical value for the F-test, which is performed to determine the significance of trigonometric terms, is 4.929 at a 5% significance level.
Table 4: FKPSS Unit Root Test Results (1st difference)

<table>
<thead>
<tr>
<th>Country</th>
<th>Series</th>
<th>Frequency</th>
<th>MinKKT</th>
<th>FKPSS</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>LNEF</td>
<td>2</td>
<td>34.116</td>
<td>0.257 (2)</td>
<td>8.397</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>2</td>
<td>22.314</td>
<td>0.149 (4)</td>
<td>14.214</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>2</td>
<td>5.146</td>
<td>0.342 (13)</td>
<td>7.146</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>6.192</td>
<td>0.046 (4)</td>
<td>12.679</td>
</tr>
<tr>
<td>Indonesia</td>
<td>LNEF</td>
<td>1</td>
<td>44.171</td>
<td>0.009 (8)</td>
<td>8.214</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>1</td>
<td>12.139</td>
<td>0.124 (2)</td>
<td>12.547</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>2</td>
<td>784.779</td>
<td>0.294 (3)</td>
<td>38.214</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>1</td>
<td>879.013</td>
<td>0.017 (3)</td>
<td>17.214</td>
</tr>
<tr>
<td>Nigeria</td>
<td>LNEF</td>
<td>2</td>
<td>29.047</td>
<td>0.249 (8)</td>
<td>15.223</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>5</td>
<td>57.157</td>
<td>0.307 (3)</td>
<td>36.214</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>2</td>
<td>97.022</td>
<td>0.208 (6)</td>
<td>8.214</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>2</td>
<td>96.364</td>
<td>0.309 (4)</td>
<td>63.219</td>
</tr>
<tr>
<td>Turkey</td>
<td>LNEF</td>
<td>5</td>
<td>78.287</td>
<td>0.297 (3)</td>
<td>36.054</td>
</tr>
<tr>
<td></td>
<td>LNFDI</td>
<td>5</td>
<td>46.394</td>
<td>0.313 (19)</td>
<td>44.127</td>
</tr>
<tr>
<td></td>
<td>LNGDP</td>
<td>4</td>
<td>91.214</td>
<td>0.201 (36)</td>
<td>14.119</td>
</tr>
<tr>
<td></td>
<td>LNURB</td>
<td>2</td>
<td>47.017</td>
<td>0.381 (4)</td>
<td>55.249</td>
</tr>
</tbody>
</table>

Table 5 presents the Fourier-Shin cointegration test results for the countries included in the analysis. Empirical results indicate that there is a long-term relationship among the variables in all countries except for Singapore. Moreover, the F-test results reveal that the trigonometric terms are significant in all countries with cointegrated relationships.

Table 5: Cointegration Test Results

<table>
<thead>
<tr>
<th>Country</th>
<th>Frequency</th>
<th>MinKKT</th>
<th>Fourier-Shin Cointegration Test Statistic</th>
<th>Shin Cointegration Test Statistic</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>2</td>
<td>2147.5</td>
<td>0.031</td>
<td>0.106</td>
<td>6.579</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1</td>
<td>3297.6</td>
<td>0.017</td>
<td>0.099</td>
<td>5.024</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1</td>
<td>5478.2</td>
<td>0.054</td>
<td>0.082</td>
<td>7.741</td>
</tr>
<tr>
<td>Turkey</td>
<td>2</td>
<td>2861.5</td>
<td>0.078</td>
<td>0.077</td>
<td>6.259</td>
</tr>
</tbody>
</table>

Note: The critical values for the Fourier cointegration test are 0.061, 0.097, and 0.111 at a 5% significance level for the frequency values 1, 2, and 3, respectively. The critical values for the Shin cointegration test are 0.094, 0.121, and 0.208 for 10%, 5%, and 1% significance levels, respectively. At a 5% significance level, the F-statistic value is 4.066.
Table 6: Long-term Coefficient Estimations

<table>
<thead>
<tr>
<th>Country</th>
<th>LNFDI</th>
<th>LNGDP</th>
<th>LNURB</th>
<th>Causality Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>0.092 (5.851)</td>
<td>0.343 (2.741)</td>
<td>-0.263 (8.665)</td>
<td>LNFDI → lnEF</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.025 (7.486)</td>
<td>0.760 (-8.065)</td>
<td>2.474 (18.529)</td>
<td>LNFDI ↔ LNEF</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.252 (3.476)</td>
<td>0.041 (5.401)</td>
<td>1.012 (15.214)</td>
<td>LNFDI → LNEF</td>
</tr>
<tr>
<td>Turkey</td>
<td>0.026 (5.417)</td>
<td>0.014 (7.409)</td>
<td>-0.145 (4.247)</td>
<td>LNFDI → LNEF</td>
</tr>
</tbody>
</table>

Note: The numbers in parentheses indicate the t-statistic values. → denotes unilateral causality, whereas ↔ denotes bilateral causality.

Table 6 presents the long-term coefficients estimated according to the Dynamic Ordinary Least Squares (DOLS) method. According to the coefficient results obtained by the DOLS method, there is a statistically significant and positive relationship between FDI and EF in all countries included in the analysis. In other words, an increase in FDI in all countries also increases EF. Therefore, it is determined that the PHH holds for all countries. Similarly, as the national income per capita increases, the ecological footprint also increases. As the share of the urban population in the total population increases, the ecological footprint decreases in Mexico and Turkey, whereas increases in Indonesia and Nigeria.

5. Conclusion

In this study, the impact of FDI on the environment is tried to be examined within the framework of the pollution haven hypothesis (PHH). In the study utilizing the annual data obtained from the group of developing countries consisting of Mexico, Indonesia, Nigeria, and Turkey over the period 1970-2016, more inclusive environmental pollution criteria, namely, ecological footprint (EF) is used as a dependent variable instead of CO2 variable which has been used in many studies in the literature. In the analysis, the stationarities of the variables are tested first with the FKPSS unit root test that allows structural breaks, and it is determined that the variables are not stationary at 5% significance level, and they all become stationary upon taking the first differences.

As a result of the FSHIN cointegration test performed with the variables which are determined to be I(1), it is found that the pollution haven hypothesis (PHH) is valid in all countries included in the analysis. Foreign direct investment in these countries deteriorates environmental quality. Foreign direct investments
having detrimental effects on environmental quality indicate that these investments come from sectors with high pollution intensity instead of environmentally-friendly technologies.

Therefore, it is necessary to make regulations to minimize the environmental impacts of economic activities with high pollution intensity for fostering the environmental quality in the countries included in the analysis as well as maintaining the strict control of the regulations. Moreover, units that do not adapt to environmentally-friendly production activities due to capital constraints should be provided with incentives and green technology investments should be subsidized. Since it is determined that the increase in per capita income also disrupts environmental quality, the use of products with high energy efficiency in both living spaces and production units should be supported in these countries. Consequently, practices such as meetings, symposiums, or conferences should be made to explain the importance of environmental awareness and environmental sensitivity in the general society.

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ENERGY CONSUMPTION, CO₂ EMISSIONS, AND GDP IN TURKEY

Nilüfer KAYA KANLI¹

1. Introduction And Background

Today, one of the greatest threats to all the living things on earth is climate change (WEF, 2016). In fact, the earth has experienced climate change and has gone through warm and cool phases in the past. However, records indicate that today’s global warming is much faster than ever before. In the past, climate change was a result of natural factors such as volcanic activities, natural concentration of greenhouse gases, sunlight intensity, etc. These natural factors are still in play, but, after around the 1950s, human activities significantly increased the concentration of the greenhouse gases and accelerated the climatic warming (NASA, 2010).

The major cause of this over-concentration of greenhouse gases is the mass consumption of fossil fuels. During the post-World War II period, the overall GDP per capita in the world started to increase significantly (Figure 2). The economic boom after the 1950s stimulated the energy demand, most of which has been met by coal, oil, and natural gas (Figure 1). Since energy consumption is the driver of economic growth and at the same time an important cause of pollution, finding better ways of growing economies without damaging the environment is an important research topic. This study aims at explaining the possibility of reducing CO₂ emissions without sacrificing the economic development of Turkey.

In addition to fossil fuel consumption, the human-related factors that accelerate climate change are deforestation, fertilizer use, livestock production, and some industrial gases. Activities that change the earth’s surface like road construction and agriculture can also cause climate change because they change the sunlight reflectivity of the earth’s surface.

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Since climate change is transforming the ecosystems, it has an impact on everything such as the water we drink, the air we breathe, the places we live, the diseases we face, etc. Saving the lives and livelihoods, especially for future generations, requires urgent decisions and actions to address climate change. United Nation’s 13th Sustainable Development Goal focuses on the “Climate Action” and it involves taking urgent actions to combat climate change and its impacts. World Economic Forum also claims that the failure to adapt the climate change would be “the most impactful risk” for every country in the coming decades (WEF, 2016).

International cooperation and collective approach is crucial for addressing climate change and competing with its impacts. In 1992, the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) was the first step of international cooperation to stabilize greenhouse gas emissions. In 1997, the Kyoto Protocol, the first legally-binding agreement -with targets to limit the greenhouse gas emissions- was created. After 7 years, in February 2005 Kyoto protocol went into effect. Kyoto protocol was a reference point in history since it showed that nations of the world can act together to solve a global problem. The first commitment period of the protocol was between 2008 and 2012. Although, the second phase, the Doha Amendment, was planned for 2013 and 2020, this phase couldn’t reach enough number of participants to enter into force. To maintain international cooperation, the Paris Agreement was adopted and it entered into force in October 2016. As of 2020, 197 countries have signed the Paris Agreement and 190 of them have ratified it.

Turkey signed the Paris Agreement in April 2016, but she is one of the countries that has not ratified the agreement yet. The agreement classifies the countries as
“developed” and “developing”, where developed countries financially support the developing countries. Turkey is classified as a developed country and the Turkish government objects to being categorized as a developed country where China, Singapore, South Korea, India, Qatar, Saudi Arabia, Brazil, Argentina and Gulf states are categorized as developing countries.

Turkey and Iran are the only two significant emitters which are not ratified the agreement yet. According to the latest statistics, Turkey’s total greenhouse gas emissions reached 520,902 kt, which is 5.5 times its value in 1970 and around 1% of worldwide emissions. Per capita emissions are also increasing. It reached 6.33 mt, which is the 2.34 times of its 1970 value (TURKSTAT and EDGAR, 2019). Since the beginning of the 1990’s, when the first international climate cooperation started, the rate of increase in Turkey’s per capita emissions is 50% (Figure 3).

Figure 3: Greenhouse Gas Emissions in Turkey (CO2 equivalent)

Data Source: TURKSTAT

Turkey’s active participation in the Paris Agreement is essential for sustaining international cooperation and balancing the greenhouse gas emissions. In addition to this, as an EU candidate, Turkey needs an environmental policy in line with the EU requirements. On the other hand, ratification of the Paris Agreement and limiting the greenhouse gas emissions would have some economic consequences for Turkey. The statistics show that the rate of increase in greenhouse gas emissions accelerates during the high-growth periods (2002-2008) and slows down during the economic crisis and recessions (2008-2010). In other words, meeting the environmental requirements may necessitate less growth rates. Then, like every developing country, Turkey is facing a dilemma: limiting the emissions versus enhancing the welfare. The question is “Would
it be possible to meet the environmental requirements without sacrificing the economic development?” The first step to answer this question is the identification of the source of emissions is.

**Figure 4:** Greenhouse gas emissions by sectors in Turkey, 2018

According to Figure 4, the main source of the emissions is the energy sector. In Turkey, 71.62% of the emissions are produced by the energy sector. Industrial processes (12.52 %), agriculture (12.45%) and waste (3.41%) sectors are the other sources of the emissions. To understand the relationship between economic growth and emissions we also need to understand the link between energy, economic growth and emissions. Explaining the causal links between these variables would provide a basis for designing an effective policy to limit greenhouse gas emissions.

**Figure 5:** CO2, CH4, N2O Emissions and F-gases in Turkey, 2018

Figure 5 shows that, 80.47% of the greenhouse gas emissions in Turkey is the CO2 emissions. Shares of the CH4, N2O and F-gases are 11.05%, 7.47% and 1.01% respectively. Since the share of CO2 emissions is very high, this study analyzes the causal relationship between energy consumption, CO2 emissions and GDP per capita in Turkey. This study aims at contributing to the development of efficient energy and environmental policies for Turkey. The interactions between three variables are analyzed by implementing a VAR model and Granger causality tests. The next section of this chapter gives a brief summary of the related literature. The third section explains the data and methodology. The fourth section reports the results of the analysis and the final section concludes.
2. Literature Review

Economic growth has been the main concern of development until the value of the environment has been recognized a few decades ago. Since then, growing the economies without causing environmental degradation is one of the biggest challenges of the communities. Today both the policymakers and researchers are aware of the importance of achieving sustainable development. In line with this awareness, the concern of the development literature has been shifting from ‘economic growth’ to ‘environment-friendly growth’ or ‘green growth’.

In this context, the relationship between economic growth and environmental quality has been a subject of research for a long time. There exist two main lines of research around this topic. First one is the Environmental Kuznets Curve (EKC) hypothesis. Grossman&Krueger (1991) and Shafik&Bandyopadhyay (1992) recognized an inverted-U shaped the relationship between GDP per-capita and environmental indicators. This relation is explained by the EKC hypothesis and it is primarily based on data observation. According to EKC hypothesis, environmental quality is worsened by economic growth at the early stages of economic development; but over a certain GDP per capita level, as economy grows environmental indicators start to recover. There are many empirical studies that test the validity of the EKC hypothesis with different environmental indicators. Although the literature on EKC hypothesis has grown a lot, there is contradicting results about the validity of this hypothesis. The opponents of this hypothesis also have strong arguments. Dinda (2004), Shahbaz&Sinha (2019), Nahman&Antrobus (2015), Uchiyama (2016), Dogan&Seker (2016) and Isik et al (2019) are some examples of the studies that review the literature of the EKC hypothesis.

The other line of research is the investigation of the causal relationship between economic performance, environmental indicators and energy consumption. Energy consumption is a determining factor in the relationship between economic growth and greenhouse gas emissions. Then, without including the energy consumption in the analysis, it wouldn’t be possible to reach a relevant basis for the policy development. In the energy economics literature, the causal relation between energy consumption, economic growth and environmental pollution has taken interest of many researchers. Ang (2008), Omri (2013), Soytas et al. (2007), Soytas&Sari(2009), Soytas&Sari(2003), Sharif et al. (2020) and Karasoy (2019) are some examples of these studies. Tiba&Omri (2016) gives a summary of the literature on the interaction between environmental quality, energy consumption...
and economic growth. Although the empirical literature on this subject is abundant, the results are conflicting for both the existence of the relations and the directions of them. Different methodologies, datasets and time periods of the studies may be a cause of the variation of the outcomes. On top of it, lack of a solid theoretical background for the empirical studies is also an important factor.

3. Data And Methodology

This study analyzes the causal relationship between the primary energy consumption per capita (pecpc), CO2 emissions per capita (co2pc) and GDP per capia (gdppc) in Turkey. The analysis covers the 55 years period between 1965 and 2019. GDP per capita values are in constant 2010 US$ and source of the data is World Development Indicators. BP Statistical Review of World Energy is preferred as the data source of the primary energy consumption and CO2 emissions since a longer and a more up to date time series are available in the database. Per capita values of these two indicators are calculated by the author and the units of pecpc and co2pc are gigajoules (gj.) and metric tons (mt.) respectively. Table 1 gives the summary statistics of the three indicators. First line of the Figure 6 shows the line graphs of each indicator.

<table>
<thead>
<tr>
<th>Variable</th>
<th># of Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>gdppc</td>
<td>55</td>
<td>7,728.09</td>
<td>3,258.06</td>
<td>3,556.87</td>
<td>15,068.98</td>
</tr>
<tr>
<td>pecpc</td>
<td>55</td>
<td>40.53</td>
<td>19.86</td>
<td>10.58</td>
<td>78.56</td>
</tr>
<tr>
<td>co2pc</td>
<td>55</td>
<td>2.64</td>
<td>1.15</td>
<td>0.81</td>
<td>4.90</td>
</tr>
</tbody>
</table>

Vector autoregression (VAR) model and Granger causality tests are used in the causality analysis. Before determining the model, stationarity of the series needs to be examined. Because, VAR model and Granger causality tests may be sensitive to the stationarity. According to the Augmented Dickey Fuller (ADF) unit root tests, all three series are integrated of order one, I(1), and they are stationary at their first differences. Figure 6 shows the line graphs of the series at level and their first differences. It is clear that first-differenced series are all stationary.
Figure 6: Series in level and first-difference, 1965-2019

Since the series are integrated of the same order, we can test for cointegration between series. According to the Johansen cointegration test, there is a cointegrating relation between the series. This result rules out the Granger non-causality but does not give and information about the integrating variables or the direction of the relations. Then, the following VAR model is used to analyze the details of the causal relation. In this model, $k$ is the optimal lag-length; $\alpha, \sigma, \delta$ are the intercepts; $\beta_i, f_j, \varphi_m$ are the coefficients and $u_l$ is the residual.

\[
\begin{align*}
gdppc_t &= \alpha + \sum_{i=1}^{k} \beta_i gdppc_{t-i} + \sum_{j=1}^{k} \phi_j pecpc_{t-j} + \sum_{m=1}^{k} \varphi_m co2pc_{t-m} + u_{1t} \\
pecpc_t &= \sigma + \sum_{i=1}^{k} \beta_i gdppc_{t-i} + \sum_{j=1}^{k} \phi_j pecpc_{t-j} + \sum_{m=1}^{k} \varphi_m co2pc_{t-m} + u_{2t} \\
co2pc_t &= \delta + \sum_{i=1}^{k} \beta_i gdppc_{t-i} + \sum_{j=1}^{k} \phi_j pecpc_{t-j} + \sum_{m=1}^{k} \varphi_m co2pc_{t-m} + u_{3t}
\end{align*}
\]

4. Results

This part reports the results of the estimated VAR model and causality tests. Before estimating the VAR model optimum lag-length needs to be determined by pre-estimation tests. Table 2 shows that the optimum lag-length is one according to the likelihood-ratio (LR), final prediction error (FPE), Akaike’s information
criterion (AIC), Schwarz’s Bayesian information criterion (SBIC), and the Hannan and Quinn information criterion (HQIC).

<table>
<thead>
<tr>
<th>lag</th>
<th>LL</th>
<th>LR</th>
<th>df</th>
<th>p</th>
<th>FPE</th>
<th>AIC</th>
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<th>SBIC</th>
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<td>2815.63</td>
<td>16.4221</td>
<td>16.9866</td>
<td>17.8994</td>
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</table>

After detecting the optimum lag-length, three variable VAR model is estimated. Table 3 gives the outcomes of the model. According the results, at 10% significance level, primary energy consumption per capita has a positive causal effect on GDP per capita. But, CO₂ emissions per capita does not have any causal effect on GDP per capita. Neither GDP per capita nor CO₂ emissions per capita has a causal effect on primary energy consumption per capita. Finally, if we look at the causal relation on CO₂ emissions per capita, at 1% significance level primary energy consumption per capita has a causal effect on CO₂ emissions per capita. On the other hand, GDP per capita does not have any causal effect on CO₂ emissions per capita. This finding doesn’t support the EKC hypothesis, because, EKC hypothesis is based on the existence of the direct impact of GDP per capita on environmental indicators.
Table 3: Estimated VAR Model

| Variables | Coef.       | Std. Err. | z     | P>|z| | 95% Confidence Interval |
|-----------|-------------|-----------|-------|-----|--------------------------|
| gdpc      | L1.gdppc    | 0.9590936 | 0.0709358 | 13.52 | 0.000 | 0.820062 - 1.098125      |
|           | L1.pecpc    | 0.6064625 | 0.3569749 | 1.7   | 0.089 | -0.319552 - 1.6121      |
|           | L1.co2pc    | -0.8503057| 0.5373886 | -1.58 | 0.114 | -1.903568 - 0.202956   |
|           | Constant    | 0.3197101 | 0.2230964 | 1.43  | 0.152 | -0.1175508 - 0.756971  |
| pccc      | L1.gdppc    | 0.0002791 | 0.0004249 | 0.66  | 0.511 | -0.0005537 - 0.0011119 |
|           | L1.pecpc    | 0.9348731 | 0.213828  | 4.37  | 0.000 | 0.5157778 - 1.353968  |
|           | L1.co2pc    | 0.4958107 | 3.218958  | 0.15  | 0.878 | -5.813231 - 6.804853  |
|           | Constant    | 0.4295767 | 1.336348  | 0.32  | 0.748 | -2.189617 - 3.04877    |
| co2pc     | L1.gdppc    | -0.0000209| 0.0000278 | -0.75 | 0.452 | -0.0000753 - 0.0000336 |
|           | L1.pecpc    | 0.0491041 | 0.0139726 | 3.51  | 0.000 | 0.0217183 - 0.07649    |
|           | L1.co2pc    | 0.2100281 | 0.2103434 | 1     | 0.318 | -0.2022374 - 0.6222936 |
|           | Constant    | 0.3284592 | 0.0873239 | 3.76  | 0.000 | 0.1573075 - 0.4996108  |

In addition to VAR model estimation, a granger causality test has been implemented. All the results that explain the causality between the three variables are summarized in Table 4. The causality test results are same with the VAR model estimation and the results have validated each other. In summary, GDP per capita does not have a direct effect on CO₂ emissions per capita where the primary energy consumption has significant effects both on CO₂ emissions per capita and GDP per capita. These results are in line with the results of Soytas et al. (2007) and Soytas&Sari (2003).
Table 4: Summary of the Causal Relations

<table>
<thead>
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<th>t-statistics and Granger Causality Wald Test</th>
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<td>significant (+) (10%)</td>
<td>Primary energy consumption per capita Granger-causes GDP per capita</td>
</tr>
<tr>
<td></td>
<td>co2pc</td>
<td>insignificant</td>
<td>CO2 per capita does not Granger-cause GDP per capita</td>
</tr>
<tr>
<td>pecpc</td>
<td>gdppc</td>
<td>insignificant</td>
<td>GDP per capita does not Granger-cause Primary energy consumption per capita</td>
</tr>
<tr>
<td></td>
<td>co2pc</td>
<td>insignificant</td>
<td>CO2 per capita does not Granger-cause Primary energy consumption per capita</td>
</tr>
<tr>
<td>co2pc</td>
<td>gdppc</td>
<td>insignificant</td>
<td>GDP per capita does not Granger-cause CO2 per capita</td>
</tr>
<tr>
<td></td>
<td>pecpc</td>
<td>significant (+) (1%)</td>
<td>Primary energy consumption per capita Granger-causes CO2 per capita</td>
</tr>
</tbody>
</table>

5. Conclusion

Paris Agreement is the current international treaty in action, which aimed to reduce the emission of gases that contribute to global warming. This agreement is the most concrete global action to address one of the most vital problems of the world. On the other hand, developing and less developed countries are trying to grow their economies to increase welfare and address unemployment, poverty, hunger, etc. In this context, the tradeoff between growing the economy and decreasing the emissions puts too much pressure on developing and less developed economies. Developing and less developed countries need assistance and financial support of the more developed economies to address both global warming and poverty. On top of it, all communities need to seek efficient energy and environmental policies which contributes to addressing climate change without decreasing the incomes. Turkey is one of the significant emitters, with 1% of global emissions in 2018, and at the same time dealing with problems of unemployment and poverty. This chapter analyzed the relationship between CO₂ emissions per capita, energy consumption per capita and GDP per capita for Turkey to contribute to providing a basis for policy development.
According to the findings of this chapter, the main statistically significant cause of CO₂ emissions is energy consumption. Energy consumption also Granger causes the GDP per capita. The results suggest that there is not a direct relationship between CO₂ emissions and income. Therefore, an emission reduction policy does not necessarily lead to a welfare loss. On the other hand, energy consumption and the sources of the consumed energy also have a major role in the relation between economic growth and greenhouse gas emissions. Results in the previous section showed that energy consumption both increases CO₂ emissions and income. If the emission limiting policy necessitates a reduction in energy consumption then a welfare loss may occur. But, shifting to cleaner energy sources can decrease energy-related CO₂ emissions without reducing energy consumption. Sharif et al. (2020) and Karasoy (2019) also showed that renewable energy consumption has a negative effect on CO₂ emissions where non-renewable energy consumption has a positive effect on CO₂ emissions in Turkey. Then, for Turkey, it would be possible to meet the environmental requirements without sacrificing economic development only if energy policy focuses on shifting to cleaner energy sources.

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SECTION VII

HISTORY OF ECONOMIC THOUGHT
NURSE TURNOVER AND ITS COSTS

Sibel Meler¹, Şükrü Anıl Toygar²

Introduction

Health spending has increased significantly in recent years (Yereli, Köktaş, & Selçuk, 2014). However, the aging world population increases the demand for the health system with the increase in epidemic and chronic diseases (Roche, Duffield, Homer, Buchan, & Dimitrelis, 2015). Nurses play a key role in health systems, accounting for approximately 56% of long-term healthcare providers (Dall, Chen, Seifert, Maddox, & Hogan, 2009). Considering the aging of the workforce with the increase in nurses' demands, the crisis is expected to grow even more globally (Haczyński, Skrzypczak, & Winter, 2017). According to the World Health Organization (WHO), health workforce crises make it impossible for all countries to fight diseases and improve health (WHO, 2006).

The lack of nursing workforce negatively affects not only the sustainability of health services but also patient outcomes (Valizadeh et al., 2016). It also reduces nurses’ job satisfaction and quality of patient care (Needleman et al., 2011; Rafferty et al., 2007). It is important to maintain the number of nurses available and to increase the number of qualified nurses in order to prevent these problematic situations (Rivers, Tsai, & Munchus, 2005). Some of the measures that can be taken are arranging orientation programs for new employees, ensuring job satisfaction, improving working conditions and living conditions (Rivers, Tsai, & Munchus, 2005). In order to motivate nurses and provide satisfaction, factors such as having a fair wage policy, ensuring work-private life balance, healthy and safe working environment should be given due importance (Arslan Yürümezoğlu, Kocaman, & Mert Haydar İ, 2019). It is stated that factors such as the society’s development of a positive perspective on nurses and the nurses’ establishing a healthy communication with their top managers positively affect their commitment to the institution

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(Valizadeh et al., 2016). In addition, rights such as social benefits, individual retirement, comprehensive health insurance, corporate support in career planning, implementation of job rotations increase commitment to the institution and the employee turnover rate decreases (Dombaycı & Kıvanç, 2020; Halbesleben, Savage, Wakefield, & Wakefield, 2010; Valizadeh et al., 2016).

The nursing profession struggles with the ever-increasing needs of the aging population, qualified nurse turnover, and complex healthcare changes (Wei, Sewell, Woody, & Rose, 2018). Turnover in nursing is a global problem due to the long-term and ongoing lack of workforce. This global distress is also due to nurses’ intention to quit, leave the profession, or be out of nursing workforce planning (Flinkman, Isopahkala-Bouret, & Salanterä, 2013). Retention of nursing staff is a very important issue for the healthcare system. For this reason, each country should scrutinize the factors associated with nurses’ intention to leave their profession and take the necessary action (Bordignon & Monteiro, 2019). Nurse turnover is a critical issue that attracts international attention due to both human and financial costs (Battistelli, Portoghese, Galletta, & Pohl, 2013). Therefore In this part of the book, the intention of leaving the job will be explained and researches on the nursing workforce turnover, importance and costs will be included.

The Turnover Intention

The destructive and active action of nurses as a result of voluntary or involuntary relocation in their working position and their dissatisfaction with their working conditions can be defined as “turnover intention” (Çekmeceoğlu, 2014; Kocaman et al., 2010; Takase, 2010). It is a multi-stage process consisting of psychological, cognitive and behavioral components (Takase, 2010). A study showed that nurses quit their jobs within the first six months after they decided to quit (C. Duffield, Pallas, & Aitken, 2004). A study showed that 80% of nurses who left the profession intended to leave within the last year. The same study found that most of those who quit started the process with serious consideration in the last year before leaving and made the actual decision to leave within six months before the decision was made (Hasselhorn et al., 2005). The final decision on whether to quit the nursing profession is based on an individual thinking process (Carless & Arnup, 2011; Laine, van der Heijden, Wickström, Hasselhorn, & Tackenberg, 2009), which is estimated to be the result of many reasons (Flinkman et al., 2010; Hasselhorn et al., 2005).
The new generation of nurses are the group most willing to quit their job and nursing profession (Hayes et al., 2006; Rudman et al., 2010; Salminen, 2012). In a study conducted in the United States, it was reported that the rate of leaving the profession for newly graduated nurses in the first two years was 2%, and that of professional nurses was more than 26% (Kovner & Djukic, 2009). Hasselhorn et al. (2005) found that nurses between the ages of 25-35 had a higher rate of turnover intention (Hasselhorn et al., 2005).

In another study, while the turnover intention of the certified, qualified nurses was the highest among 28-year-olds, it was observed to decrease with the increase of age (Robinson, Murrells, & Griffiths, 2008). In a study by Barron and West (2005), it was determined that the rate of leaving the nursing profession for a better job was highest at the age of 32 (Barron & West, 2005). In contrast to the studies in which young nurses have a high intention to leave the profession, there is a study showing that older nurses have higher intention to leave the profession than young nurses (Heinen et al., 2013).

In addition to individual and professional factors, turnover intention has been associated with two demographic variables as being young and male (Chan, Leong, Luk, Yeung, & Van, 2010; De Oliveira, Griep, Portela, & Rotenberg, 2017; Flinkman, Laine, Leino-Kilpi, Hasselhorn, & Salanterä, 2008; Masum et al., 2016). In a study conducted in Iran, it was found that only half of the nurses (53%) had an intention to remain in the nursing profession and this was the main determinants of this situation regarding gender, age and nursing (Soudagar, Rambod, & Beheshtipoor, 2014).

Problems in the working climate are the issues that should be dealt with by the management (Arslan Yürümezoğlu et al., 2019; Leone et al., 2015; Nantsupawat et al., 2017). These problems contribute to turnover intentions. Occupational factors such as hospital work, poor management support, lack of job satisfaction, role conflicts, lack of job promotion opportunities, job stress, and job-reward imbalance can be associated with turnover intention (De Oliveira et al., 2017; Hasselhorn et al., 2005). In other studies, it has been found that work stress factors such as a negative work climate have a negative effect on health services (nursing care).

A study among 857 nurses in Lebanon found that 62.5% of nurses intend to leave, and various factors such as job satisfaction (Alharbi, Wilson, Woods, & Usher, 2016; Heinen et al., 2013) and quality of life (Alshehry et al., 2019), were
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found to be related to nurses’ turnover intentions (Albougami et al., 2020). In addition, job stress can negatively affect employee productivity and job satisfaction, which may lead to an individual’s intention to quit the nursing profession (Najimi et al., 2012).

In a study conducted in Australia, a significant relationship was found between staff turnover rate and low quality of life (Perry et al., 2017). Ibrahim et al. (2016) found that a poor quality of life could lead to a lack of job satisfaction and a high turnover rate, and that these factors could have a negative impact on patient safety (Ibrahim et al., 2016).

The work environment has been seen by health systems to be a strong factor between individuals and work team levels that can affect an organization’s performance (Olsen, Bjaalid, & Mikkelsen, 2017). In another study conducted in Iran, it was found that increasing the quality of life could increase job performance and job satisfaction (Mohammadi et al., 2011). Chen, Chu, Wang, and Lin (2008) found that distributive justice, workload, resource adequacy, supervision / kinship support, and job satisfaction in Taiwan were strongly associated with the intention to stay or leave the job (Chen et al., 2008).

**Nurse Turnover And Its Importance**

Nurses are the largest component of hospitals, public health centers, primary care centers, home care centers, outpatient centers, schools, academia and health research which are long-term healthcare providers (AACN, 2019; US, 2019). For example more than 50% of the healthcare workforce in the USA are nurses (AACN, 2019; WHO, 2018).

Turnover is defined as any business movement in the nursing units of the same hospital or a different institution when the staff leaves the organization or profession altogether (Hayes et al., 2006). In other words, it is defined as the person’s voluntary termination of his / her duty in one environment and transfer to another environment, changing the unit in which he / she works in the same environment or leaving the profession completely (Hayajneh, AbuAlRub, Athamneh, & Almakhzoomy, 2009). When we examine the studies about nurse turnover from different discipline perspectives, we see that economists contribute to studies in this field by examining individual preferences and labor market variables, sociologists by examining the structural characteristics and work content of the work
environment, and psychologists by identifying individual variables and mental processes (Hayes et al., 2006).

Various formulas are used to calculate the turnover rate. The values based on the formula used in general are the number of the employees, number of employees leaving, number of replacements and average number of personnel. When calculating, the unit of time (month, year) should be specified. Generally, the time frame calculated in months is used when making calculations in small enterprises or institutions with low personnel turnover rate. It is calculated as “Turnover rate = Number of employees who left * 100 / the average number of employees during the period”. The average number of personnel means the average of the total number of staff at the beginning of the term and the number of staff at the end of the term (Erdoğan, 2002). 4–12% nurse turnover rate is low; 12--22% are considered medium and 22--44% high turnover (O’Brien-Pallas et al., 2010).

A global crisis, turnover in nursing, prompts many nurses to quit their jobs or to be out of the nursing workforce (Flinkman, Leino-Kilpi, & Salanterä, 2010). In studies conducted on the turnover rates in nurses, it was found to be 16.4% in America (NSI, 2017), 19.9% in Canada and 15.1% in Australia. In a literature review, Flinkman et al. (2013) revealed that nurses’ intention to leave the profession varies between 4% and 54% in international studies (Flinkman et al., 2013).

In a study conducted in Europe, it was found that 13% of nurses wanted to quit the profession frequently (Hasselhorn, Müller, & Tackenberg, 2005). In a national survey, it was found that the average length of stay of foreign nurses was 2.2 years (Alonazi & Omar, 2013). As a problem affecting many countries, high nursing turnover rates have been defined between 12% and 50%, where staff voluntarily leave or transfer from their initial employment positions to another position in nursing or to another profession (Castle & Engberg, 2005).

In a study conducted according to the number of nurses working in Europe, it was found that the rate of those who intended to leave their current job varied between 49% (Finland, Greece) and 14% (United States) (Aiken et al., 2012). Accordingly, approximately one tenth (9%) of nurses working in Europe intend to leave the profession (Heinen et al., 2013). In another study conducted in Finland, it was found that half of the working nurses under the age of 35 intended to leave the profession (Salminen, 2012). In a study conducted in Sweden, it is
stated that 10-20% of newly graduated nurses are considering quitting the profession (Rudman, Omne-Pontén, Wallin, & Gustavsson, 2010).

It has been reported that the rate of nurses planning to quit their jobs in the first three years of their professional life in America is 3% (Flinkman et al., 2013; Flinkman et al., 2010). A study conducted in three university hospitals in Turkey between 2003-2007 found that turnover rates were significantly different between staff nurse (% 2.0-5.3%) and contracted nurses (2.2% to 17.5%) (Koca- man, Seren, Kurt, Danis, & Erer, 2010). Again in the same country, in the study conducted by Baykal and Eren (2004) in a private hospital, the nurse workforce turnover rate was 16% (Baykal & Eren, 2004). Today, nurse turnover is a major problem for both private and public hospitals.

Basic factors affecting the turnover in nursing are limited career opportunities, the lack of support by the management, the deficiency in defining professional duties-authorities and responsibilities and negative personnel attitudes. In addition, compelling reasons in working conditions (such as excessive working hours, overtime, not being able to use leave, restriction of personal rights, differences in working status), intensive workload, role ambiguity and conflicts, increasing patient demands and workplace bullying are among the factors that affect the turnover. In addition to leading to an increase in the turnover of nurses, these problems causes the costs to increase by also causing the feeling of worthlessness and weakness, loss of performance, decreased job satisfaction and motivation, compromising patient safety, decrease in professional commitment, loss of professional commitment, burnout, decrease in quality of nursing care and continuity (presentism and absenteeism) (O’Brien - Pallas et al., 2010; Li & Jones, 2013).

The Cost Of Nurse Turnover

Nurse turnover costs may vary depending on the specific branch and comprehensive hospital characteristics (Li & Jones, 2013). Rapid staff turnover in nursing increases costs, decreases job satisfaction, and negatively affects the quality and continuity of nursing care (Valizadeh et al., 2016). It has been found that nurse turnover costs are higher in hospitals with more specific services such as intensive care units compared to hospitals that offer less complex services (Li & Jones, 2013). This is because hospitals that provide a wide range of services need a lot of time and money to orient newly employed nurses (Lewin Group, 2009).
Nursing Turnover Cost Calculation Methodology (NTCCM) is widely used to distinguish between direct costs and indirect costs (Jones, 2004, 2005, 2008). While direct costs are defined as those related to the hiring, temporary replacement and hiring of a new employee, indirect costs can be related to the time spent managing the dismissal and turnover process as well as the orientation, training and productivity. O’Brien-Pallas et al. (2006) suggested that while turnover accounted for 21% of total costs of direct recruitment costs, indirect costs of lost productivity accounted for 79% of total costs (O’Brien-Pallas et al., 2006). Revised version of NTCCM reconcepts cost categories as pre-hiring costs and post-hiring costs and includes additional items such as auditor costs that explain more elements of turnover (Jones, 2004, 2005, 2008).

There is limited published information on nursing turnover rates and costs. In a study conducted in Australia, it was reported that there was a 20.2% cost to increase and retain nurse potential in rural and remote areas, and a later study reported that there was no change in the cost rate (12-31.9%) except for the age of the nurses (Eley, Buikstra, Plank, Hegney, & Parker, 2007). Figures from the Northern Territory show a 38% turnover rate per nurse using the revised NTCCM and an average turnover cost of $10,734 (Australian dollars) (Garnett et al., 2008).

Cost studies related to nurse turnover draw attention (Roche et al., 2015). Funding in the USA, Australia, UK and Canada rates are 16.2%, 15%, less than 15% and 20% respectively (Li & Jones, 2013; O’Brien-Pallas, Murphy, Shamian, Li, & Hayes, 2010; Rondeau & Wagar, 2016). In Jordan, the estimated costs are higher with a rate of 32% (Al-Maaitah & Shokeh, 2009). Heinen et al. (2013) found that nurses’ turnover intention in European countries affects the costs of the institution between 5-17% (Heinen et al., 2013). A study conducted in Australia shows a cost rate of 1-1.4% per month in New South Wales (Cunich & Whelan, 2010).

As a problem affecting many countries, high nursing turnover rates between 12% and 50% (Castle & Engberg, 2005), where staff voluntarily leave or transfer from a primary employment position to another position in nursing or to another profession (Hayes et al., 2006) are seen as turnover losses (Lavoie, Tremblay, Paquet, Marchionni, & Drevniok, 2011; Rondeau, Williams, & Wagar, 2008). In addition, these aspects of turnover should also be taken into account, as the turnover
movement may negatively affect staff training, orientation of new staff, scheduling and sustainability of care in nursing services (C. Duffield, Roche, O’Brien-Pallas, & Catling-Paull, 2009).

In a pilot study conducted in Australia, the cost of nurse turnover to the healthcare facility per nurse is estimated as $16,634 (Hayes et al., 2006). Secondly, turnover appears to affect the roles (O’Brien-Pallas et al., 2010) and productivity of remaining personnel and the quality of care negatively by decreasing their motivation and stress level (Hayes et al., 2006; Jones, 2008).

Finally, turnover costs affect patient safety and are affected by the remuneration of nurses, associated with both increased infection rate and subsequent hospitalization, increasing the likelihood of medical error (Hayes et al., 2006; O’Brien-Pallas et al., 2010); reported to reduce patient satisfaction (Zimmerman, Gruber-Baldini, Hebel, Sloane, & Magaziner, 2002).

Reducing the stress in the working environment, providing sufficient number of nurses and improving working environments enables to encourage nurses to stay in their institution and to decrease their turnover intention by increasing their job satisfaction (De Oliveira et al., 2017; Fatemeh Şerifard et al., 2019). Factors that contribute to job satisfaction include salary, promotion, and professional development (Al-Dossary, Vail, & Macfarlane, 2012; Najimi, Goudarzi, & Sharifirad, 2012).

In the international literature, the working environment, which is one of the factors affecting nursing costs, has been defined as an important factor in the nurse turnover. Another study by Rhéaume and colleagues (Rhéaume, Clément, & Lebel, 2011) found that a key component of the work environment, one of the foundations of quality nursing care, was the most important determinant of its variance in turnover (Dawson, Stasa, Roche, Homer, & Duffield, 2014).

Aiken and colleagues found in their research in the US, Canada, England, Scotland and Germany that low morale and motivation, management problems, workload, and time spent on non-nursing assignments all contribute to the cost (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). The cost of changing a nurse can range from $22,000.00 to $64,000.00 (Dawson, Stasa, Roche, Homer, & Duffield, 2014). In Canada, Leiter and Maslach (2009) found that burnout or exhaustion mediates cost formation. In the USA, Johnson and Rea (2009) found
that workplace bullying is associated with turnover from both the organization and the nursing profession (Johnson & Rea, 2009).

Results & Recommendations

Nursing is a profession group with a high turnover rate. The high turnover rate affects the quality, quantity and cost of patient care. For this reason, the speed of job turnover in nurses and the reasons for their leave remain up-to-date as an issue that health and nurse managers should focus on and develop effective strategies.

Some of the factors that affect the turnover and need to be taken precautions are limited career opportunities, poor support, lack of recognition and negative staff attitudes. Nurses should also be provided with educational opportunities, safe working environments, and social opportunities to maintain work-life balance so that they can recognize and develop themselves. Efforts should be made to increase the organizational commitment of the employee.

The shortage of qualified nurses with the appropriate skills is a global problem. The nursing work environment is characterized by a mixture of inappropriate skill and inadequate patient-staff ratios. Low participation in decision-making processes and increasing patient demands make this process even more difficult. These problems affect heavy workloads and stress levels, making nurses feel worthless and powerless.

Nursing turnover rate is affected by the experiences of nurses. Positive steps can be taken to improve workplace conditions and retain nurses. Improving performance management and job design are strategies nurse managers can use to reduce turnover. Performance evaluations should be improved and nurses should be provided with flexible employment options and supportive strategies.

To ensure that nurses do not see nursing as a “dead end job”, it requires changes in the workplace culture, such as the development of performance management and flexible employment options. Nurses need to feel empowered to help guide their careers and contribute to decisions that advance quality healthcare delivery in the hospital settings in which they work.

While leaving jobs, absenteeism and performance decreases cause great economic losses in terms of health institutions, the high turnover rates of nurses affect the
quality, continuity and cost of patient care. It is inevitable that this situation reduces the efficiency and effectiveness of the organization. It should be kept in mind that the decrease in the number of patient care nurses in health institutions, which have a high rate of personnel turnover and have to provide services without sacrificing quality, aggravates the working conditions of other colleagues who continue in the institution and makes it difficult for these people to stay in the institution. Continuous replacement of nurses as a result of turnover affects the cost and quality of healthcare services.

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EFFECT OF NURSES’ USE OF TECHNOLOGY ON HOSPITAL COSTS

Fadime Ulupınar¹, Şükrü Anıl Toygar²

Introduction

In recent years, developed countries have shifted their priorities from a production-based economy to a service-based economy. Health attracts attention as an important sector that is at the center of both production and service activities in today’s society (Li & Benton, 2006). The development of information and communication technology is one of the most important factors affecting the health sector. However, it is important that the technologies planned to be used should have a characteristic that can positively affect the needs of the patient (Black et al., 2011). The rate of using advanced technology in the healthcare sector basically determines the effect of the technology used on the bill of health services and patient satisfaction (Buntin, Burke, Hoaglin, & Blumenthal, 2011). In addition, technology should improve communication between patients and healthcare providers, increasing efficiency in service delivery and reducing waiting period (West, 2012). Technology should provide timely evaluation of the patient and allow rapid response to the patient (Meretoja et al., 2012).

Technology is changing so rapidly today that it is very difficult to predict possible health-related change scenarios even for the next decade (Risling, 2017). However, the pace of change is expected to accelerate as the pressures for incremental maintenance costs continue to increase and new maintenance models are developed (Huston, 2013). The increasing cost and quality expectation of healthcare services is one of the major challenges that puts pressure on the healthcare sector (Li & Benton, 2006). One of the reasons for the increase in the cost of diagnosis and patient follow-up in healthcare services is probably the use of advanced

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technologies (Gölçek, 2018; Okpala, 2018). This study aims to examine the effect of nurses’ use of technology on hospital costs.

Use of Technology and Costs in Healthcare

It is stated that the increase in technological progress positively affects patient satisfaction by proving that it increases the efficiency, quality, and positive perception of patients about the health service provision (Okpala, 2018). One of the main goals of health systems is to reduce the per capita costs of healthcare services (Agha, 2014). Therefore, there is a need to strike a balance between the pursuit of new technology as a way to improve the quality of care and reducing the per capita cost of healthcare (Okpala, 2018). Therefore, it should be evaluated whether the technologies adopted in the health system serve the purpose of reducing the cost of care (Okpala, 2018).

In the USA, the Centers for Medicare and Medicaid Services (CMS) predict that national health expenditures will grow 1.1 point faster than the average gross national product in the 2019-2028 period, and the share of health in the economy is estimated to rise from 17.7 percent in 2018 to 19 percent in 2028 (CMS, 2020). It is argued that this unsustainable growth in healthcare services does not reflect the improvement in quality and health outcomes for the US population, and has reached a point where federal and state budgets cannot or cannot meet the expectations of employers and patients (Harris, 2014). The US spends about 2.5 times the average of other high-income countries on health. It is anticipated that financial and structural incentives used in the country may limit the potential for better patient care outcomes and efficient resource allocation. Although the overuse of advanced medical technologies is partially demonstrated in the formation of high care costs (Shih et al., 2008), there is a view in the literature that high costs derive from poor quality patient care, excessive administrative costs, unnecessary services, inflated prices, prevention errors, and unrealistic costs (Berwick. & Hackbarth, 2012). Health services are considered to be more important than many other goods or services due to their non-postponable structure and their size in budget items. Although it is by far the first in the USA in terms of health expenditures, health metrics are in the opposite ranks in terms of quality, access and efficiency measures (Salmond & Echevarria, 2017). The results of the studies show that the increase in costs is not a determinant alone in the outcomes of health services.
Technological advances are expected to improve patient and hospital management. One of the goals of using technology in the health sector is to improve service delivery (Köktaş & Gölçek, 2019) and increase patient satisfaction (Buntin et al., 2011). The US healthcare system is recognized among the global leaders in the development and adoption of new technologies (Holden & Karsh, 2010; Okpala, 2018). A study analyzing 24 different studies conducted in the USA to understand the impact of technological progress in the healthcare sector on the cost of healthcare services and patient satisfaction shows that there is a significant increase in the cost of healthcare services due to technological adaptation and other factors (Okpala, 2018). In this study, the cost increase due to the use of technology was found to be significantly higher in diagnosis (63%) and patient follow-up (51%) (Okpala, 2018). However, it was revealed that patients believed that the use of advanced technologies increased the quality of diagnosis (67%), patient follow-up (79%) and data recording (85%, P = 0.032) (Okpala, 2018).

Considering that hospital services constitute approximately 33% of total expenditures in the health expenditures category, it is seen that they have a significant financial impact (CMS, 2017). Hence, hospitals in healthcare have become the focus of increased attention on issues such as financial performance and patient safety (L. Li & Benton, 2006; McFadden, Henagan, & Gowen III, 2009). In hospitals, there are differences in basic factors related to care, such as the development of equipment and information technology, changes in nursing skills, customer-oriented health initiatives and patient expectations.

**Classification of Technology Use in Healthcare**

Interactive and complex factors such as technological advances, capital investments, patient outcomes and the need to balance cost savings create health-related outcomes that are difficult to predict (Glasgow, Colbert, Viator, & Cavanagh, 2018). The process of combining cost-reducing technologies with innovative business models in the business world “Disruptive innovation” and this situation corresponds in the health sector as a desire to transform into a quality but low cost and inclusive sector (Hwang & Christensen, 2008). It is anticipated that technological advancement and transformation will affect the current role of care personnel and will have major impacts on healthcare in terms of cost and quality management (L. Li & Benton, 2006; Salmond & Echevarria, 2017). It is stated that the lack of clinical information systems that have the capacity to
collect and use digital data to improve care and the inconsistent use of decision support tools increase the quality problems in care (Shih et al., 2008). Value in healthcare can be considered as the ratio of quality and patient outcomes to cost (Salmond & Echevarria, 2017). In order to develop value tools, it is important to avoid costly mistakes and re-hospitalizations, to keep individuals healthy, to reward quality instead of the amount of work done, and to ensure proper payment and task distribution by establishing a health information technology infrastructure (Burwell, 2015).

Nurses are expected to be an active partner in the new health paradigm created by the trio of improving patient care experience (including quality and satisfaction), improving community health, and reducing the per capita cost of health care (Salmond & Echevarria, 2017). How the nursing workforce can be more actively involved in the technology-dependent future within this development and change is among the researches (Glasgow et al., 2018; Salmond & Echevarria, 2017). Nurses work in a rapidly changing environment and it is emphasized that they have to take an active role in using technology to improve patient outcomes (Salmond & Echevarria, 2017; Tiffin, 2012). It has been shown in studies conducted by various companies and organizations that Artificial Intelligence applications can contribute to increase the quality of care and reduce costs by supporting healthcare services (Mesko, 2017).

The use of new technologies in US hospitals has increased from 16% in 2009 to 80% in 2013 (Charles, Gabriel, & Furukawa, 2013). Main areas of technological advancement in the healthcare industry include storage of patient data (Black et al., 2011), virtual health services such as self-enrolling tele-health and self-service kiosks, remote monitoring tools used to monitor inpatients and discharged patients, and sensor technology. (Kang et al., 2010). Technologies used in the field of health services are classified in three different ways according to Locsin (Locsin, 2005).

1) *Technology as a complement to human:* These are technologies developed to provide missing human parts such as prosthetic devices or to replace non-functional parts such as cardiac pacemakers.

2) *Technology as tools and equipment that facilitate the care of people:* These technologies make it easier for people to practice caring for others. These technologies are assistive devices designed and developed to improve human healthcare...
activities. For example, the DaVinci Surgical System provides precision in surgical interventions (Hamet & Tremblay, 2017). With this tool, surgical intervention can be performed in very narrow and deep areas. The images obtained with the robotic surgery system allow the relevant region to be intervened with a three-dimensional image and a sense of depth. The robotic surgery system, with its “tremor scaling” feature, does not transmit the surgeon’s possible hand tremors during the operation to the instruments. In addition, these devices do not work outside the surgeon’s control. Penelope, a surgical robot arm that responds to the surgeon’s voice by working like a surgical nurse, knows surgical instruments such as scalpel, sponges, forceps etc. and can give the products to the surgeon and prevent the materials from being forgotten in the patient (Wachs, 2012).

3) Technology that imitates human beings: These technologies, usually with artificial intelligence, are used or planned to be used in various fields in healthcare. These consist of humanoid robots, social assistant robots and devices that facilitate life and improve health and provide personal treatment (Ekici, 2017). For example, TUG robots, which are among humanoid robots used today to transport medicines, materials, sheets and food, work for 16 hours and are charged for 8 hours. It is offered as a cost effective solution especially for the night shift (16-08 hours) (Ekici, 2017). Pepper robots, one of the social assistant robots, can use 20 different languages and are assigned at the reception in some hospitals in Belgium. Also, NAO robots, one of the social assistant robots, are used in patient rehabilitation and motivation in geriatric and pediatric services (Ekici, 2017).

Costs in Using Technology in Nursing Services and Costs of Medical Errors

In recent years, both researchers and practitioners have argued for the importance of investing in technology and enhancing the competence of healthcare professionals (Li & Benton, 2006). Nurses are positioned to play an important role in the delivery and management of healthcare services. Nurses, as a profession group that contributes to all healthcare professionals in the process of change created by technology, provide uninterrupted and patient-centered care in the healthcare sector and direct performance outputs such as cost and quality. For this reason, nurses are recognized as quality and cost effective providers in the hospital environment (Salmond & Echevarria, 2017). The use of technology should be based on developing nurses’ skills and competencies. For example, the role of nurses in
the application of information technologies has been recognized as an important factor contributing to the reduction of patient costs and improvement of service quality (Li & Benton, 2006). Education, skills and attitudes about patient care have changed by increasing the data obtained with technology. Focus is on patient centered care, coordination of care, data analytics and quality improvement. This situation in the sector also changes the demand for nurses. That is, hospitals with more technology demand more skilled and knowledgeable nursing staff (Spetz & Maiuro, 2004). Another point that needs to be considered is that the application of technology for nurses should be complementary to their current skills and abilities. Since nurses are an important professional group in shaping this process, they should understand the factors that direct change, and gain the authorities and competencies (knowledge, skills and attitudes) that will be required to accelerate the change process and increase their personal success and team success (Salmond & Echevarria, 2017).

Nurses with sufficient clinical experience and technology competence can provide valuable information on the use and design of information technology. Nurses are task oriented practical professionals; therefore, technology is required in applications such as nurse training, competence, and staff empowerment. Technological practice should be integrated into decisions regarding nursing services management. The path to better and more effective use of technology is through education and the development of nurses (Li & Benton, 2006). Moreover, the fact that nursing activities affect two important performance outcomes such as cost and quality increases the importance of using technology in nurses. In terms of nursing services, it is also among the data obtained that management decisions affect customer satisfaction, improve the use of resources, reduce the cost per patient with timely intervention (Siferd & Benton, 1994). When evaluated in terms of nursing care, it is argued that technology improves quality care, improves patient outcomes and reduces costs by providing care coordination. It is argued that adverse events such as unnecessary hospitalizations, unnecessary emergency service use, repeated diagnostic tests, repeated medical histories, repeated prescriptions and adverse drug interactions will decrease (Salmond & Echevarria, 2017). Treatment and care costs have become a concern, especially for people with chronic diseases and institutions that finance healthcare services (Salmond & Echevarria, 2017).

The use of technology in nursing services is a result of increasing demands in the health sector despite the lack of personnel (Sandelowski, 1993). Ten years ago,
practices in care services were carried out by taking advantage of nurses’ own observations and experiences or the experiences of healthcare professionals in their social environment. Today, devices that can make precise measurements are used, but these outputs are interpreted by healthcare professionals based on the electronic data and care services are provided accordingly. Ten years from now, it is planned to use artificial intelligence that integrates data from a large number of devices that can make precise measurements, evaluate them using expanded electronic records and prepare action plans. In this near future, nurses will carry out the task of becoming the implementer of these technological plans and meeting their humanitarian care needs. In the longer future, many actions in maintenance service are predicted to be performed robotically (Williamson, 2015).

In 2015, the National League for Nursing called for action to increase the knowledge of technological applications among nurses and to better prepare nursing care services for the future (Caring). Extended electronic records will play an important role in healthcare in the coming years. Technology will provide fast and effective solutions for issues such as protection and storage of collective health-related data, access of healthcare providers, cooperation, contributing, controlling and feedback (Risling, 2017).

Glasgow (2018) emphasized that nurses should not only be users of advanced technology for care in the future, and stated that nurses should take a more proactive role in the changing clinical environment, in the design of researches, in the planning of new health devices, and in the policies determining care methods (Glasgow et al., 2018). As one of the examples of this situation, the telero-botanic smart nursing assistant who carries out patients with infectious diseases and reduces the risk of healthcare providers was designed by Duke University nursing and engineering students in 2014 (Morgan, C. (2016) Akt. (Glasgow et al., 2018). It is thought that the widespread use of this technology, designed after the Ebola epidemic, may be effective in protecting healthcare personnel in the event of COVID-19 and similar infectious diseases that spread all over the world in 2020. At the Beth Israel Deaconess Medical Center, engineers at the Massachusetts Institute of Technology have shown that it is a valid method to calculate a care requirement independent of the number of patients (claimed to be not the same for each patient) with the help of computer simulation. Similarly, it is recommended to use simulations to improve clinical resource management for nurses, doctors and engineers (Molina et al., 2018).
Nursing care costs make up a large part of the hospital budget and have become the largest labor cost (Welton, Fischer, DeGrace, & Zone-Smith, 2006). The main reasons for the increase in nursing costs are the increasing complexity of care and the decrease in hospital stay (Graf, Millar, Feilteau, Coakley, & Erickson, 2003). Although the reduced hospitalization periods seem to reduce nursing costs in the first place, the researchers suggest that the care intensity of the patients is higher with shorter periods of stay (Welton et al. 2006). The cost increase in hospitals has created more demand for nurses, resulting in increased nurses’ wages as well as an increase in nurses / patients ratios (Chiang, 2009).

In addition to the lack of healthcare professionals worldwide, it is known that aging personnel also create an additional labor shortage (WHO, 2016). In addition to the increase in life expectancy and the number of chronic patients, the demand for the health system is constantly increasing (Mesko, 2017). Lack of access to care and quality difference in service provision emerges as a worldwide problem. In the lack of workforce, it is observed that the demands of competent nurses to use technological applications increase. Technology is a tool that can be used to transform sick individuals into healthy individuals with reasonable efficiency, rather than being a stand-alone remedy for labor shortages (Li & Benton, 2006).

It is stated that hospitals need to invest in expensive and visible devices and procedures to survive in the competitive market (Spetz & Maiuro, 2004). A study based on data from all hospitals in California over a seven-year period from 2007 to 2013 revealed that the amount of investment in both the care process and nurses and technology was small in competitive markets (Wani, Malhotra, & Venkataraman, 2018). The results show that the care process has been pushed to the background in more competitive markets because managers focus their priorities on maintaining and increasing their market share by making investments that can be easily demonstrated to doctors and patients (Wani et al., 2018). The important point here is that on the one hand, hospitals use innovative technologies to appeal to patients, doctors and insurers in the short term, on the other hand, they distance nurses from making holistic improvements for the technology-related care process (Wani et al., 2018). The same study highlights that ‘observable’ characteristics of quality may be more important for managers in competitive environments than characteristics that cannot be observed or less understood by users (Wani et al., 2018).
In a study conducted by Li and Benton (2006), it was stated that considering that 10% of the hospitals in the USA had closed in the last 15 years, the effect of following the technology on important indicators such as consumer satisfaction, quality and cost is considerably high (Li & Benton, 2006). It has been found that hospitals in urban centers with large bed capacities tend to invest more in equipment and technology than hospitals with fewer beds or in rural areas, and small hospitals in rural areas tend to pay more attention to staff development (Li & Benton, 2006). In the same study, it was emphasized that technology and nursing services management is very important for managers to achieve the goal of providing quality services at a reasonable cost (Li & Benton, 2006). Hospitals with a high number of beds have a higher healthcare capacity, so the time to tolerate the cost of investments in technology is shorter (Carpenter, 2004). Changes in organizational structure, business processes and employee skill requirements with the application of new technologies are also mentioned in different studies (Ball, Weaver, & Abbott, 2003; Carpenter, 2004; Kazahaya, 2005).

Today, the technology demand of hospitals in all categories is increasing. At the same time, many hospitals have experienced difficulties in applying new technologies. Many researchers state that development of labor, skills, and technology are complementary to nursing care and that nurses should improve their competence in the application of information technologies (Ball et al., 2003; Kazahaya, 2005; Roth, Johnson, & Short, 1996). Many studies have revealed that the technologies used in hospitals have positive relationships between nursing management, cost, quality and performance increase in health services (Ball et al., 2003; Berwick, Godfrey, & Roessner, 1991; Donabedian, 1982; Fetter, Shin, Freeman, Averill, & Thompson, 1980; Kirkman-Liff, 2002; L. Li & Benton, 2003; LX Li & Benton, 1996; Organizations, 1996). When nurses are trained to use technology effectively, there is a significant reduction in costs and quality improvements in health services (Ball et al., 2003; Kirkman-Liff, 2002). However, technology is not a solution that will directly improve quality. On the contrary, technology is a tool for resolving problems better (Carpenter, 2004).

With the use of current technologies, it is possible to monitor patients with electronic medical record system, computerized order entry system, Radiofrequency identification (RFID) and hospital-independent e-prescription, equipment tracking, and monitors (Altındiş, 2009). The use of these technologies not only gives the opportunity to reduce errors that may develop in healthcare institutions by
writing safe and easy prescriptions, but also allows the application of new methods by offering different communication opportunities to healthcare professionals. Wireless technologies that simultaneously provide information exchange within the hospital and put into practice in medical science are other new technologies that support patient safety (Altındiş, 2009). These technologies, which facilitate patient follow-up, give healthcare professionals the opportunity to intervene quickly with the immediate notification of important (vital) changes in the patient and reduce the risk of medical errors (Altındiş, 2009).

Medical errors also lead to huge financial losses. The cost of medical errors in the UK is estimated to be $ 6 billion annually (Slonim, LaFleur, Ahmed, & Joseph, 2003). According to the American Medical Institute, on the other hand, the physical, financial and social costs of medical errors in the United States are estimated to be between $ 17-29 billion (Donaldson, Corrigan, & Kohn, 2000). Again, in a different study conducted in the USA, it was stated that eighteen patient safety indicators caused an annual expenditure of 9.3 billion dollars (Zhan & Miller, 2003). When we consider the opportunity costs, medical errors have serious negative consequences. The additional costs incurred for the treatment of the adverse health condition caused by repeated laboratory tests, repeated drug treatments and medical error lead to increases in health insurance premiums and therefore these additional expenses cannot be used in alternative areas. Medical errors also cause loss of motivation in healthcare providers, insecurity in patients and physicians, and dissatisfaction with the health system in the community. All of these lead to inefficiency / unproductivity in healthcare workers and ultimately to various problems in the health status of the society (Top, Gider, Taş, & Çimen, 2008).

Conclusion

The use of technology in the health sector is increasing. This situation brings about change and transformation in nurses’ roles. Therefore, nurses should not remain only users of technology, but should take an active role in this changing clinical environment, in the design of researches, in the planning of new health devices, and in policies that determine care methods. Technology should not be seen as a solution to the global nurse crisis. Technology is not a substitute for nursing staff, but is considered as a complement to nurses’ knowledge, skills and competencies.
The use of technology in nursing services positively affects many indicators such as quality, performance and cost. Technology increases coordination among healthcare professions and substantially prevents medical error costs. The use of technology reduces waiting periods, reduces patient intervention time, improves communication with the patient, thus increasing patient satisfaction.

Although many positive effects of technology have been proven, the use of technology is suggested as one of the reasons for the increasing costs of healthcare services. However, the positive effects on quality and performance outcomes such as not evaluating the short-term cost of using technology, ensuring patient satisfaction, employee motivation, and eliminating unnecessary practices, repeated hospitalizations, and preventing medical errors should not be ignored.

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DOES 19TH-CENTURY FRANCE EXPLAIN LÉON WALRAS?

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1. Introduction

“Leon Walras is the Isaac Newton of neoclassical economics” (Koppl, 1995, p. 43).

Léon Walras is one of the most significant figures in the history of economics. He was one of the founding fathers of neoclassical economics and wrote three important works: Studies in Social Economics³ (1896), Studies in Applied Economics: Theory of the Production of Social Wealth⁴ (1898), and Elements of Pure Economics or the Theory of Social Wealth⁵ (1874). Walras offered three economic categories within the scope of these works: pure economics, applied economics, and social economics. To this end, he argued that pure economics was science, while applied economics as art, and social economics was ethics.

Yet Walras’s most well-known work proves to be Elements. One, thus, firstly thinks of an abstract, mathematical economic analysis when Walras is mentioned.⁶ In Schumpeter’s words ‘so far as pure theory is concerned, Walras is (…) the greatest of all economists’ (Schumpeter, 1954, p. 827).⁷ Jaffé, too, characterized Walras’s general equilibrium system as the most general, comprehensive and equable system up to date (Walker, 1983b, p. 131). As was also stated by Friedman, Walras’s Elements is extremely significant in the development of economics as a scientific

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³ Original title: Études d’économie sociale; Théorie de la répartition de la richesse sociale. Hereafter referred to as Social Economics.
⁴ Original title: Études d’économie politique appliquée; Théorie de la production de la richesse sociale. Hereafter referred to as Applied Economics.
⁵ Original title: Elements d’économie pure, ou théorie de la richesse sociale. Hereafter referred to as Elements.
⁶ For a study emphasising the social aspects of Walras’ Works see. (Renato, 1984).
⁷ Schumpeter also characterized Walras as the ‘great master of exact theory’ in another work. Cited in (Richard, 2002, p. 41)
discipline (Milton, 1955, p. 900). Within this framework Walras has been characterized as one of the cornerstones of the process through which economics was born as a ‘scientific’ discipline and has been identified with the general equilibrium theory. This is the reason why Walras is considered to boil down to the general equilibrium theory or, in his own words, to ‘pure economics.’

However, not only does an abstract economic construct built on a conception of the individual acting on economic motives –*homo-æconomicus*– and based on a mathematical formulation secure themselves a place in Walras’s economic analysis, but also one can find an understanding of economics in which a conception of a human being who did not sever his/her ties with the society is involved along with the contingent presence of economic, social, historical and cultural elements. It can even be argued that Walras’s primary objective was to analyze the conditions within which he lived, in other words, the socio-economic status of 19th-century France. In that case, did these conditions in question influence Walras’s economic analysis when he attempted to explain them?

The argument of this study refers to the fact that the conditions within which Walras lived had an effect on the emergence and the evolutionary development of his economic analysis. Because Walras started out seeking a solution to the issue of ‘social question’ or ‘social justice’, which he regarded as the most significant issue of the age, but gave up studying social issues upon his father’s suggestion who was an economist just like him and turned towards a purely mathematical economic analysis.

Thus, Walras started out his analysis with the ‘social justice’ issue in line with the conditions of the age he was living in but focused on the ‘theory of pure economics’ later on. But what were the reasons for this kind of transformation in Walras’s economic thought? How can this transformation be interpreted from the perspective of history of science? In other words, were the internal dynamics of science or socio-economic conditions more influential on Walras’s mindset? Within this framework, firstly the internalist and externalist views in the history of science will be dwelt upon followed by an attempt to answer the question ‘Does 19th-century France explain Walras?’ by studying the ways in which Walras’s economic analysis was born and shaped.
2. Approaches in the Historiography of Science

Engaging in the historiography of sciences refers at the same time to writing intellectual history. A distinction, however, was placed between the history of sciences and the history of thought having been influenced by positivist philosophy developed by Auguste Comte. With the great accomplishment of natural sciences like physics and chemistry in the 18th and 19th centuries, other scientific disciplines started to adopt the methods of these sciences in question as well. In particular, the 20th century points out to a period when the method, output, and objectivity of science was opened up for discussion from the philosophical and sociological perspectives. The subject matter of this study is the approaches of those who engaged in such debates rather than the discussions themselves. Therefore, these debates will not be discussed in detail.

Historiography of science in the 20th century was shaped by discussions on the concept of ‘Scientific Revolution.’ This concept was utilized by both those who propounded a gradual and continuous progress and those who argued that there had been great ruptures in the early modern period (Nnaji & Luján, 2016, p. 101). Among those who shaped such debates one can find great figures like Marxist historian Boris Hessen, contextualists Robert K. Meton, Joseph Needham, Thomas S. Kuhn and Steven Shapin, representatives of the physico-mathematical wing Herbert Butterfield, Alfred R. Hall and Alexandre Koyré (Nnaji & Luján, 2016, p. 99). Historiography of science was molded on the basis of an internalist-externalist dichotomy with these figures.

2.1. The Internalist Approach

Those who developed the internalist approach to the history of sciences underlined the necessity that one had to regard the internal operations or the logic of science itself when conducting research in that specific field. Such historians as Alexandre Koyré, Alfred Rupert Hall and Edward Grant adopted this view. The great historian of science, Koyré, clearly put forth this approach:

It (…) seems to me vain to attempt to deduce the existence of Greek science from the social structure of the city state, or even from the agora. Athens does not explain Eudoxus, or Plato, any more than Syracuse explains Archimedes; or Florence, Galileo. (…) The social structure of England in the seventeenth century cannot explain Newton… (Koyré, 1963, p. 855)
Hall is another historian of science who propounded the internalist approach. According to Hall, the mathematical structure of science was the moving force rather than its socio-cultural or economic background. Accordingly, science was only able to accomplish a revolutionary leap thanks to the mathematical transformation witnessed in the structure of sciences. The scientific research of Galileo and Newton was shaped over this principle. The physico-mathematical structure of sciences proved to be the distinctive element of the early modern period. According to Koyré and Hall, ‘It was no more meaningful to search for the economic and social roots of Newton’s *Principia* than it was to seek the economic and social roots of Immanuel Kant’s *Critique of Pure Reason*’ (Nnaji & Luján, 2016, p. 104).

Hall argued in his study on ballistics evaluating Newton’s work that there was no such link between war industry and theory, at least until the 19th century (Hall, 2009). Hall openly stated this in his study on ballistics:

Thus when Hessen wrote that the scheme of seventeenth-century physics ‘was mainly determined by the economic and social tasks which the rising bourgeoisie raised to the forefront’ he was guilty of a gross anachronism, since the level of physics which Newton approaches in the *Principia* was only reached by an original intellectual process, not directly from the empirical industry of his day (Hall, 2009, p. 163).

Edward Grant, in his book on science in the Middle Ages entitled *Physical Science in the Middle Ages* (1971), hardly mentions the economic or social conditions of the Middle Ages and the ensuing period when he talks about how Copernicus was able to succeed in bringing about a revolution. His primary focus shifts to the problem of scholastics’ dedication to Aristotle and his philosophy. This dedication, however, lies in the failure to develop a scientific understanding that would destroy the Kuhnian paradigm rather than a commitment to that paradigm. Copernicus paved the way to revolution as he regarded hypotheses as the fundamental truth of the physical universe. He was succeeded by Galileo, Kepler, Descartes and Newton who finalized the revolution (Grant, 1977). In brief, those who argued that the history of science could be understood through an internalist reading put forth that sciences had unique internal dynamics and the stages of scientific progress could be determined in the wake of understanding these dynamics.
2.2. The Externalist Approach

Boris Hessen, speaking on behalf of the Soviet delegation at the history of science congress held in London in 1931, presented a paper capable of igniting a fundamental change in reading the history of science. Referring to mathematician Whitehead’s argument that ‘our modern civilization is due to the fact that in the year when Galileo died, Newton was born’, Hessen asserted that such a reading of history of science attributed the ‘phenomenon of Newton to the benevolence of divine providence’ and to ‘his personal genius’ (Hessen, 2009, p. 41). The author offered a reading of Newton based on a Marxist theory of history and applied the method of dialectical materialism in this study. One can comprehend Hessen’s approach to the whole better if the events that he drew attention to and established a correlation between in this study, which also functioned as a guidebook for externalist readings, are to be mentioned briefly.

Hessen highlighted economic structure and industry while assessing Newton’s work. Therefore, Hessen endeavored to describe the conditions of ‘economics, technology and physics’ of Newton’s era before talking about Newton himself. He said that what lied in the background of the success of natural sciences was technological progress:

The dazzling flowering of natural science during the 16th and 17th centuries resulted from the disintegration of the feudal economy, the development of merchant capital, of international maritime relations and of heavy (mining and metallurgical) industry (Hessen, 2009, p. 44).

Hessen attributed the development of hydrostatics to maritime trade, of mechanics to heavy industry and arms manufacture, trajectory, while he correlated the birth of modern science with overall external factors.

Robert K. Merton, who is also one of the founders of sociology of science, pointed out that it was impossible to think of research conducted by scientists independent of the socio-cultural structure and emerged as a potent tendency within the

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8 In the chapter ‘Anteil der Arbeit an der Menschwerdung des Affen’ (The Part Played by Labor in the Transition from Ape to Man) in Dialektik der Natur (Dialectics of Nature), which is one of the most fundamental and classic works in Marxist literature, Engels called attention to the decisive role played by erect posture and use of hands in transition from ape to man. (Engels, 2013, pp. 126–127). This stress on grip and use of tools renders the fact that technology precedes science and mind meaningful for Marxist literature.
externalist approach (Nnaji & Luján, 2016, p. 103).⁹ Merton in the introduction to his work ‘The Normative Structure of Science’ wrote: ‘Science, like any other activity involving social collaboration, is subject to shifting fortunes’ (Merton, 1973). He, then, went on to argue that there were connections between English Puritanism and the rise of modern science, which subsequently became the target of strong criticism (Nnaji & Luján, 2016, p. 103). Moreover, the Mer-tonian perspective came to occupy a significant place in studies in the 20th century conducted on the social structure of scientific research and scientific ethos.

Kuhn suggested in *The Structure of Scientific Revolutions* (Kuhn, 2012) that scientific activity was a mere puzzle-solving activity undertaken by a community of scholars. Normal science, seeing anomalies, the stage of crisis, conversion of the community of scholars to a new paradigm followed by the same process all over again… The primary motivation during the period of normal science is the very paradigm ascertained by the community of scholars or the epistemic community along with the puzzle-solving activity within this paradigm. In brief, they consider scientific activity to be a social process in sheer opposition to the internalists’ view.

Imre Lakatos discussed internalism and externalism in the historiography of science in his ‘History of Science and Its Rational Reconstructions’ (Lakatos, 1971). Lakatos stood somewhere in between these two approaches. He suggested writing for the history of science as such:

a) Philosophy of science provides normative methodologies in terms of which the historian reconstructs ‘internal history’ and thereby provides a rational explanation of the growth of objective knowledge; b) two competing methodologies can be evaluated with the help of (normatively interpreted) history; c) any rational reconstruction of history needs to be supplemented by an empirical (socio-psychological) ‘external history’ (Lakatos, 1971, p. 91).

Lakatos attributed primary significance to internal history while external history could merely assume a complementary role to it. In his own words:

But some of external history’s most crucial problems can be formulated only in terms of one’s methodology; thus internal history, so defined, is primary, and

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⁹ Such a blend of the socio-cultural approach and the internalist understanding may suggest an answer as to why scientific activities in the Ottoman/Islamic world came to a halt as well. For further information see: (Demir, 2015).
external history only secondary. Indeed, in view of the autonomy of internal (but not of external) history, external history is irrelevant for the understanding of science (Lakatos, 1971, p. 92).

These two approaches to the historiography of science seem to be reconciled in favor of the internalists by Lakatos. A schematic summary, thus, reveals that internalist history studies the very methodology of science itself while externalist history studies the socio-cultural and economic motivations that underlie the works of scientists. While the former emerges as an intellectual conception of history, the latter emerges as a social conception of history.

3. The Background of Walras’s Economic Analysis

Walras is considered to be the founding father of neoclassical economics in the history of economic thought and is identified with the abstract ‘general equilibrium analysis.’ Yet it is seen that Walras was interested in the problems of his age and endeavored to find a solution to what he called the ‘social question’ before embarking on this abstract and mathematical kind of analysis. Therefore, one first needs to briefly look at the socio-economic conditions of Walras’s age.

Murray Bookchin, one of the most significant American anarchists and activists of the 20th century, described France on the eve of the 1789 Revolution as ‘chaotic, often dizzying collage of administrative and religious jurisdictions, traditions inherited from centuries past, enormous disparities in privilege, and cultural archaisms’ (Bookchin, 1996, p. 251). Neither the aristocrats nor the bourgeoisie had a monopoly on the French Revolution that ignited irrevocable changes in almost all continents, prominently Europe. It was the accomplishment of the lower middle strata of the people in its fullest sense:

Having moved to Paris from rural villages and towns, these people (who joined the Storming of the Bastille) lived in cultural tension between the slower rhythms and natural surroundings of rural life, and the faster, seemingly artificial pace of city life. They would have been inclined to favor a fairly egalitarian society of provincial craftspeople and farmers, who traditionally enjoyed the competence and freedom to create their own chosen lifeways. During the Revolution their sense of independence, whether real or imaginary, would guide them toward a fairly decentralized social structure and an economy based on intimate ties between buyers and sellers—in short, toward a direct democracy based on a moral economy.
rather than a representative republic structured around profit-making and acquisition (Bookchin, 1996, p. 280).

This judgment sounds pertinent when one takes into account those who were involved in the Storming of the Bastille, the climax of French Revolution. The assembly founded in France after the revolution adopted and issued the Declaration of the Rights of Man and of the Citizen (Déclaration des Droits de l’Homme et du Citoyen). This declaration which was also characterized by its being a guidebook to specifically the struggles in the 19th century—not only in France but virtually in all Continental Europe—was shaped around Article 1 which prescribed that ‘men are born and remain free and equal in rights.’ Such issues as equality, social and property rights, freedom of belief comprised the fundamental features of the declaration.10

The influence of egalitarian and libertarian ideas regarding the social structure along with that of the great figures of French Enlightenment on French society cannot be denied. Voltaire (1694–1778) is probably the greatest of them all. Voltaire was mesmerized by Newtonian physics during his stay in England (1726-1728) and endeavored to popularize English Newton’s conception of science among the French with reference to Descartes’ conception of nature. Voltaire in his Letters Concerning the English Nation (1733) talked about Isaac Newton’s world as such:

A Frenchman who arrives in London, will find philosophy, like everything else, very much changed there. He had left the world a plenum, and he now finds it a vacuum. At Paris the universe is seen composed of vortices of subtile matter; but nothing like it is seen in London. In France, it is the pressure of the moon that causes the tides; but in England it is the sea that gravitates towards the moon; so that when you think that the moon should make it flood with us, those gentlemen fancy it should be ebb [Cited in (Bolles, 1999, pp. 250–251)].

Walras also witnessed the climax of ideas of Enlightenment and equality. He was born in 1834 in Normandy and then went to Paris in 1853 and enrolled in the department of mining engineering. Having been disappointed with mining engineering and inspired by his economist father, Walras developed a close interest in the ‘social question’, or in other words, how the poor could come out of poverty, while this interest of his led him to the field of literature. Upon this,

his father suggested Walras that he became a journalist and placed him at *Journal des économistes* as an assistant editor. Further, he provided Walras with an immense resource for economic matters by handing him his collected and unpublished works and contributed to the development of his ideas on many issues (Van Daal, 2005, pp. xv–xvi).

There were roughly two groups of social scientists in France in Walras’s time: the ‘Socialists’ and ‘Economists.’ Walras, however, did not feel like belonging to either of these groups. The Socialists generally thought that the current social order was responsible for poverty and challenged freedom of trade and private ownership of the means of production. Walras criticized the Socialists as the solutions this group offered for the eradication of poverty was based on ideals rather than well-thought rational principles. The Economists, on the other hand, were the champions of the existing order, as was stated by Walras, they dominated all the posts as heads of departments in economics in higher education institutions in France and these posts as heads of the department were handed down from father to son or from uncle to niece. Further, Walras accused the Economists of having an economic ‘theory’ merely composed of four words: *laisser-faire, laisser-passer*. The Economists who applied this principle to all the aspects of economic life propounded that all exchanges should be conducted under free competition. They, of course, did not disregard social questions but it seemed as if they laid the burden of responsibility on *paupers* themselves and accused them of being uneducated and filthy (Van Daal, 2005, p. xviii).

At this point Walras argued that both the Socialists and the Economists failed to come up with a ‘scientific’ solution to the social question. Walras believed that ‘the problem of the distribution of social wealth among the people in a society’ was the most pressing economic problem that begged a solution. This was the reason why he talked about the miserable situation of the French working class both in Paris of the day particularly and in France generally in the introductory section in his *Elements*. According to Walras, the current social question gave way to involuntary poverty. Walras argued that the problem of ‘order’, or in other words, ‘the problem of political organization of the government or the society and the problem of liberty and authority’ along with ‘justice’, or in other words, ‘the problem of equality and inequality’ accounted for two significant social questions (Walras, 2010, p. 128). Therefore, the greatest and most urgent problem that needed to be solved was this social question for Walras:
There is a question which is not the Far East question, nor the Roman (the Church of Rome) question, nor the question of the British Alliance; a question much more important than all these and which a great deal more touches us: It is to know the social question [Cited in (Rugina, 1987, p. 535)].

Yet Walras's inclusion of social questions into his analysis and the idealist perspective he adopted were later gradually set aside and replaced by his studies on pure theory. One of the reasons why this happened was the fact that Walras was anxious not to be regarded as a person who was complaining about the current social order and suggesting that economy be reorganized in a way to hurt the interests of the ruling class by those who imposed censorship in the Third Empire. Thus Walras avoided revealing his theory overtly as a normative layout and headed for pure theory.

Another reason why Walras turned to the theory of pure economics, in spite of his passionate interest in such political and practical problems as the expropriation of land, collective action and single tax, was the letter he received from his father while he was writing a book entitled Economics and Justice, A Critical Examination and Refutation of the Economic Doctrines of M. P. J. Proudhon late in 1859. In this letter Walras's father simply gave the following advice [Cited in (Walker, 1983b, p. 125)]:

If you decide to publish your work, re-read it with care; don’t allow anything to remain in it that could give even the slightest offense from a political point of view. Place yourself and keep yourself always on scientific ground. Arrange matters, in a word, so that if by chance anyone decides to lodge charges against you, the Imperial Prosecutor would be obliged, in order to have you condemned, to maintain that the world does not turn, that the sun is no bigger than a pumpkin, that thunder is a bar of iron forged by the Cyclops\(^{11}\) and hurled by Jupiter.

Although Walras initially endeavored to find a solution to the social question, such matters as the social question and social justice were gradually buried deeper in the analysis and he started to offer an economic analysis through mathematical statements and formulae because of these reasons.\(^{12}\) In other words, Walras

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\(^{11}\) The giant having a single round eye in the middle of the forehead in Greek mythology, while Jupiter is the god of the heavens and of weather in Roman mythology.

\(^{12}\) This inclination, stands out in Walras's works as well. For instance, the first of his three main works Elements was written after 1870 and portrayed a system of necessary economic relations;
began his analysis endeavoring to find solutions to the problems of the society and the time he was living in and tried to draw people's attention to such issues but then went on portraying an ideal situation within which he could readily utilize mathematical statements, not the existing conditions both because of his father’s suggestion and because he was anxious about the criticism and punitive actions he might have faced. One cannot deny the fact that Walras listed economics among natural sciences like physics and astronomy along with the fact that he designed his analysis emulating these scientific disciplines played a major role in his not avoiding utilizing mathematical statements and formulae, but far from it, arguing that it was essential to use mathematics. Within this context it can also be put forth that Walras was basically Cartesian with regards to his way of analytical thinking. Walras used the method which was first defined by Descartes and which spectacularly served natural sciences during the Enlightenment in his economic reasoning. Moreover, his biography and correspondence reveal that young Walras read Descartes, Newton and Lagrange. Vito Volterra in his second work *Social Economics* was written in 1896 and studied social ethics questions like communism, individualism, private property, expropriation of land and public finance, while his third work *Applied Economics* was written in 1898 and discussed practical issues like bimetallism or monometallism, monopoly or free competition, free commerce, the role of banking and loans and use and misuse of stock market speculations. See. (Walker, 1983b, p. 23)

13 It should, at this point, be noted that there are dissenting views on the objective of Walras's analysis. For instance, Koppl argued that Walras's analysis generally aimed at depicting an idealized kind of capitalism, insomuch as, scientific socialism. According to Jaffé, on the other hand, the implicit objective of Walras's general equilibrium theory design was neither depicting or analyzing the modus operandi of the economic system as it was nor merely depicting economic relations in a theoretically perfect free competition regime, it was rather proving the possibility of axiomatically formulating an economic system which was logically consistent and able to meet social justice demands without transgressing the borders imposed by the natural exigencies of the real world (Walker, 1983b, p. 105). In other words, Walras's intention was prescriptive and normative even in his 'pure economics' rather than positive and descriptive (Walker, 1983b, p. 334). Therefore, according to Jaffé, Walras's objective was not to examine how the capitalist system worked but to depict the ways in which an imaginary system could operate in concert with principles of justice based on the traditional philosophy of natural law (Jaffé, 1980). Jaffé. In this respect, *Elements of Pure Economics or the Theory of Social Wealth* is an attempt at realist utopia.

14 Friedman goes a step further. According to Friedman, the reason why Walras's analysis was considered such a vital and revolutionary one was the change seen in our general philosophical and methodological perspective witnessed particularly in natural sciences which was based on the replacement of Newtonian physics with Einsteinian physics (Milton, 1955).

15 Koppl points out to the Cartesian influence in Walras's analysis as well and argues that Walras's Cartesian ontology led him to suggest a mechanical price theory and to assess his theory as a branch of Cartesian physics while his Cartesian epistemology drove him to build an equilibrium theory which was hard to test empirically (Koppl, 1992, p. 17).
DOES 19TH-CENTURY FRANCE EXPLAIN LÉON WALRAS?
Hüsnü Bilir, Vural Başaran

article ‘Les mathématiques dans les sciences biologiques et sociales’ (1906) stated that Walras late in his life had only been too happy to read that the new mathematical economics, for the rise of which Walras among others played an important role, had been included in the same scientific accomplishment class methodologically as those of Descartes in geometry, Lagrange in mechanics, Maxwell in physics and Helmholtz in physiology (Walker, 1983b, pp. 102–103).

Similarly, the mode of analysis used by Louis Poinsot in his Éléments de statique (1803), which demonstrated interdependence among the pieces of a system proposing a theory of equilibrium and the movement of systems with reference to the physical universe, encouraged and influenced Walras to a great extent. The most important progenitor of Walras’s specific economic theories, however, was Achylle-Nicolas Isnard. In Traité des richesses published in 1781, Isnard developed a theory of exchange, a theory of production and the technique of using a numéraire commodity, each of which served as a starting point and model for Walras’s work. Samuel von Pufendorf and Grotius were also the progenitors of Walras’s philosophical views, imbuing him with a conviction of the reality of natural law and the desirability of adhering to it (Walker, 1983a, pp. 3–4). Besides, one can see the traces of such emulation in many of the texts that Walras wrote:

Very few of us are capable of reading Newton’s Philosophiae Naturalis Principia Mathematica or Laplace’s Mécanique Celeste; and yet, on the word of competent scientists, we all accept the current description of the universe of astronomical phenomena on the principle of universal gravitation. Why should the description of the universe of economic phenomena based on the principle of free competition not be accepted in the same way? There is no reason why the proof of the system, once established, may not be taken for granted, nor why the assertions involved may not be used in the study of questions of applied or practical economics (Walras, 1954, p. 428).

So Walras influenced the scientific background of his time and believed that there is a perfect reciprocity and correlation between the method of natural sciences and humanities. Along these lines he divided economics into three categories\(^\text{16}\) as

\(^{16}\) Jaffé showed that Walras divided his work into three parts in accordance with the philosophical position that it is important to identify what is true—which led him to contribute to economic theory; what is useful—stimulated him to investigate problems in applied economics; and what is just—which motivated his concern with ‘social economics.’ Walras’s economic theory, contained primarily in the Éléments, was principally an analysis of the equilibrium of a
pure economics, applied economics and social economics and characterized them as science, arts and ethics respectively. In the first part, which constitutes pure economic theory, the problem is to investigate the ineluctable conditions that are imposed by the nature of things. This part consists of an application of logic to economic propositions. In postulating any hypothesis, it must be asked, in pure science, what must necessarily follow from it. Given the fact that economic propositions have in general a quantitative implication, in the sense that they are almost always concerned with the relationships between quantities, it is natural to use mathematics in seeking these implications (Walker, 1983b, pp. 127–128).

The second part of economics is referred to as applied economics and deals with the main subject from the perspective of what is useful. This part assesses whether the reasoning developed by pure economics theory was applicable for the real world. Walras frames applied economics as such:

The will of man is free to influence the production, as well as the distribution, of social wealth. The only difference is that in distribution, man’s will is guided by considerations of justice, whereas in production his will is guided by considerations of material well-being. Moreover, technical production and economic production, as we have defined them, are not unlike in essence. The two phenomena are, in fact, closely connected and interrelated, each being complementary to the other. Not only are they both human and not natural, but they are also both industrial and not social phenomena, for economic production as well as technical production are manifestations of relations between persons and things with a view to the subordination of the purposes of things to the purposes of persons. Thus the theory of the economic production of social wealth, that is, of the organization of industry under a system of the division of labor, is and an applied science. For this reason we shall call it applied economics (Walras, 1954, pp. 75–76).

multimarket economic system, using the assumptions of pure competition and static certainty. His applied economics, to which he devoted his attention in the articles collected in the *Etudes d’économie politique appliquée*, was concerned with the development of policies based upon theory, on the assumption that the goals are given. His social economics, exemplified by the essays in his *Etudes d’économie sociale*, was a normative branch of study, dealing with the formation of desirable goals. Going beyond the scope of modern welfare economics, Walras’s social economics did not merely work out the welfare consequences of trying to achieve different objectives but also evaluated the objectives themselves and formulated new goals. See: (Walker, 1983b, p. 5)
Walras called the third part social economics and dealt with economic phenomena from the perspective of justice. In applied economics the investigation begins with a given goal, without asking whether the goal is good or bad, just or unjust. Walras postulates various principles of justice, and, in the light of them, judges the different social goals that were proposed during his time. It must be recognized that such an investigation leaves economics proper and enters the domain of moral inquiry (Walker, 1983b, pp. 128–129). Walras defines social economics as such:

The appropriation of scarce things or of social wealth is a phenomenon of human contrivance and not a natural phenomenon. (...) (This phenomenon) is shaped, not by separate will of each individual, but by the collective activity of society as a whole. (...) Moreover, the appropriation of things by persons or the distribution of social wealth among men in society is a moral and not an industrial phenomenon. (...) What mode of appropriation is good and just (...) is the problem of property. Property consists in fair and rational appropriation, or rightful appropriation. While appropriation by itself is an objective fact, pure and simple, property, on the other hand, is a phenomenon involving the concept of justice; it is a right. Between the objective fact and the right, there is place for moral theory. (...) (W)hat exactly is the object of the problem of property? This object consists essentially in establishing human relations arising from the appropriation of social wealth so as to achieve a mutual co-ordination of human destinies in conformity with reason and justice. Appropriation being in essence a moral phenomenon, the theory of property must be in essence a moral science. (...) If any science has for its object to render to each what is properly his, if, therefore, any science espouses justice as its guiding principle, surely it must be the science of the distribution of social wealth, or, as we shall designate it, social economics (Walras, 1954, pp. 76–79).

Namely Walras categorized the subject of economics into three groups as pure economics, applied economics, and social economics and underlined that although these three categories were interrelated they handled separate problems. For Walras, while pure economics dealt with the nature, causes and laws of social wealth, applied economics was concerned with the production of social wealth. Social economics, to which Walras referred as moral/ethical economics, on the other hand, studies the distribution of social wealth among the members of a society. In this respect, he underlined within this framework that his main interest was in...
science, or pure economics. Indeed, when one studies Walras’s analysis it is seen that he only dealt with things (facts) that could be observed and tested while he resorted to the real world only to put his theory into practice, or in other words, for practical reasons because Walras desired to make economics a physico-mathematical science, in his own words, and built his analysis on this base:

There is no medical doctor or surgeon who faced with sickness or injuries will start to weep or moan, and if there be such, then they are not the best. The same is true for an economist faced with social evils: he must learn to remain calm, to suppress his emotions in favor of the success of his studies. Finally, as soon as he has crisis-crossed the evil in every sense, he must be ready to leave the field of reality in order to elevate himself to the domain of cold abstraction which is also that of science [Cited in (Rugina, 1987, p. 533)]. Walras, in this regard, challenged the idea that the sole base of science or politics should be empiricism and argued that without theory there would be no science:

Facts are now in fashion: the observation of facts, the investigation of facts, the acceptance of facts as laws. In stormy times, political power falls into the hands of the ignorant masses. Art, science, philosophy are swept away. Facts become masters; empiricism triumphant reigns supreme. Analytical minds closely study the explosion and wait for chaos gradually to take over as an object of fond description and serene glorification. As for me, I will have no part in this [Cited in (Walker, 1983b, p. 349)].

Accordingly, in order to propose an efficient solution to the social question, first of all the issue should be formulated in a theoretically comprehensible and clear-cut manner. Thus, the use of mathematics is inevitable:

If the object of mathematics in general is to study magnitudes of this kind, the theory of value in exchange is really a branch of mathematics (…) pure theory of economics is a science which resembles the physico-mathematical sciences in every respect. If the pure theory of economics or the theory of exchange and value in exchange, that is, the theory of social wealth considered by itself, is a physico-mathematical science like mechanics or hydrodynamics, then economists should not be afraid to use the methods and language of mathematics. (…) This much is certain, however, that the physico-mathematical sciences, in the narrow sense, do go beyond experience as soon as they have drawn their type concepts from it. From real-type concepts, these sciences abstract ideal-type concepts which they define,
and then on the basis of these definitions they construct *a priori* the whole framework of their theorems and proofs. After that they go back to experience not to confirm but to apply their conclusions. (…) From these real-type concepts the pure science of economics should then abstract and define ideal-type concepts in terms of which it carries on its reasoning. The return to reality should not take place until the science is completed and then only with a view to practical applications (Walras, 1954, pp. 70–71).

To put it simply, Walras argued that economics was a natural science like mathematics and astronomy, in his own words, a physico-mathematical science; therefore, it should make use of mathematics as much as possible: ‘It is already perfectly clear that economics’, for Walras ‘like astronomy and mechanics, is both an empirical and a rational science’ (Walras, 1954, p. 47). Thus, if economics is a rational science like astronomy and mechanics, then economists should not avoid using mathematics because using the language of mathematics is not only useful but also necessary. Since, according to Walras (Walras, 2010, p. 8), science ‘is the idealization of reality.’ Therefore, perfection or absolute is the founding principle of theory and science. Thus, according to Walras, pure theory deals with the ideal, perfect form of reality (Rugina, 1987); in other words, for Walras (1868) ‘in science, our domain is that of ideas, of the ideal, of perfection’ [Cited in (Walker, 1983b, p. 345)].

In this regard, Walras’s domain was the theory of pure economics within which he could readily use mathematical statements and formulae. According to Koppl (Koppl, 1995), if Walras’s classifications of science and economics are to be handled together, pure economics, that is, the general equilibrium theory, is science; applied economics, a practical matter of what is more or less useful to us in our industrial pursuits, is not science but art; social economics, a matter of what is more or less just in our relations with each other, is ethics.

All in all, Walras turned to economics in order to propose a solution to the question of social justice, which he considered to be the most significant problem of 19th-century France within the framework of the conditions in which he lived, but then moved way from dealing with such issues because of the conditions of the period yet again and the pressure exerted by his family. In the following process he aimed at building a completely mathematical and abstract economic theory based on natural sciences—in his own words a ‘physico-mathematical’ theory
of economics. Today Walras has been identified with this abstract and mathematical ‘general equilibrium analysis’ in the history of economic thought. One can, within this framework, state that the environmental factors were quite determinant in both the rise and development of Walras’s economic thought.

4. Conclusion

Walras, who divided his economic analysis into three as pure economics, applied economics and social economics and defined them as science, art, and ethics respectively, stated that his primary interest lied in pure economics, that is, in science. Therefore, Walras has been identified with the abstract and mathematical ‘general equilibrium theory’ in the history of economic thought.

Within this framework, it can be argued that Walras set out seeking a solution to the ‘social question’ having been influenced by the time and conditions within which he lived before embarking on studying pure economics. Accordingly, Walras dealt with the issues of social question and social justice in his early works, then, turned to pure economics and left social questions aside both having been influenced by his father and academic concerns along with the imposition of the conditions he was in. One can say that while Walras’s early works were shaped around the notions of social question and justice, his later works were built in a mathematical and abstract manner based on pure economics. In this case we face two Walrases: a Walras who focused on the ‘social question’ which he himself called the most significant economic problem of his age and another Walras who left the ‘social question’ aside for the sake of being scientific and got involved in pure economics.

Hence one of the factors that underlay Walras’s ideas on equality and socialist structure undoubtedly proved to be the developments in the French society. This issue can be explained within the framework of the externalist approach in the historiography of science since this approach regards scientific activity as a social event and it can be explained through socio-economic processes.

Walras, on the other hand, was also influenced by the Enlightenment philosophy of his age and aimed accordingly at building economics as a physico-mathematical science. For instance, he read and influenced by Descartes, Newton and Lagrange and argued that both natural and social sciences should same method. Along these lines, one can argue that the fact that Walras comprehended the internal
modus operandi of science and endeavored to shape it within the context of his own social thought had an effect on the development of his economic analysis as well. This can, in turn, be explained by the internalist approach in the historiography of science since the argument of this approach is that the methodology of science is shaped by the internal dynamics of science, not by external sources.

Consequently, both the conditions of his age and the internal dynamics of science influenced the development of Walras’s economic analysis. In this regard, 19th-century France fails to adequately explain Walras. Scientific developments in the England and Italy of the age that changed the course of science influenced Walras as well. The internalist and externalist approaches, or in other words, conceptions of intellectual and social history should, therefore, be handled together in order to explain the formation process of Walras’s economic thought.

References


SOCIAL CAPITAL APPROACH IN INSTITUTIONAL ECONOMICS

Zehra Doğan Çalışkan

Introduction

The relationship between people is a significant bond that determines the living spaces of individuals in society, the boundaries and characteristics of these spaces and the behaviors of these people in that space. These bonds among people are significantly effective for constructing the individuals and by extension, society. The concept of social capital generally expresses these social bonds as well as formal and informal rules (Aktan & Yay, 2020:177).

Several research areas have used the concept of social capital frequently. The primary areas that have used social capital as a concept are education, economic development, democracy, family, migration, labor market, entrepreneurship, creativity, social exclusion, social movements and health sector. Since social capital can be evaluated in several aspects such as the relationship among individuals, the characteristics of confidence and mutuality in these relations and norms that can be considered as the features of social structure and since social capital has been approached in various levels such as macro, social and individualistic aspects, the concept of social capital is rather difficult to understand (Seçer 2009:104). However, despite its difficulty, social capital involves these distinctive concepts and it has been used in several areas. Moreover, due to the characteristic of social capital that guides and influences the economic, social and political relations of a society, it is notably significant as well.

Social capital expresses the economic, social and political capacities and conditions in a society. Furthermore, it is a concept that expresses reciprocal dependency and relation of all processes belonging to the society from labor relations to relationship between entrepreneur and novelty and from political choice and liberties to traditional and cultural behaviors. While social capital includes both social and

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real capitals, it can be considered as a superstructure / framework or an institution that uncovers the connection between these two capitals (Bexley 2007: 19).

Social capital is regarded as norms and confidence that aids institutions and organizations to achieve their mutual targets and objectives. Economic explanations and interpretations mainly emphasizes institutions, boards and economic transitions in micro and macro levels. In general, social capital is acknowledged as public good rather than individual capital. Social capital can be described as norms, social networks and reputation, confidence and credibility among people that affects productivity and health of a society. In this regard, social capital is depended upon the characteristic and quality of relationship and connection among the social groups. Social capital is not comprised of individual capital or individualistic qualities. Rather, it emerges from communication capacity and the ability to verbalize certain emotions in groups (ESAM 2005: 9).

There are several studies in the literature about real capital and how the real capital is accumulated in the society. In these studies, the real capital differences between the countries explained with various variables. The first study example from the view of institutional economics was Hanifan’s study (1916). According to Hanifan (1916), social capital can not only be defined with monetary issues or capital goods but also with welfare, tolerance, social consensus and problem solving ability. In essence, social capital is the sum of factors that are effective for a quality life. Like in working organizations, capital accumulation is necessary for constructive jobs to emerge in constructing a society. According to Hanifan, the most significant tools of social capital accumulation are schools and factories. Information and skills that would be taught in these places together with social capital will lead society to be flourished.

The studies of J. S. Coleman, R. Putnam and P. Bourdieu about social capital have been acknowledged as the pioneer studies. The definitions and approaches of these researches about social capital became an instructive path for the later researchers as well.

Bourdieu wondered about why the society could not be transformed and how the dominant classes protected their status-quo in society as upper-class. According to Bourdieu, this condition could not be explained only with regarding economic conditions. In order to explain this condition, cultural codes or rather, the cultural capital of society and the hierarchical order of this capital should be
regarded as well. He argued that the actors that monopolizes the social capital are the response of this condition. According to this argument, the opportunities that rose from social relations and provided various advantages emphasized in the definition of social capital (Bourdieu, 1986: 249). According to Bourdieu, social capital as the private good of individual or an actor is born with the relations of other actors, which had the potential of development in later. The most significant actors in early stages is identified as the confidence (Özen and Aslan 2006: 134).

According to Coleman, on the other hand, social capital emerges as a result of the reciprocal dependency of a culture, it completely originated in society and it is a concept that belongs to the society. Moreover, for Coleman, social capital is not an element that benefits only a fraction of a society as a superior factor above real and human capital and belonging to society but it also benefits every individual in the society as well. By internalizing the structural relationship among the actors, social capital uncovers what is best for the society (Coleman 1988: 98).

According to Putnam (1993), the concept of social capital consists of three components. These are: moral obligations, rules (norms) and social values (especially confidence). The basis of Putnam’s thoughts about the social capital is based upon the idea that both well-functioning economy and socially internalized political system will unveil the social capital with information networks and mutual confidence. The basis of Putnam’s concept of social capital is the component of confidence (Putnam 1993: 123). According to Putnam (1993), if every fractions in society depends each other reciprocally and have confidence towards each other, and if both political and economic processes is organized properly and judiciary system implements rapid and just sanctions, the existence of social capital in a country can be mentioned. Social capital is like a super structure which involves real and human capital and is above them. The existence of a social structure is notably significant for solving the problems such as development, growth, unemployment and impoverishment (Putnam 1933; Siisiainen 2000: 5).

The concept of social capital has been discussed frequently after the first half of 20th century. It involves economic, social, cultural and political certain changes belonging to a society as well. In this regard, if a society has a well-functioning economic system, well-constructed political system and confidence to each other culturally, this type of society will be more successful to solve the problems than the other types of societies. Since social capital not only approaches economic
developments but also all the other changes in the society with a holistic approach, it requires an inter-disciplinary study and perception. Moreover, since social capital is a framework above the established structure, it is one of the most significant field of studies in new institutional economics.

**Institutional Social Capital**

Institutional economics argues that the basic research subject of economics is people and group behavior, and therefore, while human behaviors shapes institutional structure, institutional structure also shapes human behaviors in time as well. Since human behaviors are depended to their social environment, the major issue of economics would be to analyze and clarify these social environment conditions. When institutional structure is mentioned, it means that the sum of both production and living modes of a society that is shaped with habits, ideas and behaviors. Without understanding the institutional structure, it is impossible to understand and explain the economic events. From this point of view, social capital means that mutual trust, which was occurred through social networks, among the individuals (Putnam: 2000). In this regard, social capital has become a concept that clarifies both living and production processes within the institutional economics.

Karataş and Seki (2017) researched the impact of social capital differences on regional development and they clarified that social capital has an impact on costs, investments, capital activities, income distribution, productivity and innovation capacity. In other words, social capital is in center of the economic activities and it is a major, effective force upon those activities as well (Seki and Karataş, 2017).

North played a significant role for the development of institutional economics and he approached to the concept of social capital institutionally rather than individually (Seki and Karataş, 2016). From this point of view, social capital was defined with mutual trust, confidence to the contracts, commitment to social norms and confidence towards the judiciary system. Social capital determines the rules of the game and it is the sum of informal behaviors and habits (North, 1991).

Social capital includes the continuity of relations among all the social groups in the society, the durability of bonds, mutual trust among the all individuals and groups in the society, the formal and informal norms, which will establish such mutual trust, institutions and non-governmental organizations, which
will be shaped around these institutions (Yay and Şataf, 2018:3). From a different perspective, there are three significant components in social capital. These are defined as bonds, bridges, and linkages. Bonds or cultural bonds analyze people with similar cultural origins (or similar people) and the behaviors of these people. Bridges or social bridges express the relationship between close people such as people who graduated from the same school, who lived in the same neighborhood, who sent their children to the same school. Linkages or social networks researches the human behaviors that have been gathered under the leadership of a leader (OECD, 2007:103) From this point of view, social capital is a notably significant concept that affects the process of economics decisions, which shapes the lives of people throughout their lifetime.

Evaluation

Social capital is a concept that harbors economic, social, cultural, and political aspects of a society. Although it is difficult to measure, it is a concept that shapes the entire life in society. In this regard, if a society has a well-functioning economic system, well-constructed political system, and confidence to each other culturally, this type of society will be more successful to solve the problems than the other types of societies. Since social capital approaches not only economic development but also all changes in a society with a holistic approach, it requires interdisciplinary study and perception. In other words, while social capital is a concept that has been used to explain how the institutions of a society formed in institutional economics, it forms a super frame for institutional structure as well.

For this issue, there are two significant questions that should be asked: How the existence of mutual bonds, confidence, sincerity, welfare, and tolerance affects the economic decisions? Is it possible to form a relationship between social capital differences in countries and economic development (growth, development numbers)? It is possible to express this statement for these questions: it is easier to sell products, produce, find jobs, starting a business in societies that mutual trust, bona fide, and tolerance exist and have a strong social bond. Furthermore, the lifetime of companies and happiness of employees are more in these societies. From this point of view, state interventions and policies are based on to increase the happiness of their people (in countries that political gain and pursuing personal benefits from politics as well as corruptions are less). In this regard, enrichment is more lasting and sustainable in the countries that social bonds are strong.
Moreover, development indicators are expected to be better in societies with rich social capital. It is possible to mention the inclusionary laws for all of the society in the societies with strong social communication. Economic, judiciary and political institutions with inclusionary and protective aspects work better in societies with strong bonds. So, the ultimate question to be asked for social capital will be: can social capital be increased? Further, whether social capital is increaseable or not and if it is increaseable, then, how it can be increased? From the point of institutional economics' view, social consensus and communication can be increased well in societies under the administration with more transparent, accountable and liberal. When liberal, reconciliatory and accountable approach is followed in the corporate management, it is expected that social capital will increase.

References


CHAYANOV’S AGRICULTURAL PRODUCTION MODEL: AN OVERVIEW

Cumali Bozpinar

In noncapitalist societies, the market differs. In these societies, it is possible to talk about market-like institutions rather than the market, which we can call “bazaar”. The difference between market-like structures, i.e. bazaars, and the market is that in the latter everything is the commodity produced for the market. This includes factors of production (Wood, 2003: 107). Moreover, in noncapitalist societies, bazaar reflects the mode of production of these societies. Indeed, in noncapitalist societies, trade does not cover the whole of society, and a way of living above the subsistence level is observed only in bazaars. Since the subsistence-level living segment of the society does not participate in commercial life, there is no market as an institution in their world. In addition, market actors (lenders, brokers, consumers and even traders) are not required to be constantly connected to the bazaar (Ozveren, 2007).

A. V. Chayanov has done studies on noncapitalist agricultural organizations. In his analysis the principles of organization are not of capitalist nature. In this context, it can be stated that it does not include the wage category in its analysis. In this study, Chayanov’s model of noncapitalist agrarian organization, i.e. peasant farm, was examined in terms of its general characteristics. In addition, this model has been compared to the Ottoman model, i.e. the çift-hane system, in general and some inferences have been made.

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Chayanov’s Noncapitalist Model: The Theory of Peasant Farm

The toolbox of capitalist economic analysis cannot be used in the analysis of noncapitalism economic structures because the economic categories in capitalist economic theory, namely price, capital, wages, interest and rent, are functionally dependent on each other, and if a brick is removed from the system, the entire structure is destroyed (Chayanov, 1966: 1, 3-4). In other words, in the absence of any of these categories, they cannot even be quantifiably defined as all others have lost their specific characters and conceptual content. This analysis also applies to noncapitalism agrarian organization because there are no categories of wage labor as a basis in these organizations.

In a noncapitalism economy, economic activity is based on the necessity to satisfy the needs of each productive unit, which is at the same time a consumer unit. In this requirement, the amount is calculated as “sufficient” and “insufficient”; it is so short and therefore the budgeting is exceedingly qualitative. Therefore, there is no problem such as the comparative profitability of the types of spending. Because “products” cannot be exchanged and substituted, they cannot be expressed in a common standard (Chayanov, 1966: 4). In other words, there is need, not preference; it is satisfied in little or large quantity, that is all.

An economic system in which there is no wage category—a system of farmer and artisan family labor units where there are categories of price and capital—falls outside the scope of the conceptual system of an economist adapted to capitalist society. On the family farm, the family uses its own labor force to own the means of production, selling the product it has obtained without using paid labor, resulting in a gross income. After the annual cost of raw materials is removed, the equivalent of the annual work is an increase in the value of material goods, which is the product of their labor. This family labor product is the only possible income category of the peasant family labor unit, as there is no way to divide it into its components (income categories) in an analytical or objective way. Since there is

2 In the pre-capitalism era, we cannot talk about the capitalist ideal type “homo economicus”. Acting according to formal rationality, homo economicus is briefly a man of account. In the type of pre-capitalism period, subjective rationality is valid, and in short, it can be assumed that he did not do a quantitative calculation in his economic behavior by using technical means objectively, and that he acted according to tradition in general. See for details Weber (2012: 199-201). These explanations also apply to noncapitalist societies.
no wage category, there is no net profit category. Hence the calculation of capitalist profit is impossible (Chayanov, 1966: 5)³.

The family labor product depends on the state of the market, the position of the family unit relative to the market, the availability of the means of production, the size and composition of the family, the quality of the soil, and the other conditions of production of the unit (Chayanov, 1966: 5). However, the amount of labor product is mainly determined by the size and composition of the family, the number of members with the capacity to work, the productivity of the family unit, and the degree of labor effort—the degree of internal exploitation—of particular importance (Chayanov, 1966: 5-6). Chayanov, based on empirical studies on peasant farms in Russia and other countries, recognized that the degree of domestic exploitation would be determined by the specific balance between family demand satisfaction and labor effort (drudgery). Here, each new ruble of the growing production of family labor can be viewed from two perspectives: the satisfaction of family needs (consumption) and the effort taken to acquire the substances that will provide it. It is clear that with the increase in production as a result of hard work, the subjective assessment of the meaning of each newly acquired rouble for consumption decreases, but more work that requires internal exploitation increases. As long as the evaluation between the two elements does not reach a balance, i.e. the labor of the work is less than the use of labor required for the satisfaction of the needs, the family must continue its economic activity as usual without wage labor⁴ (Chayanov, 1966: 6).

According to H. Inalcik, Chayanov’s peasant farm theory provides a comprehensive framework for understanding the Ottoman agricultural structure. However, the existence of a centralised control over land ownership and family labour seems to be the most important precondition for the continuity of such a system. Preventing both the encroachment of local gentlemen and the transformation of provincial representatives of the state into centrifugal forces required the continuous and systematic struggle of the state bureaucracy. Another point that Chayanov overlooked in the peasant farm system was the unit’s animal power (the çift öküz, which was eminently mentioned in Ottoman Tabrıs). Just as modern

³ As Teoman (1999) points out, according to Chayanov, this unit is specific to a distinct mode of production, such as capitalist production or feudal production.

⁴ In Chayanov’s terminology this balance has been called the labor-consumption balance.
capitalist agriculture cannot be explained without machines, the çift-hane system cannot be explained without plows and this animal power (İnalçık, 2009: 189).

The difference between these two systems, namely central control, suggested by İnalcık should be evaluated in the context of ceteris paribus in Chayanov’s analysis. In other words, Chayanov laid out a theory and did not include the state in his analysis in the context of ceteris paribus, although he did not explicitly state it. On the other hand, Chayanov counted animal power among the capital of the farm family. Although İnalcık states that Chayanov does not mention plow and that his theory is incomplete in this sense, his criticism is unattractive. Our inference about İnalcık’s criticism of Chayanov is that while Chayanov was establishing a theoretical structure, İnalcık was trying to compare Ottoman practice with this theoretical structure.

It is also possible to mention optimal business size in peasant farm. Since the labor force of peasant farm cannot be easily changed, it is imperative to use other factors of production at optimal rates with this constant element. The abundance of the means of production or of the soil according to the optimal level puts an overload on the family (business) and does not result in a higher volume of activity. Because the concentration of labor beyond the level of self-exploitation is unacceptable for the family. As the capital density of the farm increases and the relative labor density decreases, the productivity of the capital falls steadily. This means that the urge to expand the farm further disappears as it approaches optimal size (İnalçık, 2009: 191). In this context, population density is important. Population density lowers marginal returns due to the decrease in the productivity of the additional labour force due to the law of diminishing returns. Despite this, households with insufficient land are forced to increase their work density even though marginal returns fall due to the concern of meeting annual needs (Chayanov, 1966: 7). In other words, if family size increases, this increases the intensity of work.

Here it is understood that the idea that population growth will be massed by intensifying agricultural activity is valid. Moreover, Chayanov tacitly acknowledged that it could be increased production for the market and could be increased capital by increasing labor density.

Population density and land use patterns are very important social factors that determine the economic system. Another social factor of less importance is the
traditional lifestyle determined by tradition and habit. This determines the extent of consumption demands and thus the internal exploitation of labour power. In a region under the conditions of natural economy, some mixed economic processes take place despite the lack of interrelationship within itself and the economic disconnection of its economic units. The main factor in these processes is demographics—population density and migration (Chayanov, 1966: 12). Changes in all this lead to a new balance, though Chayanov has not made it clear.

The peasant farm generates a single labor income as a result of the family’s own annual labor, and compares its effort with the material results to be obtained (Chayanov, 1966: 41). Here it is accepted that the peasant is not an entrepreneur in terms of motivation in his economic activities but rather a worker based on a per-part wage system (Chayanov, 1966: 42).

The peasant, on the other hand, is not of a nature that embraces all forms of entrepreneurship, but his behaviour is governed by the balance of labour-consumption and his own greed. Besides, the peasant is not principled. If he gets the chance, he’ll want a good steak, a gramophone and Shell shares. However, such opportunities are not encountered much, and the farm family obtains each “kopek” through hard work (Chayanov, 1966: 47-8).

According to Chayanov, the pool of labor power of the family, the composition of it, and the degree of work are entirely determined by the composition and size of the family. Therefore, the composition of the family is one of the main factors determining the organization of the peasant farm—proximity to the market, the amount of land used, the availability of means of production, and natural productivity are also the determining factors. Here the minimum level of economic activity is determined by the sum of the substances required for the absolute existence of the family (Chayanov, 1966: 53).

As mentioned earlier, the economic activity forms of the farm family consist of agriculture, crafts, and trades. These are the family’s annual tasks. Its economic activities are determined by the family’s annual budget opportunities and the savings or capital investment to be made (Chayanov, 1966: 60).

The breadth of the family is not determined by the volume of economic activity of the family, conversely the size of agricultural activity determines the composition of the family. In other words, the breadth of the family is compatible with
the livelihood security of the family (Chayanov, 1966: 64). Thus, some determinations can be stated: First, the family’s composition determines the organization of the peasant farm. Second, the level of economic activity is determined by the sum of the items required for the absolute existence of the family. Third and finally, Chayanov acknowledges the existence of a balance at this point, but this balance is not at subsistence level because as we mentioned earlier “if he gets the chance, he’ll want a good steak, a gramophone and Shell shares.”

Chayanov has stated that the intensity of work is determined by the internal structure of the family. For this, he used the coefficient “ratio of consumers to employees”. As the rate grows, the employee’s annual income grows. This refers to the increase in the working density of farm labor. When the analysis is expanded and other things are assumed to be fixed, the employee who is driven to work through the demand of his or her family becomes more energetic as that demand strengthens. Accordingly, Chayanov deduced that the volume of economic activity of the farm family depends entirely on the number of consumers and does not depend at all on the number of employees (Chayanov, 1966: 76-8).

Chayanov’s statements on the labor-consumption balance are interesting:

“…the subjective evaluation of the values obtained by this marginal labor will depend on the extent of its marginal utility for the farm family. But since marginal utility falls with growth of the total sum of values that become available to the subject running the farm, there comes a moment at a certain level of rising labor income when the drudgery of the marginal labor expenditure will equal the subjective evaluation of the marginal utility of the sum obtained by this labor.

The output of the worker on the labor farm will remain at this point of natural equilibrium, since any further increase in labor expenditure will be subjectively disadvantageous. Thus, any labor farm has a natural limit to its output, determined by the proportions between intensity of annual family labor and degree of satisfaction of its demands…” (Chayanov, 1966: 81-2).

As can be seen, Chayanov made use of Marginalist concepts through analogy. This is an example of a marginal utility-marginal cost analysis in which there is

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5 This pattern of behavior does not match that of the homo economicus type. It can be assumed that the manner of conduct in question is based on the “agha consciousness” peculiar to pre-capitalism/noncapitalist societies. See for details Ulgener (2006).
a balance and there is no possibility of exploitation above that equilibrium point because working beyond this balance will reduce the total product.

However, Chayanov (1966: 78) has stated that such a exceptional determining influence of the demands of consumption will only occur if other things are assumed to be constant. In this context, he analyzed what would happen if the soil and technology restrictions were removed. Better employment conditions arise when there is no land constraint, and hence the amount of output increases; this inevitably raises family and consumer well-being. Moreover, the increase in output resulting from the increase in the number of consumers does not lead to a parallel increase in well-being, but may lead to a decrease. If there is an increase in productivity resulting from the improvement of production conditions, this increases well-being. As labor productivity increases, incomes increase significantly, but at the same time the rate of increase in incomes falls behind the rate of increase in labor productivity. This latter case shows that the increase in labor density lags behind incomes because in order to remain the same, the growth in productivity and the increase in pay per unit of labor must be proportional (Chayanov, 1966: 79-80).

When approaching the organization of an undertaking based on the principles of the peasant farm, we first all find that the labor force is fixed by being present in the composition of the family. It cannot be increased or decreased at will and other factors also necessarily bind to this factor in an optimal way (91-2). Within the scheme of the harmonically shaped structural elements of the family farm enterprise, the family labor force is constant, and the production elements of the farm come together in accordance with the usual technical harmony among themselves. Under the possibility of acquiring the necessary land and having the necessary means of production, farms are constructed within the technical optimal system of production factors according to the relationship between them and their size, in accordance with the optimal level of exploitation of the family labor force. Labor and land exceeding the technical optimal level would be an undue burden on enterprise. In this sense, an increase in the volume of activity is not possible because the concentration of labour beyond its established level of internal exploitation is unacceptable to the family. An increase in productivity resulting from an increase in capital density cannot be achieved once the optimal ratio has been reached (Chayanov, 1966: 92).
A similar type to the family farm is the quitrent peasant farm, an original combination of the family farm with the serf farm. In this type of organization, the family “dedicated its whole labor power only to its own agricultural or other economic activity. But a noneconomic constraint forced such a unit to hand over to the owner of the laboring serf family a definite amount of the produce won by its labor” (Chayanov, 1966: 16). With the exception of this difference the quitrent farm has the same characteristics as the peasant farm as family farm organization. Although the quitrent amount is determined by non-economic factors depending on the owner's enjoyment, its arbitrariness is not unlimited. The limit here is that the farm is in danger of collapse and therefore deprived of its ability to pay. Quitrent is considered normal as long as the cost of subsistence and mandatory renewal expenses are met. If the pressure caused by the quitrent payment brought the farm's capital renewal to a standstill, the system would begin to undermine itself (Chayanov, 1966: 17). Population growth eradicates the quitrent system. For this, migration or colonization from over-populated places to sparsely populated places is exceedingly advantageous (Chayanov, 1966: 20). The fief system, a special form of feudal style of production in which the peasants who paid tribute, corresponds to the quitrent peasant farm system in general terms of its economic structure. Thus, the capacity to pay tribute here also depends on improving the well-being of the population dependent on property (Chayanov, 1966: 21).

It is understood that the quitrent peasant farm and the çift-hane system are similar when it is taken into account that the state should not interfere with the organization and take tax from the land used.

Conclusion

Chayanov has revealed a micro-model that is organized according to the needs of the peasant family. Balance is provided if the needs of the family are met. There are no capitalist categories in this model, such as wage labor. This quality reflects one of the general characteristic of noncapitalist production structures.

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6 It is the monetary amount that serfs pay to the feudal lord instead of the services they were previously obliged to perform (Kurmus, 2009: 203). The quitrent is a relic of feudalism. In the Middle Ages, when feudalism began to decline, the feudal obligations of the peasants were translated into an annual monetary payment, which was called the quitrent (Bond, 1912).

7 However, this issue requires more detailed study and should be examined as a separate study.
On the other hand, it is understood that the quitrent peasant farm and the çift-hane are similar considering that the state should not interfere with the production organization and take tax from the land used. However, Inalcik has established a similarity between the peasant farm and the çift-hane. Therefore, it is thought that it would be appropriate to reconsider the theoretical foundations of the çift-hane system.

References


ÖMER LÜTFİ BARKAN IN TURKISH HISTORY OF ECONOMICS: HIS PHILOSOPHY AND METHODOLOGY

Aslıhan Nakiboğlu¹, Sevgül Işık²

Introduction

Evaluating the scientists who are known as the pioneers of the Turkish History of Economics and their studies, discussing the methodological elements of science is very crucial in terms of comprehending the scientific path followed by the Turkish History of Economics. In order to make such an assessment in the Turkish History of Economics, it is essential to consider the people to be addressed, the period during which they lived, the education they received, and the people affected by their educational processes. It is getting even harder for this type of evaluation which is particularly relevant for economic historians such as Ömer Lütfi Barkan, who took lessons from lecturers such as March Bloch, Maurice Halbwachs, and Henri Baulig, who have conducted a wide range of studies and dealt with events with a new spirit and approach. Emphasizing that the knowledge of history is very important for both Turkey and the economic domain, Ömer Lütfi Barkan is able to explain what, with which thoughts, why, and how the author did so in order to understand the methodology of science in the economic history in the best way, and how and in what way the scientists who came after him. Thus, it will be easier to evaluate the studies in which the Turkish History of Economics has focused on understanding the Ottoman State system, and the positive or deficient aspects of the methodology and findings would be revealed more profoundly. Ömer Lütfi Barkan has conducted more than 200 studies during his lifetime. Assessment of all of his written works is too broad for the scope of this study. In the study, rather than writing the biography of Ömer Lütfi Barkan, the

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contributions of the author to Turkish Economic historiography are emphasized. The author’s views, philosophy, and methods in his works are explicated. As a result, with the works of Ömer Lütfi Barkan, as the founder of Turkish History of Economics, his contribution to the Turkish history with a variety of studies, meticulous explication of the economic and social structure with the more carefully examined, territorial issues, bringing the Annales the impact of school in Turkey that successfully implemented their works, archival studies which give much importance, taking up the Ottoman history as a whole, emphasizing the importance of the problems in education and the necessity of applying interdisciplinary studies to science along with the importance of history education in which he studied the effect on the Ottoman functioning.

This indicates that Ömer Lütfi Barkan made an important contribution to social and economic history with his new economic ideas and new economic methods by diverging from the narrative history understanding in which the political and military historiography elements in Turkish History of Economics are more intense. Thus, the history of Turkish economics got rid of tradition and left it as an important legacy to new generations how to write history with modern methodology. Ömer Lütfi Barkan has been a pioneer scientist in interdisciplinary studies not only in his own generation but also in the following generations.

**Life of Ömer Lütfi Barkan**

Because science is a special discipline, it has a certain method and way of working. In his/her studies, the scientist concentrates on observational phenomena in the outside world and tries to reveal causal connections and makes predictions by evaluating the emergence conditions of the phenomena. It tries to explain these connections with universal definitions. For this, scientific studies function with a special scientific discipline and the rules are clear. Scientists turn to the environment depending on these rules. Human-specific scientific studies aim to provide better living conditions for human life and to make progress. Science is also shaped by the most curious concepts. Every scientist questions mankind and investigates people and nature. Scientists question the concepts they deal with, learn, and try to understand the problems. Scientist upbringing conditions are shaped by society as well as by science and their own curiosity (Unat, 2017: 13).
Biographies are important in terms of presenting life stories of people according to a certain chronology. Since the people whose biographies are written are not ordinary people, they are the people whose studies and theories that participated in the political social structures of the period during which they lived were influenced by the period they belonged to. Under this title, information regarding the life of Ömer Lütfi Barkan, one of the most important scientists of Turkey’s economic history, is presented.

Ömer Lütfi Barkan was born in 1902 in Edirne. After completing his primary and secondary education there, he finished Edirne Muallim School. He worked as a primary school teacher for three years. After studying for a year at the Secondary Teacher Training School, which was opened in Istanbul in 1923, he enrolled in the Faculty of Letters and the Higher Teacher Training School. Having graduated from the Faculty of Philosophy in 1927, Barkan was sent to the University of Strasbourg Faculty of Letters to be trained as a high school teacher. After completing an undergraduate program in this faculty with his general philosophy, sociology, and psychology certificates from the Faculty of Law, he completed a second undergraduate program and was appointed as a philosophy teacher at Eskişehir High School (Çakır, 2003: 23).

During the higher education reform, Barkan was appointed as an Associate Professor at the Turkish Revolution Institute Istanbul University in 1933, and in 1937 he became an Associate Professor in the Department of Economic History and Economic Geography. He was promoted to a professorship in 1941 and ordinarius professorship in 1957. Meanwhile, he served as the Dean of the Faculty of Economics between 1950-1952. Barkan, who was also the chairman of the Department of Economic History, has been teaching the History of Turkish Revolution at the Faculties of Literature and Science. He has given Turkish Law History courses at the Faculty of Law for six years after 1941 (Kaplan, 2008: 4-5).

Barkan, who founded the Turkish History of Economics Institute in 1950 and made an effort to publish the Faculty Journal’s economic history issues, retired in 1973. He was given the title of “Doctor of Honor” by the University of Strasbourg in 1943, and in 1968 he was elected as “reporter member” to the Belgrade Academy of Yugoslavia. He was invited for a long time to the University of Paris, the History Institutes of Yugoslavia, Romania, and Bulgaria to hold conferences. Since 1940, he has been the principal member of the Turkish Historical Society.
and the chairman of the “Ottoman and Pre-Ottoman History Committee” affiliated to the International Union of Orientalists. He died on August 23, 1979, in Istanbul and was buried in Edirnekapı Martyrdom on August 28, 1979 (Karahasanoğlu, 2012: 144-145).

A scientist can make universal contributions to science by leaving a certain society and by developing economically, politically, and socially in that society. Thus, Ömer Lütfi Barkan, as a scientist, also became prominent by preparing the society he lived in for new information. This has been a crucial indicator that Ömer Lütfi Barkan provided the society and its current conditions with his scientific views.

Ömer Lütfi Barkan’s Contributions to History of Economics

Scientific studies have been given with a traditional understanding for years. In order to better comprehend the studies about the Ottoman Empire, elements such as the economic activities of the state, socio-cultural values, and demographic structure and should be well apprehended. Ömer Lütfi Barkan, as the founder of economic history in Turkey, examined the economic, social, and cultural elements of the Ottoman Empire using historical studies. With his interdisciplinary studies, he ensured that the history of Turkish Economics is included in universities as a branch of science in Turkey.

The history of economics was accepted as a distinct and independent scientific discipline, apart from history and economics, and entered universities as an academic discipline, with the establishment of the Department of Economics history for Cunningham and W. J. Ashley at Harvard University in 1892 (Turhan, 2011: 21-22). The founder of the field of economic history has been recognized as Ömer Lütfi Barkan in Turkey. Ömer Lütfi Barkan is undoubtedly the person who brought the science of economic history to Turkey by courtesy of his studies.

Barkan has not studied history. He is a graduate of philosophy. After graduating from Istanbul University, Faculty of Letters, he was sent by Prof. Albert Gabriel to the French University of Strasbourg to study philosophy and sociology. At the university, he was impressed by March Bloch, the representative of the Annales school. He also took lessons from lecturers such as Maurice Halbwachs and Henri Baulig.
Barkan began to attract attention with the articles he wrote in the Faculty of Political Sciences and the Ülkü Journal in 1936 and 1937. In 1937, Ömer Celâl Sarac, the dean of the Faculty of Economics, requested Barkan’s attendance to the faculty. Barkan responded positively to this request and was appointed to the Faculty of Economics in 1938. He prepared his associate professorship thesis on “Land Issues in the Ottoman Empire During the Era of Establishment”. The thesis jury consisted of Fuat Köprülü, Alexandre Von Rüstow, and Ebül ulâ Mardin. He acquired the title of “Associate Professor of General Economics and Economic History” in 1939 (Sahillioğlu, 1985: 3-10).

Following World War II, the socio-economic history defended by the Annales school has come to the fore in the world. Annales History School has emerged with a new understanding of history against the traditional understanding of history. Barkan studied in Strasbourg in such an environment, and the French Annales School had a great influence on his understanding of history.

The views of the Annales School of History can be briefly summarized as follows. First, the traditional narrative of political events has been replaced by a problem-oriented understanding of history. Second, the activities of societies and people are important rather than politics-oriented history. The third involves the collaboration between the science of history and other sciences (Burke, 2006: 23-24).

The Annalesists’ understanding of other sciences is as follows: “If history is to be given new blood, it can only be made possible by the conquest or even subjugation of geography, linguistics, economics, demography, political science, climatology, and psychology.” (Boratav, 1985: 11).

Barkan, who studied the economic and social history of the Ottoman State, mostly focused on the XVI. and XVII. centuries. His research on the Ottoman budgets, accounting balance sheets of imâret and foundations, and sancakname made great contributions to the enlightenment of the Ottoman economic and social history. Barkan is primarily a scientist who brought innovation to the understanding and examination of history in Turkey. He drew attention mostly with his new and original researches in the field of the Turkish History of Economics. Tahrir notebooks were examined systematically by him for the first time and their agricultural, social, and demographic importance was revealed. Ottoman budgets and accounting balance sheets are also the issues on which he focused for the first time (Kütükoğlu, 1992: 74-76).
Several articles were published about him after his death. Gevgili (1979) stated in his article that we owe the knowledge of the Ottoman order and its characteristics to Ömer Lütfi Barkan. Güçer (1979) attributes to Barkan's success in explaining the important problems of the economic and social life of the Ottoman Empire by using a statistical method with archive material. According to Çizakça (1979), Barkan not only represented the Annales school but determined the place of the Ottoman economy in the world economy. Turkey has lost a very valuable scientist.

Barkan, with his interdisciplinary studies conducted on social history, economic history, and historical demography domains, has rescued the conception of history in Turkey from the traditional point of view and has brought up a new method. By conducting research on many subjects, he has produced unique works for the Turkish History of Economics. Barkan has been quite important in the transformation of the Turkish economy into a scientific discipline with the dawn of the Turkish History of Economics having aspects of the development and evolution. The works written in the field of Turkish History of Economics with the interdisciplinary studies of Ömer Lütfi Barkan have made important contributions in terms of its scientific expression by diverging from the traditional understanding and developing its own methodology with a more modern expression. With his research studies, Ömer Lütfi Barkan explored the history of economics for the Turkish history of economics and showed all scientists with his scientific activities that this field is an important structure to be studied.

**Basic Issues Addressed by Ömer Lütfi Barkan in his Works:**

Barkan has carried out many studies on economic and social history. Especially, he has concentrated on the XVI. and XVII. centuries. It is seen that Ömer Lütfi Barkan focused more on comprehending the Ottoman State system in his works. In particular, the social and economic structure of the state, conquest (colonization), the maximum utilization of the conquered lands through assignment and foundations, the land system, the population issue, the military order, and security have been his main concerns. The ultimate goal of Barkan, who studied with primary sources by applying to various Ottoman documents, especially the foundations and records, was to reveal that the Ottoman Empire, like Köprülü and other researchers, had been the heir of a prosperous heritage and to draw attention to the depth of its roots (Barkan, 1943: 343-354.). The topics Ömer Lütfi Barkan generally handled are summarized under the following headings.
Charitable Foundations

Many social, cultural, religious and economic services in the nature of public service in the Ottoman state were carried out by foundations. The Ottoman cultural structure and Islam, which left its mark on this structure, in particular, urged people to participate in charitable activities, to do good to each other, to think not only of their own selfish interests but also of others. Thus, wealthy people were directed to allocate a certain portion of their wealth to help the poor. In this way, mutual aid and solidarity among people in the Ottoman social order became a rule. The most important legal institution providing this is defined as the Foundation Institution (Eren, 1988: 195).

Barkan has conducted multidisciplinary studies on charitable foundations in the Ottomans. His examinations on the status, types and functioning of foundations have an important place. As in his other studies, his publications on foundations are not just a document publication, but there are very broad introductory evaluations at the beginning. As a matter of fact, the examination of the legal status, economic and social problems of foundation facilities at the seminal work entitled Istanbul Foundations Tahrir Ledger 953 (1546) (Istanbul, 1970), which he published with Ekrem Hakkı Ayverdi, is an example of this. Accounting balance sheets belonging to foundations, which are systematically published in the Faculty of Economics Magazine and the Journal of Foundations, are very valuable sources exhibiting the functioning of foundations in the Ottomans. Barkan’s selection of accounting books reflecting the operation of the institution and the way it took in practice, while many researchers before him and in his period published the endowments, which were a static document, reveals his approach to issues and his accuracy in diagnosis (Barkan and Ayverdi, 1970; Kütükoğlu, 1992: 74-76).

Barkan pointed out that the records of foundations are materials that indicate not only the belief structure of a society, but also, and perhaps rather, its social and economic systems and relationships, customs and family structures. For instance, the Tahrir Ledger of the Istanbul Foundations dated 1546, apart from these features, contains very important materials to enlighten the economic and social situation of is the XV. and XVI. centuries. This tahrir ledger has gathered the inspections made to form the inventory of Istanbul foundations (Kaplan, 2008: 19). Barkan examined many population and land registrations and gave information about the foundation revenues of the 16th century. For example, according to the 1530-1540 tahrirs of the Anatolian province, the total income
was 79,784,960 akçe. 13,641,684 akçe, or 17% of this income, belongs to foundations. At that time, the salaries and expenses of people working in charities in Anatolia were obtained from these foundation revenues (Barkan, 1962-63: 242). Barkan emphasized the role of foundation facilities in the reconstruction and settlement of Istanbul. The imaret (charity) system, which was administered by the foundation previously applied in Bursa and Edirne, was also applied here. Generally, facilities such as madrasahs, armories, hospitals, baths, caravanserai, bakeries, mills, market places gathered around the big mosque formed the basis of new districts in Istanbul. The best example of the development activities in Istanbul is the Fatih Mosque and its imaret and Hagia Sophia Mosque foundations, which were established by Fatih Sultan Mehmet himself from his own property (Kaplan, 2008: 21).

So many foundations operated in Istanbul, which was a very large city for its era, and the city’s municipal and civic affairs were realized through these institutions. Moreover, foundations occupied the most important place in the zoning and settlement policy following the conquest, enabled the city to be named a “city of domes and minarets” with its new architecture, and laid the foundations of newly established neighborhoods. It has been observed that the charitable foundations had a great deal of impact on the social and economic aspects of the Ottoman period.

**Land Issues and Laws**

Land issues have been the area on which Barkan has mostly spent time. In a sense, he would be considered to “devote himself to settle territorial issues of Turkey’s place”. Ömer Lütfi Barkan, who did not want to go beyond the classical period of the Ottoman Empire in other fields on which he studied, focused his studies on land issues on a line that extends to the pre-Ottoman, classical period, modernization periods, as well as the Tanzimat period, even the Republic period.

Ömer Lütfi Barkan began his publishing life with his article entitled “Post-War Agricultural Reform Movements”. In this article, he gave information on land reforms at the end of the war in farming countries such as Bulgaria, Yugoslavia, Romania, Greece, Poland and Russia. Barkan emphasized that agricultural issues have been effective in the collapse and dispersion of states. According to him,
states that did not attach the necessary importance to land issues have lost at the beginning (Barkan, 1980: 125-149).

Barkan, at first, emphasized systematically on land laws and revealed their importance in terms of Ottoman economics and administrative history. He published his first systematic article on this subject entitled “Tanzimat in the History of Turkish Land Law and Land Law dated 1274 (1858)” (Tanzimat I, Istanbul 1940, p. 321-421). Here, after introducing the subject of land law before the Tanzimat and the land inheritance and the characteristics of the transition period, he examined the preparation and the principles contained in the 1274 land law.

Barkan’s most extensive study on the Ottoman land law is his work entitled “The Legal and Financial Principles of Agricultural Economy in the Ottoman Empire in the XV. and XVI. Centuries, First Laws (Istanbul 1945)”. In the extensive introduction of the work (pp. I-LXXII), the Ottoman laws and statutory laws were emphasized, and the issues such as the religious law of the Ottoman institutions, the quality and lack of a system of the existing laws, the fatwa system and the lawmakers, the state of the sheikhulislam, the lawmaking of the Ottoman sultans were examined. These opinions, which Barkan repeated with small differences in various articles, especially the “Kanunnâme” article (VI, pp. 185-196) in the Encyclopedia of Islam, brought up the debate on whether or not the Ottoman Empire was secular and pioneered the emergence of different opinions. The “Fief” article (XII, 286-333) in the Islamic Encyclopedia about the Ottoman land system by Barkan is the research he has worked on for a long time and reflects the results of his studies on the land system up to that day. According to his own expression, it is enough to read only this instead of many of his articles on the Ottoman land regime (Kütükoğlu, 1992: 74-76).

**Budgets**

“The Ottoman state budgets are defined as the most reliable sources through which the revenues and expenses of the state can be monitored. In accordance with the Ottoman Empire’s conquest policy, the impact of the central treasury on the income structure is monitored through budgets” (Çakır, 2016: 114). Ömer Lütfi Barkan also believed that “a state’s economic, political, social, and military elements would not mean anything without knowing the financial structure of a state’s tax system, its budget, civil servant salary, monetary policy, the
types of economic crises and their contents” (Barkan, 1953b: 238). Therefore, he switched his attention to the budgets included in the Ottoman archive documents. Barkan, for the first time, prepared material for the Ottoman fiscal history by focusing on the Ottoman budgets and publishing many budgets as they were. Undoubtedly, the first published budgets did not include the materials of modern budgets. These were mostly income-expense accounts indicating some of the costs and revenues of the central state. The first published budget belongs to the fiscal years of 1527-1528 (Barkan, 1953a: 251-329). After that, he published the budgets for the fiscal years of 1547-1548, 1567-1568, 1660-1661, and 1669-1670, respectively. Besides, the accounting balance sheets also contain the first degree material on this subject.

Barkan drew attention to the importance of budgets in terms of economic and financial history and stated that investigating budgets or state-owned revenue and expenditure records would occupy an important place in the economic-financial history of a state: Because all kinds of organizations and activities of the state must be among the state expenses and must be included and expressed in numbers as a certain allowance. On the other hand, it is not possible for economic and political crises, famine, epidemics or extraordinary situations such as war to not be reflected in the revenue and expenditure accounts of the state (Barkan, 1953b: 238). Ömer Lütfi Barkan is seen in his studies that he attached importance to controlling the budget figures by comparing them with other sources, organizing the budgets in detail, separating the financial organization of the central government into items, determining the duties and responsibilities of each person, paying attention to tax procedures and supporting documents on taxation.

Essays

In the history of the Ottoman Empire, tahrir ledgers have always been important among archive sources. Tahrir ledgers contained various economic and social data regarding the fief system, demographic structure, determination of the state’s production resources, tax concept. Today, many scientists conducting interdisciplinary studies would benefit from different subjects including scientific fields in their studies. Barkan, in order for research studies on the history of Turkey to reach the desired position, argued that Turkey should be examined utilizing new methods by replacing the old storyteller’s understanding of history. According to Barkan, in order to explain the economic and social events in a real sense,
they must be measured by numbers and compared with statistics. New statistical methods for the implementation of Turkey’s history has significant resources. The most valuable treasures of the archives are population and land tahrir ledgers. These ledgers were the main records that contained the results of population and land censuses conducted in the Ottoman Empire every thirty or forty years (Kaplan, 2008: 29).

Based on the records in the tahrir ledgers, he made population estimates for various cities of the Empire, especially Istanbul. In the meantime, he developed a formula, which he discovered in a sense and which was recognized by almost all those researchers who studied in this field; coefficient of 5. According to this formula, the population census is based on households and each household is assumed to have an average of five people (Barkan, 1953c: 1-20). Ömer Lütfi Barkan emphasized the importance of Ottoman state tahrir ledgers for the first time according to economic, social and demographic terms with his systematic study of registries.

**Price Volatility**

Research on historical price movements has been very important in the field of economic, financial and social history. Price volatility provides an opportunity for a state to assess the periods of economic development and contraction. Scientists use very abundant archive documents when it comes to the Ottoman Empire. These are “Foundations’ accounting books, charity registers, narh ledgers, narh registers, estate registers, palace kitchen accounts, etc.” (Orbay, 2008: 86). Barkan examined the impacts of population and price movements in the world on the Ottoman Empire in the XVI. century using the price index he creates with the records of the accounting books. He has written many articles on this subject in order to write a systematic history of price. He mentioned the price detection procedures in the acquisition regulations in some big cities. On the date of 1501, which was arranged by the order of Sultan Beyazit the Second, he published three acquisition laws of Istanbul, Bursa, and Edirne.” (Barkan, 1942: 326-340).

Barkan replaced the Turkish historiography paradigm with economic historiography. In this sense, he conducted a study entitled “The Price Movements in Turkey at the beginning of the XVI. Century” that is paramount of Barkan’s economic history studies (Barkan, 1970: 557-697). In a sense, this study has a special place in the studies of the Turkish and world history of economics.
As in many other fields, Barkan was the first person to emphasize the importance of the Historical Demographic Research or History of Demography for the history of economics. Barkan is also the name that conveys the discussions on the subject to Turkey. Its economic life based on modern Turkey has been striving to clarify all the details of the underlying intellectual heritage. In his studies, Barkan has put forth an effort to present available information on the direction and size of the overall change in Turkey. In line with such effort, he continued to question the issues from various aspects on the basis of the persistence of Turkish society and put forward detailed studies extending to land issues during the establishment period. Barkan's work should be evaluated on the basis of a distinct perception of historical persistence from the foundation of the Ottoman Empire to the Republic of Turkey. These resources would not only allow the researcher to compare and analyze price data, but also help us to perceive market movements and price analysis.

Ömer Lütfi Barkan’s Methodology

“One of the most important discussion topics of scientific studies has been the concepts of methodology in all branches of science. It is thought that the reason for the scientific thinking process for the scientists who conduct scientific works with difficulties involves the fact that necessary importance is not attached to the philosophy of science in the country. The history of economics, which is very important in social sciences, is also included in this structure.” (Dolgun, ty.: 1).

After the History of Economics was accepted as a discipline, it has been attracting the attention of many scientists until today. “It has been developed in such a way that it causes the reorganization of the subject, method, and similar features of the economic history studies, which are included in an interdisciplinary field. Economics historians suggest that a non-economic phenomenon would also lead to economic consequences, and it is known that the economic historian should act multidimensionally based on interdisciplinary knowledge, events and facts.” (Özbay ve Varlı, 2009: 344).

Ömer Lütfi Barkan has carried out very important studies on Economics, Economic History, Demography and social history. With his studies, he liberated the Turkish History of Economics from traditionalism and reshaped the concepts with a brand new methodology and a new history methodology. According to Barkan, in order to explain economic and social events in real terms, it is necessary to
measure them with numbers and compare them with the help of statistical tables. Ottoman history has an important opportunity to apply the mentioned methods. These opportunities are among the leading tahrirs (Barkan, 1952: 290-294).

By drawing particular attention to the importance of statistics, Barkan expressed the necessity of using population statistics in order to realize these practices. He mentioned the development of ‘Historical Demography’ as an independent discipline. In this respect, tahrirs are also important sources of population statistics.

After 1951, a close friendship was formed between Barkan and Braudel. Braudel mentioned Barkan’s research study in the second edition of his work. Braudel and Barkan’s view that “history cannot be written without documents” is very crucial for historians. Barkan has raised Turkish historiography to the level of Western historiography in terms of subject and methodology. He has brought a social-economic view of the history of the Annales school in Turkey (Çaykara, 2005: 115).

Barkan, who studied the economic and social history of the Ottoman State, focused mostly on the XVI. and XVII. centuries. His research on the Ottoman budgets, accounting balance sheets of imâret and charitable foundations, and sancaknames has made great contributions to the enlightenment of Ottoman economic and social history. Tahrir ledgers were examined systematically by him for the first time. Barkan argued the examination of the history of Turkey with new methods by replacing the old storyteller understanding of history in order for the research studies on the history of Turkey to achieve their desired position. According to him, in order to explain economic and social events in a real sense, it is required to measure them with numbers and compare them with statistics. Turkish archives have important resources for the application of new statistical methods. His views on this issue are as follows: “There is a need for population statistics of the relevant period, numbers indicating the composition styles of agricultural revenue sources in various dates, and statistical tools and methods especially used by modern social sciences to interpret these numbers.” (Barkan, 1952: 291).

He utilized a method far from ideology and based on documents in his research study which has reached thousands of pages on the economic and social history of Ottoman history. His studies revealed the economic history behind the Ottoman history, which appears to be the history of the dynasties. With his studies, he taught how to record history using modern methods by liberating Turkish historiography from traditionalism.
Conclusion

Ömer Lütfi Barkan, the founder of the history of economics in Turkey, has brought a different approach to the study of Turkish history with his research studies. This style of approach has brought his name to the fore in the field of social and economic history. He started his prominent publication life with articles conducted on the land issue in the Ottoman Empire. Although he is not a historian, he discovered the history of economics following his education at Strasbourg University. He initiated economic historiography, in modern terms, in Turkey. He liberated Turkey’s historiography from traditionalism and generated a new methodology of history. Barkan also touched on history education and teaching problems and argued that history teachers should be educated in subjects such as art history, cultural history, and history of civilization. This view indicates how much he attached importance to science outside the history discipline. Ömer Lütfi Barkan has conducted many studies on land order, agriculture, land law, foundations, budgets, price movements, urbanism, religion-state. Thus, with his studies, he became the founder of the history of economics in Turkey and brought a different approach to the field of the Turkish History of Economics. Stating that there would be no history without undocumented archive documents, he bequeathed the value of statistical studies as a valuable informational legacy to the next generations.

References


This book aims to provide researchers from basic disciplines of the economics fields such as consumer behavior and public economy with a variety of distinctive perspectives in today’s world where the behavior and preferences of economic actors have changed completely, and the economic policies of countries have been redrafted.