THE RELATIVE EFFICIENCY OF MONETARY AND FISCAL POLICY
IN TURKEY

ÜMİT ACAR

YILDIRIM BEYAZIT UNIVERSITY

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THE RELATIVE EFFICIENCY OF MONETARY AND FISCAL POLICY
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I hereby declare that all information in this thesis has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work; otherwise I accept all legal responsibility.

Name, Last name: Ümit Acar

Signature   :

ABSTRACT

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Acar, Ümit

Master, Department of Public Finance

Supervisor: Prof. Dr. Hüseyin Şen

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There are specific macroeconomic objectives that every country economy would like to achieve. To reach these objectives, mostly used instruments are monetary and fiscal policy. It is a controversial issue which of these policies is relatively more efficient. On the other hand, it is vitally important to detect efficient policy tools in terms of being used the source of country efficiently, achieving macroeconomic objectives faster, and dealing with economic crises. In this study, which of monetary and fiscal policy is more efficient on the Turkish economy has been tried to detect with the help of an econometric analysis. Therefore, the relationship between the rate of non-interest expenditures, budget revenues, and broad money supply (M2) to GDP and GDP growth rate has been analysed by the Ordinary Least Squares (OLS) method with a data set spanning from 2003:q2 to 2016:q1. According to the analysis results, it has been concluded that monetary policy is an efficient policy while fiscal policy is non-efficient policy for Turkish economy.

ÖZET

TÜRKİYE'DE PARA VE MALİYE POLİTİKASININ GÖRELİ ETKİNLİĞİ

Acar, Ümit

Yüksek Lisans, Maliye Bölümü

Tez Yöneticisi: Prof. Dr. Hüseyin Şen

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Her ülkenin ulaşmak istediği makroekonomik hedefler vardır. Bu hedeflere ulaşmak için ise başvurulan temel iktisat politikası araçları para ve maliye politikalarıdır. Bu politikalardan hangisinin göreli olarak daha etkin olduğu ise literatürde 1960'lardan beri tartışılagelen ancak üzerinde bir uzlaşım sağlanamayan bir konudur. Oysa ki etkin politika tespiti ülke kaynaklarının etkin kullanımı, makroekonomik hedeflere daha kısa sürede ulaşma ve ekonomik krizlerin üstesinden gelebilme açısından önem arzettiği de bir gerçektir. Bu çalışmada Türkiye'de para ve maliye politikalarından hangisinin daha etkin olduğunu ekonometrik bir analiz yardımıyla tespit edilmeye çalışılmıştır. Bu amaçla 2003:q2–2016:q1 dönemlerini içeren bir data setiyle faiz dışı harcamalar, bütçe gelirleri ve geniş anlamda para arzı (M2) değişkenlerinin GSYİH içindeki payları ile GSYİH büyüme oranı arasındaki ilişki En Küçük Kareler (EKK) yöntemiyle analiz edilmiştir. Analiz sonuçlarına göre ele alınan dönemde Türkiye ekonomisi için maliye politikasının etkin bir politika olmadığı; buna karşın, para politikasının ise etkin bir politika tercihi olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: Etkinlik, GSYH, Kamu Harcamaları, Para Arzı, EKK Yöntemi

To My Family

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ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
BRSA	Banking Regulation and Supervision Agency
CBRT	The Central Bank of the Republic of Turkey
DF	Dickey-Fuller
DIP	Disinflation Program
DP	Democrat Party
FED	Federal Reserve Bank
FTPL	The Fiscal Theory of the Price Level
GDP	Gross Domestic Product
GNP	Gross National Product
IMF	International Money Fund
OLS	Ordinary Least Squares
OECD	Organisation for Economic and Co-operation and Development
OPEC	Organisation of Petroleum Exporting Countries
PP	Philips-Perron
SDIF	Saving Deposit Insurance Fund
SEF	State Economic Enterprises
SVAR	Structural Vector Autoregressive
SVEC	Structural Vector Error Correction
TSEP	Transition to the Strong Economy Program
VAR	Vector Autoregressive

1. INTRODUCTION

There are main macroeconomic objectives by which every country wishes to reach. In a broad sense, they comprise objectives, such as achieving and maintaining price stability, full employment, and the balance of payments; enjoying a sustained growth rate; and eliminating regional imbalances as well as sectoral. They may differ from country to country by their levels of development, social conditions, and policymakers' economic and social objectives, which; besides, they may vary depending on the period in the same country.

To achieve the above-mentioned objectives, an economy has two fundamental economic policy instruments: fiscal policy and monetary policy. Fiscal policy is a tool that government makes through adjustments in the amount and composition of taxes, public expenditures, and borrowing to achieve macroeconomic objectives. On the other hand, monetary policy is a tool that can be implemented by monetary authority, central bank or monetary authority, to achieve macroeconomic objectives by using monetary policy instruments such as open market operations, rediscount rate, and required reserve ratio.

Imbalances in the economy are the essence of the need for economic policies. While short-term goal of economic policies is to restore deteriorating macroeconomic balance, their long-term goal of economic policies is to move the existing balance to higher levels.

There are three basic equilibriums that open and free market economies want to reach: i) the balance of goods and services market, ii) the equilibrium in foreign exchange market, and iii) the equilibrium in loanable funds market. In the first market, the equilibrium is ensured by prices, and the deviations from the equilibrium are called as inflation and deflation. The factor that stabilises in the second market is parity. In such market, imbalances emerge as appreciation and depreciation of local currency. The tool that enables the third market to come to the equilibrium is interest rates, and as a result of imbalances in the market, interest rates significantly rise or fall. It is desirable to ensure the equilibrium in those three markets in an economy. It is inevitable that any imbalances in

one of these markets also have an impact on any others. For example, an increase in inflation causes interest rates and exchange rates to rise (Eğilmez & Kumcu, 2012).

On the other hand, using monetary and fiscal policy may not be easy to achieve mentioned macroeconomic objectives. Because there are conflicts between both economic policies and macroeconomic objectives, which are desired to achieve. For example, a fall in foreign trade deficit will result in a fall in GDP and achieving full employment will result in an increase in inflation. Therefore, each economy should determine its priority targets by considering its own economic and social conditions.

After the primary macroeconomic targets are chosen, another problem that needs to be solved is to decide what tools of monetary and fiscal policy are going to be used. This is a difficult question to be answered because some conflicts can also be between these tools.

An open free market economy is affected by not only internal developments but also external ones. Especially after 1980, the policies that are called as the Washington Consensus, which suggest minimal state and development strategy based on market power, increased capital movements on the global basis. Developing countries were obliged to implement these policies to be able to acquire the support of international organisations. The expansion of the application area of these policies accelerated free short-term capital movements, which led the countries to become more fragile.

The developing countries with domestic savings gap need external capital flow to reach their macroeconomic targets. However, any domestic economic or political crisis results in serious capital outflows because a rule mechanism to keep the capital in the country cannot be run. While fluctuations in the short-term capital movements cause fluctuations in exchange rates, they also make the overall economy unstable. Thus, developing countries are confronted with crises whereas the capital is looking for safe havens in the globalising world. Today the whole world is at an integrated level with each other. Due to globalisation, an economic and/or political crisis in any country, to some extent, affects the economies of other countries as well. One of the most important examples of this situation is the 2007-2008 financial crisis, which has still ongoing some after-effects.

There are conflicts between the macroeconomic targets and tools, and external developments have significant impacts on the domestic economy. The situation

demonstrates the importance of providing an efficient between monetary and fiscal policy. It is an unavoidable reality that the authorities responsible for implementing the monetary and fiscal policy ought to take decisions by considering all these delicate balances.

Throughout the economic history, different economic thoughts have attributed importance at different levels to monetary and fiscal policy. Starting from the 1930s, the Keynesian view claimed that fiscal policy should be a single economy policy tool, neoclassical synthesis, which prevailed between 1950 and 1970, emphasised that the fiscal policy along with monetary policy was a more effective policy option. Starting with Andersen and Jordan's seminal paper in 1968, the debates about what monetary and fiscal policy are more primary and effective to reach macroeconomic stability have been still ongoing.[1]

While monetarist view, which was dominant in the 1970s, stated that monetary policy was a more effective policy tool; according to new classical economic thought, which has prevailed from the 1980 crisis up to now, the economy should not be interfered with any policy tool and the imbalances should be expected to find the balance by themselves within the market mechanism. On the other hand, it may be asserted that monetary policy was implemented in a coordinated manner with fiscal policy after the 2000s because the only monetary policy was insufficient to ensure the stability. Thus, fiscal policy started to be seen as an important macroeconomic policy tool again right after the 2007-2008 crisis.

In the light of above discussion, while monetary policy developed from monetary neutrality to inflation targeting strategy; fiscal policy developed from the balanced budget approach to the fiscal theory of the price level (FTPL) in the 1990s and, finally, to the fiscal rules (Altuntepe, 2011).

There have been a great number of studies on the relative efficiency of monetary and fiscal policy on GDP in Turkey. However, there is no agreement on findings of these studies. Some of them find that monetary policy is efficient policy while the others find that fiscal policy is efficient. On the other hand, to determine the efficient policy is vitally important to reach the targeted macroeconomic results. This study aims to determine which of the two policy tools is more efficient relative to the other in influencing in the sense of Turkey in the period under consideration.

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[1] See for the details of the debate (Şen & Kaya, 2015b).

In the second chapter of five, the theoretical and empirical literature on the efficiency of monetary and fiscal policy are discussed in general; and in the third chapter, the monetary and fiscal policy that has been implemented in Turkey are examined in detail. In the fourth part of the study, the efficiency of monetary and fiscal policy on growth in Turkey are analysed for the period between 2003:q2–2016:q1 by employing Ordinary Least Squares (OLS) method. The final chapter offers firstly general assessment and then conclusions.

2. RELATIVE EFFICIENCY OF MONETARY AND FISCAL POLICY: A LITERATURE REVIEW

2.1 Theoretical Literature Review: An Overview of Discussions on Main Schools of Economic Thoughts, Crises and Monetary and Fiscal Policy Efficiency

The change in the relative efficiency of monetary and fiscal policy is indeed hidden in the crises[2] that the history of the capitalist system has experienced. When considered the experiences of many countries regardless of whether developed and developing, virtually all crises resulted in criticising the previous economy policies, at the same time, brought about the birth of a new economic thought that has a different perspective with regard to monetary and fiscal policy.[3]

Although the causes and effects of these crises are substantially different from each other, they have some similarities as well. Firstly, each of these crises led the economic thought, which was initially dominant, to be questioned. Later on, each crisis that countries encountered caused a new stream of economic thought to arise, and then, lessons are drawn from each relevant crisis and suggestions ensured the current economic thought to emerge. Consequently, with the effects of the crises, economics, which is a dynamic social science discipline, not a static one, has come until today by keeping pace swiftly with time and changes in the society and by updating itself.

It is necessary to put emphasis on especially the four of these crises, 1873, 1929, 1973, and 2007-2008 crises. While the first and second of these crises are the crises that led to the birth of neoclassical and Keynesian economics thoughts respectively, the third one resulted in the birth of thoughts like monetarist economics, new classical economics, supply side

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[2] Crisis is an incident that yields unexpected and unpredictable results, which affect governments in macro level and firms in micro level. Thus, it is right to name the sudden and unexpected negative changes as crisis. Otherwise, every problem that occurs in ordinary process is not a crisis. Crisis, in this respect, should be considered as a serious problem that occurs in an unexpected way (Aktan & Şen, 2002).

[3] Without the Great Depression, Keynes's General Theory of Employment, Interest, and Money (1936) would not have seen the light of the day (De Vroey & Malgrange, 2011).

economics, and new Keynesian economics. The last, the 2007-2008 crisis the effects of which have still been continuing has brought a lot of debates in the economic thought.

In this chapter, the perspectives of the essential economic thoughts about macroeconomic management are studied. Besides, the fundamental approaches that are the milestones of the relative efficiency of monetary and fiscal policy are discussed. Finally, the IS-LM model for a closed economy and the IS-LM-BP model, which represents the adaptation of the former model for an open economy, are presented in detail.

2.1.1. 1873 Crisis: The Crisis of Classical Economics

Economic historians consider, the opus of Adam Smith, "The Wealth of Nations",[4] written in 1776 as the beginning of modern economic thought. In his book, Adam Smith claims that wealth of nations depends not on gold, but on trade. However, he rejects Mercantilist thought, which is based on government regulation on imports with high tariffs, banning the export of gold and silver, and accumulating monetary reserves through a positive balance of trade.

Adam Smith's views provided a new economic thought named classical economics. Classical economics looked for a solution to problems that arose in the period when capitalism emerged from feudalism, and industrial revolution led to important changes in the life of society (O'sillivan & Sheffrin, 2003). To their liberal ideas, individuals should have been at the centre of economic activities (Tekeoğlu, 1993).

The main arguments of classical economics are: Crises in markets are temporary. The markets are always adjusted to balance through flexible prices and wages, invisible hand[5]; it is unnecessary that governments intervene in the markets; money is just a veil on economic activities so monetary movements cannot affect the real economy; and the best budget is a balanced budget, and the best tax is a neutral tax. Hence, classical economists believe that it is unnecessary to intervene in economy through neither fiscal nor monetary policy because they consider that market is an automatic mechanism which can function with its dynamics.

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[4] The original name of Adam Smith's book is "An Inquiry into the Nature and Causes of the Wealth of Nations".
[5] The notion of "natural order" in Physiocrats was called "invisible hand" in Adam Smith.

According to them, government expenditures should be limited to defence, a judicial system, education, infrastructure, security, transportation, and a small and efficient administrative system. Therefore, the state should levy taxes from private sector to perform only these tasks and should not intervene in the markets. Not only budget deficit but also budget surplus is the case where the markets cannot operate efficiently (Orhan, 1990).

Besides, classical economists put much emphasis only on monetary policy rather than fiscal policy as a tool of economic policy.[6] To them, monetary policy should be preferred over fiscal policy whenever economic instability emerges. All attempts to change the demand-side of the economy by means of fiscal policies may be beneficial for an economy in the short run, but create detrimental effects in the long run. An increase in government expenditures leads to an increase in money supply, government debt, or taxation. The first financing way results in inflation because the source of inflation is the money supply. While the second causes an increase in interest rate, the increase leads to a decrease in private investments and private spending. On the other hand, the last one brings about a decrease in private consumption and savings.

David Ricardo, one of the leading representatives of classical thought, [7] examined whether there was a difference between financing through current taxes or government bonds of any budget deficit (Ricardo, 1952[1820]). He concluded that the financing budget deficit either by means of taxation or borrowing was not important. Both gave the same result because the economic agents were rational and forward-looking. His arguments were known in the literature as "Ricardian equivalence theorem" later. Therefore, to Classical view, both expansionary and contractionary fiscal policies are unnecessary because the economy is already at or near the natural level of real GDP due to the assumption of flexible prices and wages.

Classicals' views had become dominant economic thought until the last quarter of 19th century. However, it attracted some criticisms in the following years as each thought.

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[6] In terms of macroeconomy, monetary and fiscal policy distinction is the concept that entered into economy literature with Keynes. Thus, from the concept mentioned as monetary policy here, it should not be understood the policy instrument, in current sense, which can be used to achieve many macroeconomic objectives, especially price stability. Indeed, it is only an increase in money supply because of monetising to finance government expenditures.

[7] Among the others, who contributed to developing classical economics, can be counted Jean-Baptiste Say, Thomas Malthus, and John Stuart Mill.

Because, after the industrial revolution, production increased sharply, yet some problems arose as well. That women and children were employed in factories with minimum wages and social problems such as the difficulties of urban life and poverty led to a societal crisis. Besides, the stock prices rose significantly by over-optimism. Thus, the collapse of the Vienna Stock Exchange became the beginning of the crisis 1873. The first big crisis of capitalism was named as "long depression" (Sorkin, 2013). To the historians, the causes of the crisis were the heavy war compensation that France had to pay after Franco-Prussian war and the scarcity of gold that determined the value of money in that period[8].

The 1873 crisis caused classical economists to revise their explanations and led to the birth of neoclassical economic thought. The leading representatives of neoclassical economics are Alfred Marshall, William Stanley Jevons, Carl Menger, Leon Walras, and Irving Fisher. Neoclassic economists made a significant contribution to classical economists' macro-scale analyses with their micro-scale analyses. Especially, the notion of marginal utility expressed by Gossen (1983[1854]), was a source of inspiration for neoclassical economists in their analyses. Hence, throughout the following economic history, the period was named as 'marginalist revolution'.

Neoclassical economics has three fundamental assumptions, which are necessary to operate perfect competition market. They can be mentioned as i) people have rational preferences among outcomes that can be identified and associated with values, ii) people behave independently on the basis of full and appropriate information, iii) individuals wish to maximise their utility, and firms want to maximise their profits.

In general, neoclassical economists' views with regard to monetary and fiscal policy are not different from those of classical economists. According to them, money is just a tool, which is demanded solely for exchange and is solely a mediator of real economic activities. Besides, according to neoclassics, the government's intervention in economy leads to waste of resources. That each of economic agents tries to maximise their marginal benefits maximises prosperity because of its social benefits. Any kind of intervention to markets prevents the system from well-functioning. Therefore, they suggest that the

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[8] See Friedman (1990) for further information.

government should carry out only compulsory public services like security, justice, and bureaucracy through as small budget as possible.

The neoclassical economists assume that view of monetary policy is based on the quantity theory of money.[9] According to this theory, cateris paribus, an increase in the quantity of money causes a proportional increase in the price level. To neoclassical economists, the economy is always at the natural level of real GDP. Accordingly, neoclassical economists assume that both Q is fixed, at least in the short-run, and the velocity of money tends to remain constant so that V can also be regarded as fixed. Furthermore, an expansionary monetary policy leads to that the price level increases proportionally with increase in M because both Q and V are fixed. Namely, expansionary monetary policy can only bring about inflation, and contractionary monetary policy can only result in deflation.

In addition to the long-run disadvantages of fiscal policy argued by classical economists, neoclassical economists believe that lags in fiscal policy led to its inefficiency. There are three lags: the information lag, the policy lag, and the impact lag. The information lag is the period when politicians find out the changes after economy experiences change. The policy lag is the period when politicians make a decision after the changes are realised. The impact lag is the period when the impact of the decision is totally felt in economy after a decision is taken.

2.1.2. 1929 Crisis: The Crisis of Neoclassical Economics

During World War I, one of the biggest wars witnessed in the history of humanity, was observed significant negative changes in both the economic and social life. Especially, the economic changes dragged countries into a crisis. In 1929, the economic destruction that was experienced after the war resulted in one of the biggest crises that was seen in economic history, which was named as "great depression". Though the crisis was the US-originated, its effects spread all over the world within a short time. It was a severe global economic depression in the decade preceding World War II. It had a devastating effect on

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[9] This theorem was developed by Fisher (1911). His original equation was MV=PT. In the later years, economists used real output, Q instead of the volume of trade, T. The quantity theory of money is based on the equation of exchange, which is given by the expression MV=PQ, where P is the price level, and Q is the real output (thus, PQ refers to current nominal GDP), M is money supply, and V is the velocity of money. The equation of exchange represents an identity. The identity shows that the current market value of all final goods and services, nominal GDP, must equal to the multiplication of money supply and the velocity of money.

both developed and developing countries. Personal incomes, tax revenues, profits, and prices decreased, while international trade dropped by more than 50%. Unemployment in the U.S. increased to 25% and in some countries increased as high as 33% (Frank & Bernanke, 2007).

In this period, it was realised that some assumptions of classical economics did not operate. For example, contrary to Say's law, markets faced aggregate excess surplus. During the period of World War I, the production of these agricultural and industrial goods increased due to the increase in the demand for the goods, but the demand declined after the war. Therefore, an excess supply occurred especially in agricultural products because they were not reducible. The rapid downfall in the prices of agricultural products also caused a downfall in the incomes of farmers and accordingly in the demand for industrial goods. As a consequence, many banks collapsed since they could not take back the money that they lent to farmers.

The movements of economic thought had different explanations for the causes of the 1929 great depression. While classical thought pioneered by Adam Smith and Keynesian thought attributed the great depression to high real wages and effective demand insufficiency respectively, monetarist thought pioneered by Milton Friedman held wrong monetary policies of Federal Reserve Bank (FED) responsible for the great depression (Şen & Kaya, 2015a).

According to Bernanke (1994), another reason for the great depression was the gold standard, which started in the 1890s and functioned without any problems until World War I, did not function after the War. The countries that abandoned the gold standard system immediately both was affected slightly and came out of the crisis more quickly. However, the US continued the gold standard system; as a result of this, it went through a bigger and longer crisis.

One of the reasons why the crisis lasted longer than expected was the insistence of Hoover, the president of the US at that time, in applying liberal policies. As a parallel to classical ideas, his expectation was that the markets would achieve the balance in the long run with its own dynamics. He believed that the crisis would be temporary and not last long. This belief of Hoover was harshly criticised by Keynes with his famous expression "In the long

run we are all dead (Keynes, 1923)." The reason why Hoover insisted for such a belief may be due to the dominance of neoclassical economic thought at that time and having no alternative economic thought yet.

Consequently, Hoover's policies could not prevent the negative effects of the 1929 crisis. Coming into power after Hoover, F. D. Roosevelt's response to this unprecedented crisis was to initiate the "New Deal" that is a series of economic measures, which were designed to alleviate the worst effects of the depression, to reinvigorate the economy, and to restore the confidence of the American people in their banks and other key institutions. In this package, it was considered that both government intervention in economy would diminish unemployment and increase purchasing power, and compensatory public expenditure would stimulate effective demand (Şen and Kaya, 2015).[10] Thus, industry production, which nearly came to a halt, would go up, and the country would eliminate deflation dilemma experiencing. The policies that Roosevelt followed in his 12 years of governance were accepted by the public so that he was awarded by being elected president for three successive terms and by being the person who sat the longest in the presidential chair in the American history.

It was the first occasion by which a government had intervened in the market such immense in the history of the US. Roosevelt yielded fruitful results from the interventionist policies within short-time. These results aroused the attention of the other countries, so the policies were adopted by governments all over the world. The examples of government intervention applied before 1936 when Keynes wrote the "General Theory" and were opposite to classical economics brought up the question whether Roosevelt was influenced by Keynes's thoughts. Romer (2004) and Fishback (2008) claim that the policies that Roosevelt practiced could not be seen as Keynesian policies because the budget deficit did not increase, there was an increase only in the tax revenue. However, there are some other academicians who said that Keynes had an influence upon Roosevelt because he followed

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[10] The New Deal was a series of domestic programs, which were enacted in the United States between 1933 and 1938. The programs were a response to the Great Depression. They focused on what historians called the "3 Rs": Relief, Recovery, and Reform. Namely, that is Relief for the unemployed and poor, Recovery of the economy to normal levels, and Reform of the financial system to prevent a new depression (Berkin, Miller, Cherny, & Gormly, 2013).

policies opposite to the dominant economic thought of the era, and Keynes wrote a letter to Roosevelt in 1933 (Şen & Kaya, 2015a).

Keynes personally experienced the Great Depression, which was the biggest crisis that capitalist system had ever faced until that time. In the crisis conditions, he wrote his famous opus "The General Theory of Employment, Interest, and Money", or in short, "The General Theory" in 1936. The opus became a milestone in economic thought in a short time. Keynes named the past economic thought as "classicals". While classical economists focused on the supply side of economy, Keynes took attention its demand-side. He suggested demand-side economic propositions.

With the "General Theory", Keynes developed an antithesis against the ideas of classical economic theory like that the markets always adjust to the equilibrium at full employment level, that short-term imbalances eliminate through invisible hand, that supply was paramount in economy, and that prices and wages were flexible. According to Keynes, full employment equilibrium was an exceptional case; on the contrary, economy was in equilibrium generally in underemployment level. Therefore, fiscal policy was necessary because economy reached in full employment level, and the situation required government intervention.

Keynes claimed that if there were people who wanted to work at current price level but could not find a job, and factories worked under capacity, it showed that market was in equilibrium even in supply deficit and demand deficit cases. He also rejected the Say's law by saying that every supply did not create its demand, but every demand created its supply. Interest rate was determined by demand for money and money supply, not by savings and investments. In other words, it was in equilibrium at the intersection of demand for money and money supply, not at the intersection of savings and investments.

On the other hand, total output in the Keynesian model was determined by total demand. Aggregate supply curve was a parallel curve to horizontal axis until full employment level was achieved. Under the assumption, aggregate supply did not change in the short run, an economy that operated at underemployment level could be directed to full employment equilibrium only through expansionary fiscal policy.

According to Keynes, the main reason behind the crisis of 1929 was insufficient aggregate demand. He maintained that negative expectations decreased investments, and then downfall in investments reduced employment and demand. Reduced demand caused production to diminish. Consequently, growth rates went down as unemployment increased. In such a case, fiscal policy was the only policy option, which could be followed in order to stimulate demand. Expansionary fiscal policies would help economy to follow its way to reach full employment level.

The success of Roosevelt, who adopted a spending policy in parallel with the expressions of Keynes, and the recovery of the US economy in a short time attracted many other countries' attention. Soon after the great success of the US in managing the crisis, the other crisis-effected countries commenced following similar interventionist policies.

Keynes's ideas spread in the academic area within a very short time and a new literature that would be named soon as macroeconomics began to develop. According to De Vroey and Malgrange (2011), the emergence of macroeconomics has three stages: First, the publication of the "General Theory" by Keynes. Many academicians stated that Keynes wanted to theoretically explain the reality of involuntary unemployment that was observed in 1929 great depression. He filled an important gap in this field by stating that involuntary unemployment resulted from aggregate demand deficiency. The second, being transformed Keynes's ideas into simple simultaneous equation systems and being illustrated two different markets on the same diagram by Hicks (1937). The last, the transformation of qualitative models into the ones which can be tested empirically. Tinbergen (1939) used an econometric model that included all economic components for the first time, and he filled the deficiency of testing with empirical models.

The studies on the new paradigm that had come into existence with the "General Theory" led to the emergence of an inhomogeneous doctrine, which was called "Keynesian Economics". During this period, there held an intense discussion on both the theoretical and the empirical aspects of neoclassical and Keynesian approaches.

In the "General Theory", Keynes shared his thoughts in a theoretical manner without using too much math. His thoughts were expressed and interpreted by Hicks (1937) graphically immediately after one year. After that, Keynesian theory was made clearer with the studies

that were the "General Theory" based, but that were carried out by using many arguments of the neoclassical theory. Thus, many economists, including Hicks and Hansen in particular, harmonised Keynes's views with those of neoclassicals, so the new stream of economic thought was called neoclassical synthesis. Especially, the views of James Tobin and Paul Samuelson, who were two important representatives of neoclassical synthesis, largely directed economic policies in the 1950s and 1960s.

According to O. J. Blanchard (1991), studies by Hicks (1937) and Hansen (1949), attempting to formalize the major elements of Keynes's informal model, arose the IS-LM model. Hicks was the first economist who dealt with the ideas of Keynes in the sense of the coordination of monetary and fiscal policy. Hicks and Hansen's IS-LM model opened the door to be able to talk about the coordination of monetary and fiscal policy by eliminating the assumptions of stability in interest rates in the simple Keynesian model. Monetary policy was considered as a passive component of macroeconomic policy since interest rates are assumed to be fixed in the simple Keynesian model. Removing this assumption provided an opportunity to discuss together monetary and fiscal policy.

Undoubtedly, Hicks played an important role in the formation of the neoclassical synthesis. According to Hicks, Keynesian thought differs in two aspects from that of the classical economics: First, the demand for money depends on the interest rate (liquidity preference), and second, interest has no effect on savings. Thus, unlike classical thought, the amount of money does not determine income, but interest rate. Keynes, however, took into consideration that demand for money was not determined only by one variable, and it is also a function of income and interest rate (Yıldırım, Çakmaklı, & Özkan, 2011). To O. Blanchard (2008), neoclassical synthesis is based on two basic principles. Accordingly, the first principle is that the behaviours of individuals and firms are rational, and they can be analysed by using standard microeconomic methods. The second principle is that prices and costs cannot be immediately adjusted. Therefore, the full-employment equilibrium can be accessible through the use of monetary and fiscal policy in an appropriate manner.

The IS-LM model, which Hicks and Hansen established, explains how balance occurs in goods and money markets in a closed economy. In the model, it is explained that how monetary and fiscal policy can affect the level of equilibrium output and interest rate. Thus, policymakers have got an instrument in their hands to produce alternative policies.

With the neoclassical synthesis, there became a transition from pure fiscal policies to the mix policies, which included monetary policy as well.

One insufficiency of the IS-LM model was the assumption of fixed prices. In the following years, the insufficiency of the model was corrected by Phillips (1958), who examined the relationship between nominal wages and unemployment rates for the period 1861-1957. He claimed existing of a correlation between these two variables in his study. In the next stage, Samuelson and Solow (1960) said that Phillips curve pointed the possibility of a trade-off relationship between inflation and unemployment. Phillips's views renewed confidence in Keynesian macroeconomics.

Until the end of World War II, expansionary fiscal policies with the effect of Keynesian economics had been applied. Those policies, however, did not become effective in mitigating negative effects of economic and social destruction, caused by the War. As a result, it was necessary to modify government responsibilities. For this purpose, Lerner (1941, 1943) systematically stated the responsibilities by the name of functional finance approach.

Through his functional finance approach, Lerner took Keynesian approach, which claimed that state should interfere in economy whenever it is necessary, a step further. He asserted that the essential function of government was to reach full employment level, and he denied Classical neutral fiscal policy approach. Functional finance approach required government to consider economic and social conditions while preparing budget and to take into account macroeconomic goals such as price stability, income distribution adjustment, growth, full employment, and balance of payments.

Later, Musgrave (1959) systemically expressed Lerner's functional finance arguments in his famous book entitled "The Theory of Public Finance: A Study in Public Economy", and the book arouse broader interest. The original side of Lerner's functional finance approach was to classify state's economic functions as fundamental and sub-functions and to sort them by their priority. The fundamental functions of state, according to Lerner, were to provide efficient resource distribution, justice in income distribution, and economic stability. The sub-functions of state were to ensure full employment and price stability, sustainable growth, and payment balance (Lerner, 1941, 1943).

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Mundell (1963) and Fleming (1962) separately developed a new model for open economy by leaving the assumption of closed economy in the Hicks and Hansen's model.[11] Their model is also named as the IS-LM-BP Model. The model proposed by Mundell (1963) and Fleming (1962) became more realistic and feasible model for today's open economies.

In the 1950's, the literature regarding coordination between monetary and fiscal policy was enriched from the beginning of the IS-LM model to the IS-LM-BP model and so on due to the addition of different variables to the model. Between those additions, the study of Blinder and Solow (1973) had particular importance inasmuch as it included public sector borrowing requirement in a closed economy in the model as a variable for the first time. In this regard, the study in which they investigated the efficiency of fiscal policy could be seen as a milestone. After that, similar studies were conducted in open economies (Kibritçioğlu, 1996).

The 1960's were the years in which Keynesian thought was adopted and acknowledged in the economic literature. Meanwhile, those years became a golden era for neoclassical synthesis due to the contributions of Tinbergen, Hicks, Hansen, Modigliani, Phillips, Samuelson, and Solow to Keynesian thought.

2.1.3. 1973 Crisis: The Crisis of Keynesian Economics

Until the beginning of the 1970s, neoclassical synthesis was the dominant view of economic thought. The consensus that developed around it, however, started collapsing with two differentiations; empirical and theoretical. The reason of empirical differentiation was that the synthesis could not explain increasing unemployment along with inflation (stagflation) in the 1970s. Besides, the reason of theoretical differentiation was the big gap that the synthesis left between microeconomic principles and macroeconomic application (Mankiw, 1990).

When it comes to the 1970s, economists faced with a crisis that brought new questions that were required to be answered. Petroleum exporting countries' embargo caused the crisis by raising petroleum prices. In this period, it was experienced both recession in economic growth and an increase in inflation rate; therefore, this situation was named as stagflation, which was the portmanteau of stagnation and inflation.

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[11] The details for IS-LM-BP model are on the sixth section of this chapter.

In 1971, the US declared that it abandoned the Bretton Woods system, and the US dollar would be floating, so international monetary system application, which started to be used in 1944, ended. In a short time following the US, the other countries adopted floating exchange rate regime. The US dollar value fell, and income of petroleum exporting countries decreased because they used the dollar in their sales. OPEC announced that calculation in petroleum prices would be according to gold, not according to the dollar. This application brought instabilities at petroleum prices with itself. Because the US supported Israel in 1973, the OPEC countries started petroleum sale embargo, so most of the European Economic Community (EEC) members were included in the embargo. The rise in petroleum prices in developed countries, whose industries depend on petroleum input, led to increase in both prices and unemployment rate.

1973 crisis caused many economists to lose their confidence in Keynesian policies' ability to overcome the economic problems of that time. The cause of the crisis was considered as governments' irresponsible expenses, borrowings, and interventions in economy, in other words, fiscal policy. New solutions were searched to struggle with the crisis. Milton Friedman's views which had not attracted the attention of economists before the crisis and his critics related to Keynesian economics were started to be taken into consideration. To some economists, Keynesian economics that was an interregnum of classical economics ended, and classical economics with its basic principles became the main stream economics with some updates again. The rising of inflation and unemployment rate together in stagflation period caused trust on Phillips curve to end. Also, Friedman's critics, which included that the relation pointed by Phillips was valid in a short period, so there was not such a relation in a long period, and his idea of "natural unemployment rate" helped the collapse of Keynesian economics.

After these developments, in the light of Friedman's reviews, a new economic thought started to develop named monetarism. Monetarists rejected classical dichotomy, claimed that money is a tool which affects both real and financial sector, and paraphrased classical quantity theory. They showed that the source of every increase which occurred in price level was an increase in money supply. Friedman expressed this situation with the statement of "Inflation is always and everywhere a monetary phenomenon." (Friedman, 1963).

According to monetarists, in full employment level, frictional unemployment should normally be reacted. Monetarists claimed that the economy was in equilibrium in the level of natural unemployment by accepting that temporary unemployment[12] was normal. On the other hand, classicals claimed that there could not be anyone who could not find a job in current wage level in a free market, which operated in the perfect competition conditions. In this respect, the notion of natural order in Classical economics transformed natural proportion in monetarism.

According to classical economists, an increase in money stock affects nominal sizes like price level, not real sizes like output or employment. Thus, they put emphasis on the long-term effects of the quantity theory. According to monetarists who shaped quantity theory modernistically, the changes in money stock also have important effects on real variables in the short term, although the classical thought that states that money stock affects only nominal variables in the long term is true (Andersen & Carlson, 1970). Monetarists are separated from classicals in terms of their thoughts about that changes in money stock have effects on real sizes in the short term.

Meanwhile, the Monetarists' view on money supply are different from Keynesians. Because according to Keynesians, money supply does not affect output directly. It needs a mediator that contacts between money market and goods market, and this mediator is interest rate. An increase in money supply affects interest rate, investment decisions, and output respectively. Monetarists, different from Keynesians, have expressed that a change in money supply directly affects nominal GNP without needing a mediator like interest rate.

A group of economists who were students of Milton Friedman and studied at Monetarist schools made criticism against Keynesian Economics and claimed some different ideas from Monetarist economy. Therefore, after "Keynesian Revolution" which was made against classical economics after 1929 crisis, "Counter Revolution" was made against Keynesian Economics after 1973 crisis. The reviews of economists contributing to this

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[12] Until they start a new job, the ones who have just left their jobs do not consider as an unemployed.

movement, which were called new classicals[13] or Rational Expectations School, have maintained up to now.

With the breaking of the consensus on neoclassic synthesis, it can be said that studies on economic theory have gathered around two main streams. On the one side, real business cycle theory and new classical economics which are based on rational expectations and continuous market clearing; on the other side, new Keynesian economics which looks for microeconomic bases including rational expectations for price and wage rigidity (Yıldırım et al., 2011).

New classicals stress the importance of markets like classical economists. They argue that markets should not be interfered and they will be in equilibrium by themselves. The most important contribution of them to the macroeconomic literature is about expectations. The notion of expectations that Keynes put into literature was developed by the name of "adaptive expectations" by Friedman and was reinterpreted by the name of "rational expectations" by new classicals.[14] According to the rational expectations hypothesis, individuals do not make systematic mistakes. They are completely well-aware of government policies which will be implemented and behave by knowing the results of those policies. They take necessary precautions to avoid the negative results of these strategies. In the end, expected results from applied strategies cannot be obtained. According to defenders of the thought, the best strategy is to have no strategy.

New classicals have bounded to classicals' market clearing which means that markets that free and perfect competition are valid come to the equilibrium level. However, they are separated from classicals with the idea that markets come to balance instantly, not after some delay.

It is a result of rational expectations theorem that Barro (1974) has brought Ricardian equivalent theorem[15] into question. The theorem claims that rational individuals, who

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[13] Robert Lucas, Thomas Sargent, and Robert Barro are the leading developers of new classical economics view or rational expectations theory.

[14] The father of rational expectations theory is John F. Muth. In his study Muth (1961), stated that economic agents acted with rational expectations in the inflation period, not with the adaptative expectations. His work formed the basis for new classical theory.

[15] Buchanan (1976) was the pioneering scholar who used the notion of "Ricardian equivalence theorem" with his work "Barro on the Ricardian Equivalence Theorem". In his critical article on Barro's study named "Are Government Bonds Net Wealth?", he expressed that the theorem belonged to Ricardo.

notice that a new public debt must be paid in the future, can disable expansionary fiscal policy by increasing their individual savings due to their high tax expectations.

According to the theorem, whatever government chooses as a financing device to close budget deficit, it does not have any effect on the level of consumption expenditures, investment expenditures, and interest rate. Today, there is not any effect of financing budget deficit by borrowing or tax increase. For instance, if budget deficit is financed through borrowing, individuals think that interest payment of the debt will be financed by a tax increase; thus, it causes individuals to increase their savings. In the end, it does not have any effects on real economic sizes. Similarly, government's tax reduction or money transfers that are done by increasing expenditures do not increase consumption. When people see that budget deficit is rising, they think that tax rate will rise, and they save more money. In other words, the only composition of savings in economy will change. Consequently, fiscal policies will not have any effects on real economy.

Friedman (1968) argued that monetary policy was an effective political tool to determine general level of prices or to struggle with inflation, but everything should not be expected from it. For instance, it could not determine interest rate and unemployment rate in long term. Sargent and Wallace (1981) added inflation rate to the variables list which Friedman said that monetary policy did not have a constant effect on. While neoclassicals claimed that government debts should be financed with borrowing, not with tax increase, new classicals took it a step forward by arguing that the results of both are the same, both are bad. Similarly, they took Friedman's idea a step forward by claiming that monetary policy could not always determine inflation rate. As a result, new classicals defended that neither fiscal nor monetary policy should not be used as an intervention tool. They said that both policies were far away from being effective on economy.

In this period, apart from monetarist and new classical views, public choice theory that was developed by Gordon Tullock; supply side economics that was led by Arthur Laffer and Jude Wanniski; neo-Austria economics ecole, whose founder was Friedrich August von Hayek, were developed. In the core of all these movements, there is trust in market, which is the basic thought of classical economy, preventing all intervention in the operating of market, and the notion of minimal government.

Supply-side economics emerged in the second half of the 1970s claimed that what was the most important in economy was an increase in supply. Therefore, tax reductions should be done. The policies that supply-side economics recommended were implemented by some countries such as by Reagon in the US and by Thatcher in the UK. Expected results, however, could not be obtained because tax reductions were not supported by contractionary fiscal policy in the US. In the UK, expected goals were achieved because both of the policies were applied.

Another new movement of economic thought emerged after 1973 crisis is new Keynesian economics. New Keynesians[16] aimed to strengthen the supply side of economy that was ignored in neoclassic synthesis. They tried to build a micro basis on Keynesian macro theory. New Keynesian economists were at the head of international economic institutions, which led world economy; therefore, the thought rose to prominence in the 1990s (Şen & Kaya, 2015a). According to Büyükakın (2007), new Keynesian economists closed the gap between Keynesian economics and neoclassical economics by domesticating revolutionary reviews of Keynes towards neoclassical economics more than neoclassical synthesis.

According to O. Blanchard, Dell'Ariccia, and Mauro (2010), the relative importance of monetary and fiscal policy has changed considerably from World War II. Keynesian policies, which is predominantly fiscal policy, was accepted as the main tool of macroeconomic policy after in the 1950s. Monetary and fiscal policy were accepted as two devices that had almost equal importance in the 1960s-1970s. After 1980, fiscal policy was kept in the background of monetary policy.

It is beneficial to look at the schools of economic thought by comparing government reviews in terms of politics in order to understand their differences. Liberal thought, whose basic principles are individualism, freedom, market economy, and limited government, is generally accepted at the schools of economic thought. However, there are some differences in the width of government's power, production of public goods, and providing fair income distributions. As a result of these differences, the liberalism senses of classical,

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[16] The leading theoreticians of new Keynesian economics are the famous macroeconomists of the world such as Arthur Okun, Stanley Fischer, Ben Bernanke, John Taylor, Oliver Blanchard, Gregory Mankiw, and Janet L. Yellen.

neoclassical, and new classical economics can be named as classical liberalism, social liberalism, and neo-liberalism respectively.

Classicals adopted classical state that could be expressed by the names like minimal state, neutral state or gendarme state. Classical liberalism defended free market economy and restriction of government interventions in economy. The quote of "Laissez faire, laissez passer" summarises their thoughts.

After the industrial revolution, social liberalism came into question because women and children were compulsorily employed to increase the amount of production, and the economic, and social conditions of those workers were so bad. Social liberalism defenders said that state should take an active role in some areas like regulation in markets, providing income distribution, and enabling social justice. Consequently, government intervention is required in some situations, which are called market failure.

The state in Keynesian period, which is thought as an interim period in terms of liberal thought, is called "Functional and Interventionist Social State". In this period, state took an active role in economy by using the tools of monetary and fiscal policy in order to achieve its macroeconomic targets.

After the 1970 crisis, welfare state and public expenditures, which increased year by year because of Keynesian demand-side policies, started to be questioned. Those criticisms, which new classicals made against the notion of Keynesian welfare state, could be called neo-liberalism. In fact, neo-liberalists argued the need to return to classical liberal notion. They advocated all kinds of freedom, the notion of minimal state, and free market economy (Tayyar & Çetin, 2013).

Sargent and Wallace (1981) argued in their seminal work entitled "Some Unpleasant Monetarist Arithmetic" that budget deficits financed through borrowing on continued basis cannot be maintained forever and eventually, will be financed by issuing money. The work of Sargent and Wallace (1981) challenged conventional wisdom adopting that monetary policy and independent central bank were enough to determine price level; thus, it enabled fiscal policy to be included in the analysis.

At the end of the 1970s, polemics occurred between two opposite ideas; monetary policy is not effective, and fiscal policy is not effective. To Keynesian thought, even if prices and wages are flexible, there would be a situation that prevents economy from reaching full employment level by itself. It is called "Liquidity Trap", which means that interest sensitivity of demand for money is infinite. On the other hand, if interest sensitivity of demand for money is zero, LM curve would be vertical. In such a case, the most of the foresight of Keynesian thought would be invalid. At the end of the 1980s, both of these thoughts have been accepted to be invalid. In fact, all of the Keynesians and most of the monetarists believed that both monetary and fiscal policy affected the total demand (Fisunoğlu & Tan Köksal, 2009).

In the 1990s, the notion of fiscal theory of the price level (FTPL) proposed by Leeper (1991), Sims (1994), and Woodford (1994), took attention to the point that fiscal policy was effective in determining as well as maintaining the price level. Because the expected relation was not seen between inflation and increase in money supply in many countries. According to FTPL theory, independence of central bank may be not enough to struggle with inflation in a country that experiences a budget deficit and faces an increase in its debt stock. In this situation, it is necessary to evaluate together monetary and fiscal policy (Saçkan, 2006). According to Leeper (1991), whichever of the authorities of monetary and fiscal policy is active,[17] it can make decisions independently without being affected by budget restriction. The passive authority, nonetheless, must make a decision by taking budget restriction into consideration because it is affected by the decisions of active authority.

> "In a fiat-money economy, inflation is a fiscal phenomenon, even more fundamentally than it is a monetary phenomenon. The value of fiat-money always depends on public beliefs about fiscal policy under circumstances that are never observed in equilibrium" (Sims, 1994).

The coordination of monetary and fiscal policy has been at the bottom row of macroeconomic agenda for a long time. Both monetarists, which supported minimal government intervention and objecting to discretionary economy policies, and Keynesians,

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[17] The distinction of active-passive authority in Leeper (1991) was stated as the distinction of fiscal policy dominant –monetary policy dominant regimes in Woodford (1994, 1995, 1998) (Telatar, 2002).

which believed that intervention to economy was compulsory and which looked for optimal rules for monetary and fiscal policy, were in tendency to separate the debate between monetary and fiscal policy. Therefore, studies on monetary policy were restricted by the rules against discretionary policies which put possible effects of fiscal policy on determining price level aside. Because the presence of Ricardian equivalence theorem is assumed, it is unnecessary to talk about the coordination of monetary and fiscal policy (Nunes & Portugal, 2009). Even if fiscal policy drew much more attention by the effects of not only the study of Sargent and Wallace but also FTPL literature, it had stayed in the shadow of monetary policy until 2008.

2.1.4. The Financial and Economic Crisis of 2007 and Onward

The financial and economic crisis of 2007 is one of the biggest crises that the capitalist system has experienced after the Great Depression. Export promotion policies which were followed in order to overcome the crisis were useless because of the decline in the income of the importing countries. In addition to this, the monetary policy, together with the weakening of the monetary transmission mechanism, could not yield the desired effect on economy in the short term. Central banks used the last tool in their hand in terms of monetary expansion. Nonetheless, there was no longer any chance to revive the economy through interest rate cuts.

Since similar economic problems faced before the crisis stemmed from the Fed's hard interest rate hikes, it was enough to decrease the interest rates in order to eliminate the problem. In the last crisis, the source of the problem, however, was not high interest rate. For this reason, there was no longer the possibility of providing a recovery in the economy through interest rate cut. In such case, since monetary policy reached its natural limits, the economy faced with a situation that was expressed as liquidity trap by Keynes. Therefore, monetary policy was no longer an economic policy option. In this situation, there was only one option, and it was nothing other than fiscal policy as a tool of economic policy, which was neglected and was shunned for years (Şen & Kaya, 2015a).

Under these circumstances, there was no other way to put in to practice fiscal policy to stimulate aggregate demand. Many countries that were affected by the crisis begun to focus on expansionary fiscal policy. In fact, fiscal policy was announced to the countries by the

IMF as the most effective way to overcome the crisis. As a consequence, the countries, which participated in the G-20 summit in April in 2009, agreed on fiscal expansion for economic growth (Bocutoğlu & Ekinci, 2009).

The crisis showed that anti-cyclical fiscal policy is an important instrument. There are two reasons why fiscal policy is in the limelight again as a macroeconomic tool: being the final stage of monetary policy and lack of enough time to obtain useful results since the crisis lasted longer than expected time (O. Blanchard et al., 2010). The 2007-2008 crisis led Keynesian economics to obtain credibility that it lost with the attacks by the monetarists and other new versions of classical economics. The crisis has shown that the monetarist theory is a theory to be applied in inflation periods (Eğilmez, 2012).

2.1.5. The Relative Efficiency of Monetary and Fiscal Policy in a Closed Economy: IS-LM Model

In his study, entitled "Mr. Keynes and Classics", and published in Econometrica journal in 1937, Hicks tried to interpret the theory of Keynes with geometric shapes, whose outline was drawn by Keynes. The simple Keynesian model supposed that aggregate planned investments were fixed to simplify. Hicks brought a more dynamic aspect for the Keynesian model by thinking of aggregate planned investments as a function of interest rate. Thus, it provided an opportunity to analyse the mutual interaction between financial and real sector.

In his study, Hicks attempted to associate Keynes' views with the basic principles of neoclassical economics. The study became the source of inspiration of "neoclassical synthesis" to occur later on. The model that Hicks founded was named as the IS-LM model. Many economists contributed to the model. In fact, in the literature, IS-LM model is also expressed as Hicks-Hansen model because of Hansen's contributions in the late 1930s. Modigliani also contributed to the IS-LM model by including employment market in the model, which it was not in the original model. Afterwards, the well-known economists of that time such as Paul Samuelson and James Tobin also made an important contribution to the model in order to give its present form.

The IS-LM model is a macroeconomic instrument that shows the relationship between real output and interest rate in the goods and money markets. Saving-investment equality is

provided at each point on IS curve[18]. IS curve represents goods market. In the Keynesian model, aggregate supply adjusts to the change in aggregate planned expenditure, namely to the change in aggregate demand because output is determined by aggregate demand.

Where AE represents aggregate planned expenditure; C, consumption expenditures; I, investment expenditures; G, government expenditures; Y_d, disposable income; TR, transfer expenditures; T, income tax; i, interest rate; c, marginal propensity of consume; and b, interest sensitivity of investment, IS equation can be derivated as follows:

$$AE = C + I + G \tag{2.1}$$

$$C = C_0 + cY_d \tag{2.2}$$

$$Y_d = Y + Tr - T \tag{2.3}$$

$$T = T_0 + tY \tag{2.4}$$

$$I = I_0 - bi \tag{2.5}$$

$$G = G_0 \tag{2.6}$$

There are autonomous variables into the equations. They are expressed as A_0;

$$AE = A_0 - bi + c(1 - t)Y \qquad (A_0 = C_0 + cTR_0 - cT_0 + I_0 + G_0) \tag{2.7}$$

Hence, IS equation can be acquired by using the equation AE=Y, which shows the equivalence condition in the goods market.

$$Y = \frac{(A_0 - bi)}{(1 - c(1 - t))} \tag{2.8}$$

The expression $\frac{1}{(1 - c(1 - t))}$ that is the denominator of equation 2.8 is expenditure multiplier, which is Keynes's one of important contributions to economics. If expenditure

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[18] One of the notations of the equilibrium in goods market is $S + (T - Tr) + M = I + G + X$. In other words, leakages (the amount of output that is not taken by household) are equal to supplements (the amount of output that sectors apart from household want to buy). Hicks founded his original model for an economy in which there are only households and firms. Therefore, the equivalence becomes S=I on the assumption that there are no foreign trade and government. That is the reason why Hicks used the expression of IS "Investment Saving" in his model.

multiplier[19] is shown as k_e and the equation is solved for interest rate, following equation is obtained:

$$i = {}^{A_0}\!/_b - {}^Y\!/_{k_e b}$$ (2.9)

Figure 2.1: The Derivation of IS Curve
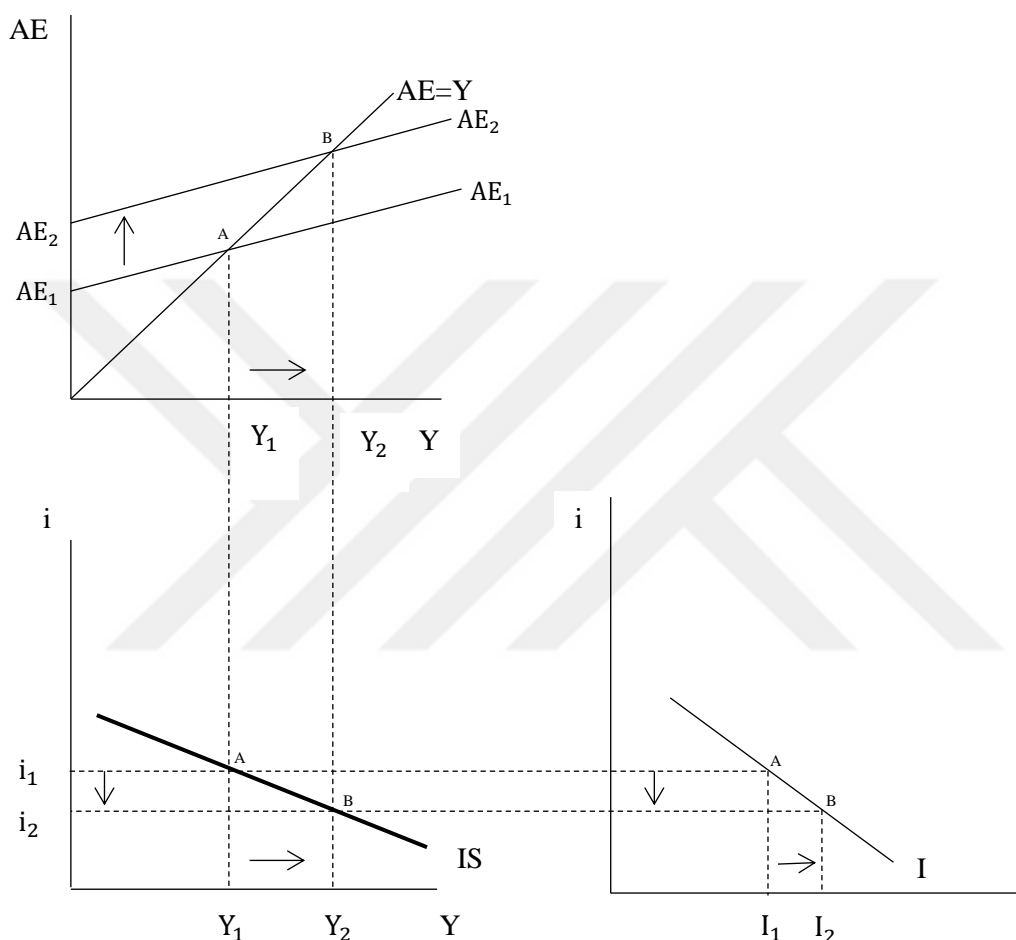
Source: Arrenged by the author.

Equation 2.9 is named as IS equation. The derivation of IS curve can also be shown through Figure 2.1 as well. The figure shows how IS curve is derived from the simple Keynesian model. The slope of IS curve equals to $^1\!/_{k_e b}$. As IS curve is more horizontal, a change in interest rate increases output level more. The slope of IS curve decreases owing to two reasons: an increase in the interest sensitivity of investments and/or an increase in

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[19] Expenditure multiplier shows how many units change will be in real output as a result of one unit change which occurs autonomous consumption expenditures. For example, c=0.8, t=0.1 and ΔG=100, k_e=3.57 and ΔY=k_e* ΔG, so ΔY=357.

the expenditure multiplier. The autonomous expenditures, namely A_0, determine the position of IS curve. While an increase in A_0 shifts IS curve to the right, a decrease in A_0 shifts it to the left.

Figure 2.1 shows that a decrease in interest rate causes an increase in aggregate planned investments. So, an increase in aggregate planned expenditure takes place and then in output. This situation causes that IS curve shifts to up. Similarly, the same curve can also be obtained by looking the effects of a decrease in interest rate on investments and savings.

In the Keynesian model, another way of presenting goods market equilibrium is to use injections-leakages approach. This approach shows that output which household does not consume must be equal to the output which is consumed by the other sectors. While injections represent private savings and net tax, leakages represent private investment expenditures and government expenditures. Where AE, aggregate planned expenditures; Y, output; Y_d, disposable income; C, consumption expenditures; S, savings; I, private investment expenditures; TR, transfer expenditures; T, tax; NT, net tax; and G, government expenditures, injections-leakages equation can be derivated as follows:

$$Y_d = Y + TR - T \tag{2.10}$$

$$Y_d = C + S \tag{2.11}$$

$$Y + TR - T = C + S \tag{2.12}$$

$$Y = C + S + NT \quad (NT = T - TR) \tag{2.13}$$

$$AE = C + I + G \tag{2.14}$$
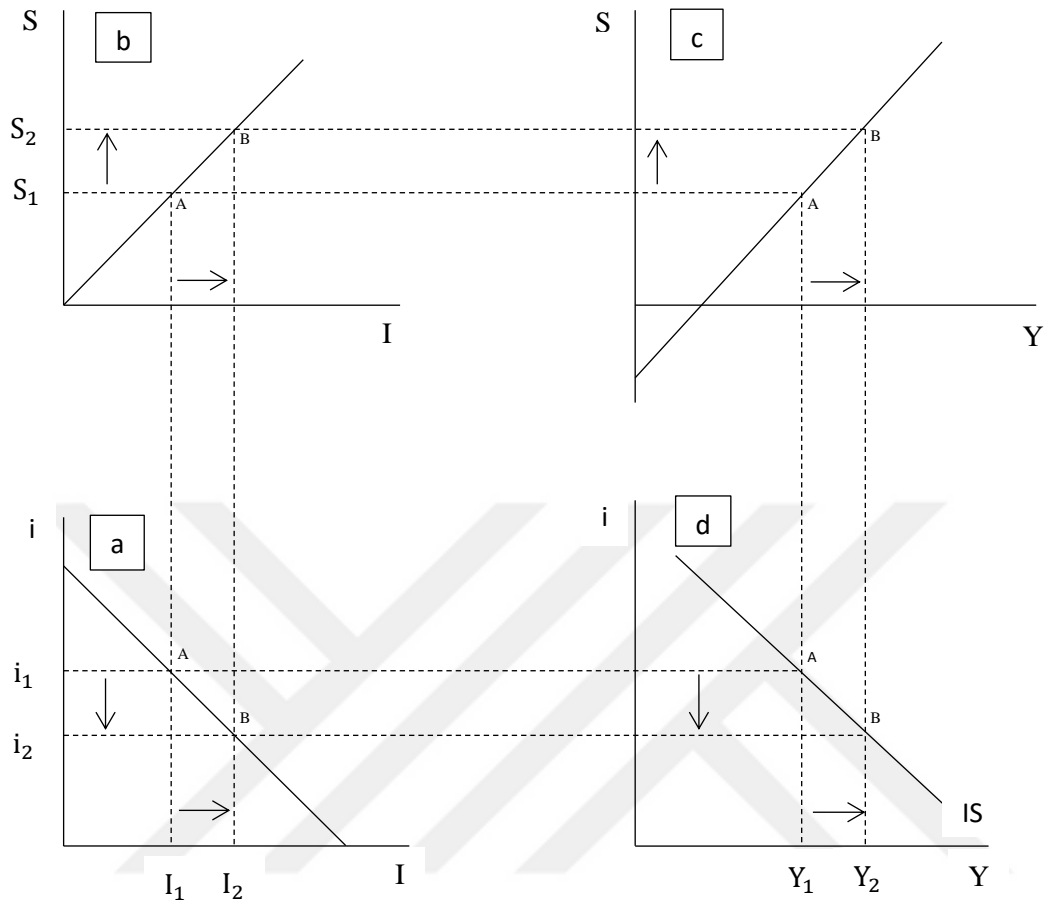
$$AE = Y \tag{2.15}$$

$$Y = C + I + G \tag{2.16}$$

$$C + S + NT = C + I + G \tag{2.17}$$

$$S + NT = I + G \tag{2.18}$$

Figure 2.2: IS Curve and Saving-Investment Equality

Source: Arranged by the author.

The left side of equation (2.18) shows leakages, as the right side of it shows injections. If G parameter that is on the right side is put on the left side, the left side of the equation turns into total savings (S_T) when we think as the sum of private savings (S) and public savings (NT-G). On the other hand, the right side of the equation only consists of investments. The new equation shows that savings should always be equal to investments in the goods market.

$$S + (NT - G) = I \qquad\qquad (2.19)$$

$$S_T = I \qquad\qquad (2.20)$$

Thus, it can be said that at each point on IS curve, goods market is in equilibrium; moreover, savings are equal to investments. This situation can also be shown through figure.

In panel d of Figure 2.2, goods market is in equilibrium in the level of i_1 and Y_1 on A point. A decrease in interest rate signifies a new balance in goods market in the level of i_2 and Y_2 on B point on condition that it stays over IS curve. Panel a and panel c of the Figure show the reasons that lie behind the change at the equilibrium point on IS curve. A decrease in interest rate causes an increase in investment expenditures, and in panel a, investment expenditures which are in the level of A rise to the level of B because investments are the decreasing function of interest rates. An increase in income level causes an increase in savings, too. In the panel c of the graph, savings, which are at the level of A, rise to the level of B in relation to income to increase from Y_1 to Y_2 because savings are the increasing function of income level. The panel b of the Figure shows another dimension of equilibrium in the goods market. Namely, at every point on the 45-degree line, goods market is in equilibrium; in addition, savings are equal to investments. As can be seen from panel a and panel c of the Figure, an increase in investments and savings ends up with an increase in the saving-investment equality, from point A to point B as shown in panel b. Hence, behind the movement from point A to point B in IS curve in which goods market is in equilibrium, there is a movement from point A to point B on the saving-investment line.

In Hicks's analyse, IS curve represents goods market as LM curve represents money market. LM curve[20] is a curve that shows the relationship between national income level and interest rate; besides, at every point of the curve, demand for money is equal to money supply. In the simple Keynesian model, interest rate is determined by money demand. LM curve shows the levels of output which correspond to different interest rates in which money market is in equilibrium.

To Keynes, demand for money is a function of both income and interest rate. Accordingly, money is demanded due to three main motives: transactions motive, precautionary motive, and speculative motive. First two of them are the function of income while the last one is the function of interest rate. M_d, demand for money; M_d^t, demand for money with the transactions motive; M_d^p, demand for money with the precautionary motive; M_d^s, demand for money with the speculative motive; Y, income; i, interest rate; M_s, money supply; P,

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[20] LM curve takes its name from the phrase "Liquidity preference-Money supply".

general price level; k, income sensitivity of demand for money; and h, interest sensitivity of demand for money, LM equation can be derived as follows;

$$M_d = f(Y, i) \tag{2.21}$$

$$M_d = M_d^t(Y) + M_d^p(Y) + M_d^s(i) \tag{2.22}$$

$$M_d = kY - hi \tag{2.23}$$

$$M_s = {}^M\!/_P \tag{2.24}$$

$$M_{d=}M_s \tag{2.25}$$

$${}^M\!/_P = kY - hi \tag{2.26}$$

$$i = {}^k\!/_h\,Y - {}^1\!/_h\,{}^M\!/_P \tag{2.27}$$

The slope of LM curve equals to ${}^k\!/_h$ rate. Namely, the more demand for money is sensitive to income or/and the less demand for money is sensitive to interest rate; the more vertical LM curve becomes. If it is more vertical, an increase in output leads to a bigger change in interest rate.

Figure 2.3: Derivation of LM Curve
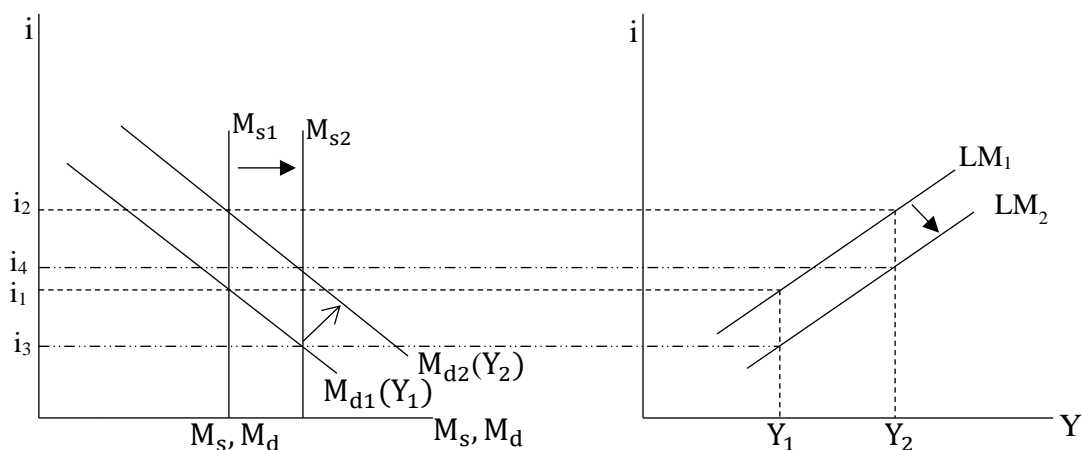
Source: Arranged by the author.

Money supply determines the position of LM curve. While an increase in money supply shifts LM curve to the right, a decrease shifts it to the left. A change in output implies a

movement on LM curve or that money market is in equilibrium at a different level of interest rate.

That the IS and LM curves are analysed together provides a useful macroeconomic instrument for policymakers. Under the IS-LM model, possible effects of expansionary monetary and fiscal policy are showed in Figure 2.4.

Figure 2.4: The Possible Effects of Expansionary Monetary and Fiscal Policy
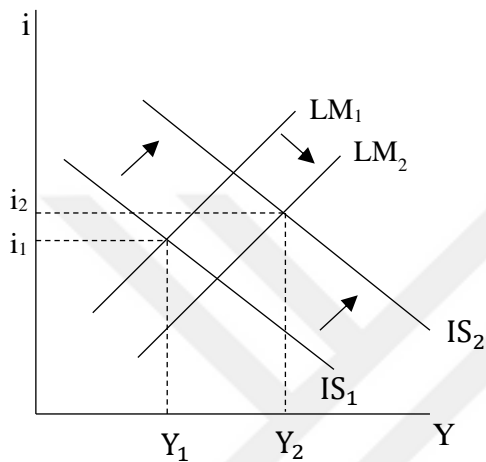
Source: Arranged by the author.

The processes of how expansionary monetary and fiscal policy affect output and interest rate can be summarised as follows:

$G\uparrow \rightarrow Y\uparrow \rightarrow M_d\uparrow \rightarrow i\uparrow \rightarrow I\downarrow \rightarrow Y\downarrow$

$M_s\uparrow \rightarrow i\downarrow \rightarrow I\uparrow \rightarrow Y\uparrow \rightarrow M_d\uparrow \rightarrow i\uparrow$

Investment expenditures are a variable that enables monetary policy to be effective on goods market. The primary effects of monetary policies are seen on interest rate, on the other hand, secondary effects of them are seen in goods market through investments because it is the function of interest rate. The component that brings out the effects of fiscal policy applications on money market is demand for money. The primary effects of fiscal policies are seen on income; however, the secondary effects are seen in money market through demand for money because it is the function of income.

The efficiency of fiscal policy depends on the positions and slops of IS and LM curves. The more vertical IS curve and the flatter LM curve is, the higher additive effect

expansionary fiscal policy has on output. Similarly, the efficiency of monetary policies depends on the positions and slops of IS and LM curves, too. The flatter IS curve and the more vertical LM curve is, the more it causes monetary policy to increase output level.

The IS-LM model enables us to see the effects of expansionary and contractionary monetary and fiscal policy on interest rate and output level for a closed economy with the assumption of that general price level is fixed. All effects in their different slopes of IS and LM curves are showed below.

Table 2.1: The Possible Effects of the Changes in the Slopes of IS and LM Curves on Output and Interest Rate

	Scenario A		Scenario B		Scenario C		Scenario D	
Type of the Curve	IS	LM	IS	LM	IS	LM	IS	LM
Slope of the Curve	-	+	-	0	-	∞	∞	+
Shape of the Curve	\	/	\	—	\					/

	Y	i	Y	i	Y	i	Y	i
Expansionary Fiscal Policy	↑	↑	↑	=	=	↑	↑	↑
Expansionary Monetary Policy	↑	↓	=	=	↑	↓	=	↓

Source: Arranged by the author.

In Table 2.1, column scenario A shows the effects of expansionary monetary and fiscal policy on output and interest rate when IS curve is negative, but LM curve is positive, which is called a normal situation. In such a case, while fiscal policy causes output level and interest rate to increase, monetary policy makes output level higher, but it makes interest rate lower.

Column scenario B indicates a situation that is called "liquidity trap".[21] If an economy slumped to liquidity trap, while monetary policy is completely ineffective, fiscal policy is

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[21] According to Keynes, there is a negative relation between speculative demand for money and interest rate. Namely, when money supply increases, cash in hand is wanted to be used to buy bond. Increase of demand for bond raises the bond prices; thereby, bond interest rate will decrease. There is a lower interest bound on which this mechanism works; in other words, people want to change their extra liquid assets with bond. Interest rates fall so much that people want to keep all their money as liquid because they expect interest rate

fully effective. When susceptibility of monetary demand to interest rate is infinite while an expansionary fiscal policy causes output level to increase, there is not a change in interest rates. Monetary policy has effects on neither output nor interest rates.

Column scenario C shows Classical state or Full Crowding-Out[22]. According to the classicals, money demand is not affected by interest rate. Thus, the slope of LM curve is infinite. An expansionary fiscal policy has no effect on output. On the contrary, it causes interest rates to increase. Expansionary monetary policy has an increasing effect on output, yet reducing effect on the interest rate.

Figure 2.5: The Slop of LM Curve
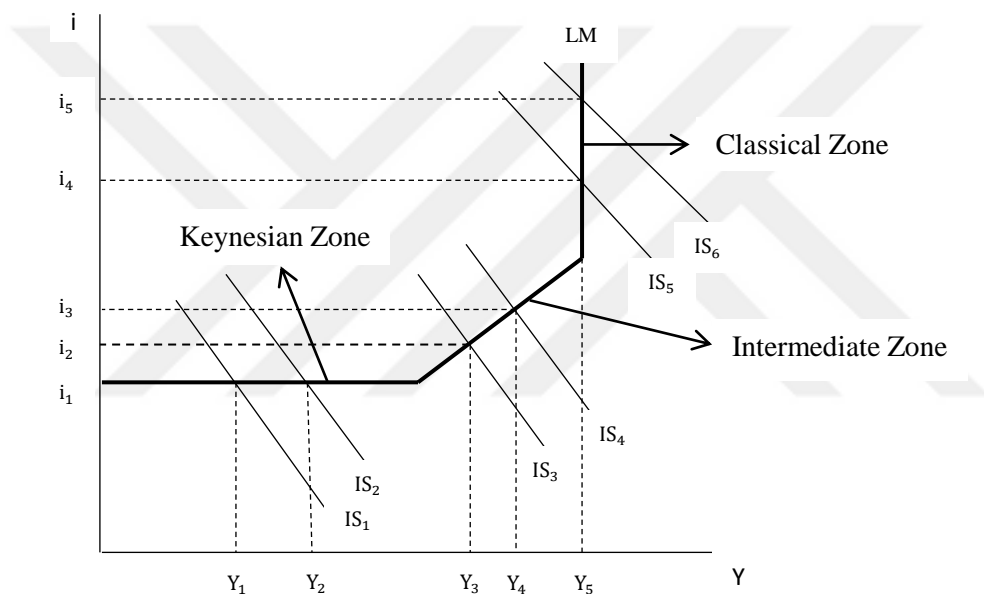
Source: Arranged by the author.

Column scenario D refers to another special condition, too. Expansionary fiscal policy has an increasing effect on both output and interest rate in such a situation that interest sensitivity of investments is zero. While the expansionary monetary policy does not affect output, it reduces the interest rate.

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will not fall anymore; otherwise, it will rise soon. Consequently, in such a situation, the mechanism, which reducing interest rate and increasing investment by increasing money supply, and increasing output, will not work. Only fiscal policy will be effective on output. For such an evaluation for the 2007-2008 crisis, see Şen and Kaya (2015a) .

[22] Crowding-Out Effect refers to an increase in government expenditures causes a decrease in the investments of private sector due to a rise in interest rate and a decrease in output. In the IS-LM model, because interest rate is not fixed as in simple Keynesian model, the effect of government expenditures on output is lower.

The reason why the streams of economic thought come to a different conclusion from IS-LM curves is that they use different periods from each other in their analyses. This situation comes to the fore especially on the slope of LM curve. While Keynesians claim that the curve is parallel to the horizontal axis in the short-run, classicals and monetarists claim that it is parallel to the vertical axis in the long-run (Eğilmez, 2012). Those views are presented in Figure 2.5.

Keynesian zone in Figure 2.5 is also named as "liquidity trap zone" and it corresponds to column B in Table 2.1. Intermediate zone refers to normal situation and it is shown with column A in the Table. Classical zone implies the classical situation and it is shown with column C in the Table.

The IS-LM model illustrates how to arrive macroeconomic objectives of policy makers. On this topic, the policies, which were applied in the term of Bill Clinton against second big budgetary deficit in American history after World War II, can be given as an example. The ratio of the budget deficit to GDP was 4.5% in 1992. A plan that contained that budgetary deficit would be gradually reduced to the level of 2.5% until 1998 and included an increase in tax and a decrease in public expenditures was accepted in the Congress with the suggestions of Alan Greenspan, who was the governor of Fed at that time. The plan actually meant that IS curve was shifted to the left, and it would bring a decrease in output. The output, however, could be kept at the same level while interest rate was decreasing because Fed applied an expansionary monetary policy together with the plan. When it comes to 1998, the rate of the US budgetary surplus to GDP was 0,8%, and 3,7% growth rate was obtained (O. Blanchard, 2003).

2.1.6. The Coordination of Monetary and Fiscal Policy in an Open Economy: IS-LM-BP Model

As highlighted before, the IS-LM model is built for a closed economy in the 1950s. However, it has been exposed to many criticisms following decades. The deregulation of trade and capital movements at global level necessitated development of a new model for open economies. Fleming (1962) and Mundell (1963) developed separately from each other a new form of the IS-LM model for free market economies, which is open to

international trade and capital movements. The new form of the IS-LM model in a sense is an extended version of the IS-LM model which contains BP in addition to IS-LM.

In IS-LM-BP model, net export, that means export difference from import, is included in aggregate planned expenditures. Where X is export, M is import, R is real exchange rate, Y_F is foreign output, and NX is net export, to show the equivalence of goods market in an open economy, IS equation can be derived as follows:

$$X = x_1 Y_F + x_2 R \tag{2.28}$$

$$M = m_0 - m_1 R + mY \tag{2.29}$$

$$NX = X - M \tag{2.30}$$

$$NX = x_1 Y_F + x_2 R - m_0 + m_1 R - mY \ (NX_0 = x_1 Y_F + x_2 R - m_0 + m_1 R) \tag{2.31}$$

$$NX = NX_0 - mY \tag{2.32}$$

$$Y = \frac{A_0 - bi}{1 - c(1 - t)} \tag{2.33}$$

NX_0 expression in net export can be included in A_0 in the equation of aggregate planned expenditure. In an open economy, when it is considered that interest rates cannot be determined freely, and they will be equal to foreign interest rates, parameter b can also be included in autonomous expenditures. Thus, the equation becomes:

$$Y = \frac{A_0}{1 - c(1 - t) + m} \tag{2.34}$$

In such a case, open economy expenditure multiplier becomes $\frac{1}{(1 - c(1 - t) + m)}$. The open economy multiplier is smaller than that of closed economy because the additional term "m" increases the denominator of the multiplier.

CuA, current account; CaA, capital account; κ, the sensitivity of capital movements to difference between domestic and foreign interest rates; R, real exchange rate; m, marginal propensity to import; Y_F, foreign output; i, domestic interest rate; and i_F, foreign interest rate; the balance of payments BP curve can be created as follows by borrowing Ünsal (2007):

$$CuA = NX = X - M \tag{2.35}$$

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$$CuA = x_1Y_F + x_2R + m_1R - mY \tag{2.36}$$

$$CaA = \kappa(i - i_F) \tag{2.37}$$

$$BP = CuA + CaA = 0 \tag{2.38}$$

$$i = i_F + \frac{mY}{\kappa} - \frac{x_1Y_F}{\kappa} - \frac{(m_1+x_2)R}{\kappa} \tag{2.39}$$

Figure 2.6: Derivation of BP Curve
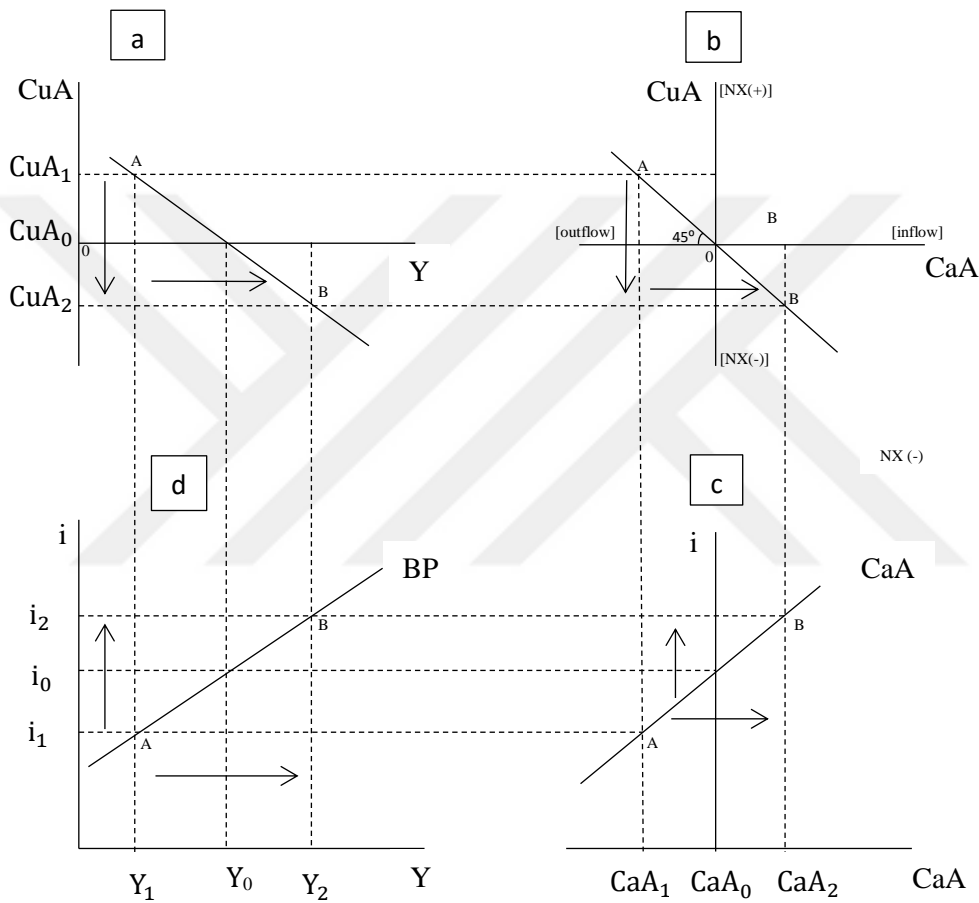
Source: Arranged by the author.

BP curve is the geometric representation of alternative interest rate and output combination in which balance of payments takes place. The reason why BP curve is positive is that an increase in output rises import, but the increase decreases net export. Thus, the decrease should be met by a surplus in capital account. The surplus depends on an increase in interest rate. While there is a balance of payments surplus above BP curve, there is a BP deficit below it. The slope of BP curve depends on marginal propensity to import (m) and the sensitivity of capital movements to the difference between domestic and foreign

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interest rate (κ). An increase in the former and a decrease in the latter cause BP curve to become more vertical (Ünsal, 2007). The slope of BP curve indicates the degree of capital mobility. Namely, a horizontal BP curve indicates perfect capital mobility, an upward one points to partial capital mobility, and a vertical one refers to complete capital immobility. On the other hand, if assumed that capital movements have perfect mobility, domestic interest rate always equals to foreign interest rate. In such a situation, BP curve becomes a horizontal line shape.

The position of BP curve is determined by foreign output level and real exchange rate. However, it is determined by nominal exchange rate if domestic and foreign prices and foreign output level are regarded as fixed. In such a situation, while an increase in nominal exchange rate shifts BP curve to the right, decrease shifts it to the left. Namely, for example, an increase in nominal exchange rate causes an increase in net export, the need for capital account surplus to decrease and finally, it causes interest rate to decrease.

That BP curve is added to the IS-LM model presents very useful macroeconomic tool to policymakers. While the IS-LM model point to internal equilibrium, BP curve signifies to external equilibrium. In any disequilibrium, real exchange rate should either increase or decrease or the central bank should intervene with the exchange rate depending on the kind of exchange rate regime.

In the IS-LM-BP model, the efficiency of monetary and fiscal policy changes in accordance with exchange rate regime and the liberalisation of capital movements. Under the assumptions of perfect capital mobility, partial capital mobility, and complete capital immobility, the effects of expansionary monetary and fiscal policy in fixed and flexible exchange rate systems on output and interest rate are shown in Table 2.2.

The functioning of the process for different exchange rate regimes and different capital mobility is summarised in the columns 1-4 of Table 2.2 in which effects of expansionary monetary and fiscal policy are shown. Finally, the final effects of above-mentioned policies on output and interest rate are shown in fifth and sixth columns of the table.

Table 2.2: Possible Effects of Expansionary Monetary and Fiscal Policies under the Different Exchange Rate Regimes and Different Forms of Capital Mobility in the IS-LM-BP Model

	Capital Mobility	The Regime of Exchange Rate	Expansionary Policy	1	2	3	4	Y	i
1	Perfect Capital Mobility	Fixed	Fiscal	$G\uparrow$ IS right	BP surplus	$M_s\uparrow$ LM right		$\uparrow$	=
2			Monetary	$M_s\uparrow$ LM right	BP deficit	$M_s\downarrow$ LM left		=	=
3		Flexible	Fiscal	$G\uparrow$ IS right	BP surplus	$NX\downarrow$ IS left		=	=
4			Monetary	$M_s\uparrow$ LM right	BP deficit	$NX\uparrow$ IS right		$\uparrow$	=
5	Partial Capital Mobility (BP flatter than LM)	Fixed	Fiscal	$G\uparrow$ IS right	BP surplus	$M_s\uparrow$ LM right		$\uparrow$	?
6			Monetary	$M_s\uparrow$ LM right	BP deficit	$M_s\downarrow$ LM left		=	=
7		Flexible	Fiscal	$G\uparrow$ IS right	BP surplus	$NX\downarrow$ IS left	$R\downarrow$ BP left	$\uparrow$	$\uparrow$
8			Monetary	$M_s\uparrow$ LM right	BP deficit	$NX\uparrow$ IS right	$R\uparrow$ BP right	$\uparrow$	?
9	Complete Capital Immobility (BP steeper than LM)	Fixed	Fiscal	$G\uparrow$ IS right	BP deficit	$M_s\downarrow$ LM left		$\uparrow$	$\uparrow$
10			Monetary	$M_s\uparrow$ LM right	BP deficit	$M_s\downarrow$ LM left		=	=
11		Flexible	Fiscal	$G\uparrow$ IS right	BP deficit	$NX\uparrow$ IS right	$R\uparrow$ BP right	$\uparrow$	$\uparrow$
12			Monetary	$M_s\uparrow$ LM right	BP deficit	$NX\uparrow$ IS right	$R\uparrow$ BP right	$\uparrow$	?

Source: Arranged by the author

Under the assumption of perfect capital movements, the effects of expansionary monetary and fiscal policy at fixed and flexible exchange rates are summarised in the following paragraphs. As expressed in the first line of Table 2.2, expansionary fiscal policy is fully effective under fixed exchange rate regime. Accordingly, an increase in public expenditures increases output, money demand and interest rate, respectively. In such a

case, the economy will have a balance of payment surplus. Thus, high domestic interest rate puts a pressure to increase the value of domestic currency or to fall real exchange rate. However, monetary authority does not allow this because of the exchange rate regime. It meets domestic money demand by issuing money in return for foreign exchange. An increase in money supply decreases interest rate, investments and, later on, output increases. Consequently, as output increases, interest rate does not change.

The second line of Table 2.2 shows that expansionary monetary policy is not effective under fixed exchange rate regime. An increase in money supply decreases interest rates and then investments and output increases, respectively. The new equilibrium occurs below the BP curve, which refers to that there is a balance of payments deficit in the economy. This causes capital transfer to abroad because domestic interest rate is lower than the foreign one. Central Bank, which cannot change exchange rates due to the validity of fixed exchange rate regime, purchases foreign currency in return for domestic currency. This policy results in a decrease in money supply, an increase in interest rate, and a decrease in investments and output. LM curve that has shifted to the right with the increase in money supply takes its previous position by shifting to the left.

Under flexible exchange rate regime shown in the third line of Table 2.2, an expansionary fiscal policy causes a balance of payments surplus. Thus, real exchange rate appreciates because of flexible exchange rate regime. This results in a decrease in net export. Consequently, IS curve returns to its first position. In conclusion, fiscal policy has no effect under flexible exchange rate regime.

In the fourth line of Table 3.2, it is shown that how the mechanism runs through an expansionary monetary policy choice under the flexible exchange rate regime. An increase in money supply decreases domestic interest rate. This causes balance payments deficit, so real exchange rate appreciates. Demand for foreign currency increases because of domestic interest rate that falls below foreign interest rate, and real exchange rate increases. In such case, making export becomes advantageous. An increase in net export results in an increase in output level. As a result, while there is no change in interest rate, there is an increase in output. In a nutshell, monetary policy is fully effective in flexible exchange rate regime.

Policymakers are faced with some constraints by using monetary and fiscal policy tools. Because there are conflicts not only among macroeconomic aims but also among the tools of monetary and fiscal policy. Therefore, it is not possible to reach all of the macroeconomic aims at the same time. A priority order among those aims should be determined. In other words, primary goals should be specified. As a result, the coordination between monetary and fiscal authorities is unavoidable. A typical example of this is the impossible trinity or trilemma hypothesis. Generally speaking, policymakers in an open economy commonly face with a trilemma in macroeconomic management. They are confronted with three typically desirable, yet jointly unattainable, objectives: i) to stabilise the exchange rate; ii) to enjoy free international capital mobility; and iii) to engage in a monetary policy-oriented towards domestic goals (Obstfeld, Shambaugh, & Taylor, 2005).

Figure 2.7: Impossible Trinity of Macroeconomic Policy Management
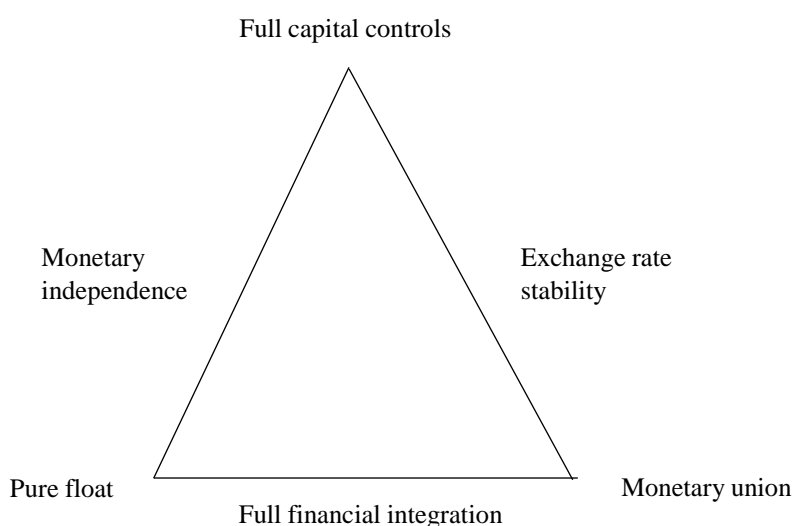
Source: Frankel (1999)

In their studies, Fleming (1962) and Mundell (1963) stated that free capital movement, independent monetary policy, and fixed exchange rate regime would not simultaneously be applied in a small open economy. This hypothesis was named by Frankel (1999) as "impossible trinity" or "trilemma". This principle states that a country should sacrifice at least one of the three goals: exchange rate stability, monetary independence, and financial market integration. It cannot simultaneously have all the three (Frankel, 1999).

The sides of the triangle as illustrated in Figure 2.7 indicate the aims of policymakers in an open economy. The policymakers have to give up from the aim on the third side if they choose the aims on any two sides and have to apply compulsorily the policy choice on the corner of the two sides, which states their primary purposes. In other words, to choose the aims of fixed exchange rate and free capital movement at the cost of independent monetary policy, to choose the aims of fixed exchange rate and independent monetary policy at the cost of free capital movements, and to choose the aims of free capital movement and independent monetary policy at the cost of fixed exchange rate have to be implemented.

The case of the US and EU may be given as an example with respect to the validity of the impossible trinity hypothesis. The US implements independent capital movement and flexible exchange rate regime due to the selection of an independent monetary policy. It is not possible to implement independent monetary policy in the EU due to its choice of fixed exchange rate regime because they accepted Euro as currency unit and free capital movement. Hence, the European Central Bank (ECB) makes decisions of monetary policy on behalf of the member countries, and the decisions are necessarily applied by them.

2.2 Previous Empirical Studies on the Relative Efficiency of Monetary and Fiscal Policy

There are many studies examining the efficiency of monetary and fiscal policy in national and international literature. From a broad perspective, these studies can be classified into three titles: i) the efficiency of fiscal policy[23], ii) the efficiency of monetary policy, and iii) the relative efficiency of both of monetary and fiscal policy, on which this study will focus.

Debates on the relative efficiency of monetary and fiscal policy was at the heart of the Keynesian-Monetarist debate in the 1960s and early 1970s. Keynesians asserted that fiscal policy was more important than monetary policy in stabilising an economy while the monetarists argued that monetary policy was dominant. Keynesians claimed that methodological problems invalidated the conclusions of the monetarist studies. Monetarists, on the other hand, provided evidence from their empirical studies to show that changes in the money supply had a larger effect on the economy than changes in fiscal variables (Kretzmer, 1992).

When the effects of monetary and fiscal policy on the macroeconomic variables are investigated in the literature, their effects not only on development but also on inflation, consumption, international transfer, stock market, and exchange rate have become a subject in the empirical literature. For instance, the studies of Koelln (1996), Favero and Monacelli (2003), and Nunes and Portugal (2009) for different countries; and Akçay, Alper, and Özmucur (1996), Özatay (1997), Telatar (2002), Özaktaş (2004), Altıntaş, Çetintaş, and Taban (2008), Şahinoğlu, Özden, Başar, and Aksu (2010) for Turkey focus on the effects of monetary and fiscal policy on inflation.

There are lots of studies related to the effects of monetary and fiscal policy on macroeconomic variables such as consumption expenditure, international transmission, stock market, and exchange rate. As examples of these studies can be mentioned Friedman and Meiselman (1963), Ateşoglu (1975), and Masood and Ahmad (1980); Fukuda (1993)

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[23] In those studies, the efficiency of fiscal policy was investigated either from the point of view of Wagnerian (the causality from GDP to public expenditures) or from the point of view of Keynesian (the causality from public expenditures to GDP).

and Betts and Devereux (2001); Darrat (1990) and Chatziantoniou, Duffy, and Filis (2013); Yörükoğlu and Kılınç (2012) respectively. However, since the focus of this study constitutes interaction of monetary and fiscal policy and especially their effects on growth, only the studies about this subject are included in the following lines.

The studies related to the effects of monetary and fiscal policy on growth are composed of both the studies that focus on a single country and the ones that focus on a special country group like the OECD and EU. The studies on a single country have mainly focused on developed countries, particularly the US. From the studies on the US, Andersen and Jordan (1968) and Andersen and Carlson (1970) are pioneer studies, and Kretzmer (1992), Muscatelli, Tirelli, and Trecroci (2004), Senbet (2011), Traum and Yang (2011) are more recent studies; furthermore, there have been studies that have been carried out in many other industrialised countries such as on Australia, Leu (2011); on Hungary, Algozhina (2012); and on Republic of Chezch, Tomsik (2012).

Of course, it should be strongly stated here that there have also been various developing country-specific studies focusing on the efficiency of monetary and fiscal policy and their impacts on macroeconomic variables. These studies have become widespread in recent years, but their roots date back to the 1970s. The studies of Ajayi (1974) on Nigeria; Chowdhury (1985) and Hasan (2001) on Bangladesh; Ansari (1996) on Malaysia; Jawaid, Arif, and Naeemullah (2010) on Pakistan; Ornellas and Portugal (2011) on Brazil; and Rossini, Quispe, and Loyola (2012) on Peru are just some of them.

On the other hand, there have been a great number of recent studies on country groups. These studies are on both developed and developing countries like Latin America countries, South Asian countries, African countries, the EU countries, the OECD countries, and the CIS countries. The studies of Bruneau and De Bandt (2003) on Germany, France and the whole Euro area; Fragetta and Kirsanova (2010) on the UK, the US and Sweden and Chatziantoniou et al. (2013) on Germany, the UK, and the US have been among these studies. On Latin America countries − Brazil, Mexico, Venezuela, Chile and Peru −, Darrat (1984); Shahid, Somia, and Asghar (2008) on South Asian countries − Pakistan, India, Sri Lanka and Bangladesh −; Owoye and Onafowora (1994) on African countries − Ghana, Kenya, Morocco, Nigeria and South Africa −; and Herzog (2006) on the CIS countries −

Belarus, Kazakhstan, Russia, and Ukraine − are among the studies on developing country groups. A considerable amount of literature research on the EU has been done; for theoretical studies, Dixit and Lambertini (2001), Beetsma and Jensen (2005) and Galí and Monacelli (2008); for empirical studies, Van Aarle, Garretsen, and Gobbin (2003), Galí and Perotti (2003), Lane (2003), Bruneau and De Bandt (2003); Canzoneri, Cumby, and Diba (2004) and Candelon, Muysken, and Vermeulen (2009) can be showed as examples.[24]

2.2.1 Some Examples of Studies on Selected Single Country Studies

Even though the studies that began in the second half of the 1960s on the relative efficiency of monetary and fiscal policy on growth for a single country, have been done initially on the US, a great deal of studies on other developed countries and emerging countries have also been made in the following years since 1960. With a great extent, St. Louis model[25] was used in initial studies. Besides, the other models have been used together with developed econometric methods in the following years. Some of them are presented on the following lines.

In their pioneering study on the efficiency of monetary and fiscal policy, Andersen and Jordan (1968) explored possible relationship between percentage changes in the level of GNP and percentage changes in fiscal policy and monetary policy in the US in the period 1952:q1-1968:q4. They detected the coefficients of each variable by regression analysis in order to find the relative contribution of each variable to changes in GNP in the period. Based on the results of the regression model, the coefficient of money supply was larger than that of fiscal policy; consequently, they concluded that monetary policy was more efficient policy tool. In the other words, their findings showed that changes in the US income were more closely related to the changes in the money supply than the changes in the fiscal policy. Besides, fiscal policy had only a small and temporary effect on the GNP. Because of the results supporting the monetarist views, they recommended that

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[24] The broad summary of the selected studies about the efficiency of monetary and fiscal policy on growth is presented in Appendix 1 at the end of the study.

[25] The oldest model which was used to analyse the efficiency of monetary and fiscal policy and their macroeconomic effects is St. Louis model. St. Louis model, theoretical framework of which based on the studies of Friedman and Meiselman (1963) and then Andersen and Jordan (1968), took its last version by the study of Andersen and Carlson (1970). The model took its name from St. Louis Federal Reserve Bank which was supporter of monetarist thought and promoted to make this model developed. In the empirical studies on efficiency of monetary and fiscal policy, St. Louis model and its different versions had been intensively used by the 80's.

policymakers should have a greater reliance on the monetary measures than fiscal measures for stabilisation.

Andersen and Carlson (1970) examined the efficiency of monetary and fiscal policy on the GNP in a developed country, the US. They employed an OLS method to American quarterly data spanning the period 1953:q1-1969:q4. Their primary objective was to quantify the effects of fiscal and monetary actions within a small model framework and offer an alternative method to existing large-scale econometric models. They formulated such a model by which based on monetarist approach. They estimated the effects of fiscal and monetary actions on nominal GNP. The estimated equations of the model indicated that monetary actions measured by changes in the money stock played a strategic role in the GDP. Fiscal actions measured by high employment federal expenditures had some short-run effects. However, the net effect on nominal GNP was approximately zero within only one year. Simulations of alternative rates of monetary expansion produced short run and long run responses which were consistent with the general monetarist view.

In his study on a developing country, Nigeria, Ajayi (1974) highlighted the efficiency of fiscal policy and monetary policy by using OLS method for the period 1960-1970. According his findings, in case of Nigeria, fiscal policy always seemed more important than monetary policy. In his work, he estimated the coefficients of monetary and fiscal policy variables by using OLS technique. He, therefore, found that monetary actions had much larger and more predictable effects than fiscal actions in view of the size of their coefficients. According to him, the results, nonetheless, does not imply that monetary policy is enough. To achieve macroeconomic objectives such as sustainable economic growth, low inflation rate, and balance of payments, fiscal policy and monetary policy should be considered together.

Kretzmer (1992) explored empirical relationship between monetary and fiscal policy in the US for the period 1950-1991 by using Vector Autoregressive (VAR) model. His findings showed that the treasury and national authorities had conflicting incentives, targets, and objectives, which depended upon the relative size of internal and external disturbances. He argued that if the monetary authority, the FED, wished to increase social welfare, then it might be necessary to conduct monetary policy with appropriate enforcement devices with respect to the targets and preferences of fiscal policy. He concluded that monetary policy

actions were substantially influenced by fiscal authorities and government decisions; hence, the goals of internal and external balance could be reached with the help of coordination of the policies. His findings provided evidence that monetary policy was still relatively more effective than fiscal policy though it became less effective year by year.

Using the VAR model for annual data set spanning from 1963 to 1993, Ansari (1996) analysed the efficiency of monetary and fiscal policy in India. The successive five-year plans were conducted in India and the public sector promoted economic growth and development. Based on his findings, he concluded that fiscal policy was relatively more important than monetary policy for the Indian economy.

In another study, Ansari (2002) used VAR model for the Malaysia for the period 1960-1996 to examine the share of fiscal policy, monetary policy, and financial liberalisation on accelerated development that Malaysian economy reached. In the model, while the variable that represented financial liberalisation was found significant, the variables that represented monetary and fiscal policy were found insignificant. He found that financial liberalisation played a key role in the development of Malaysian economy.

Another study on Nigeria by Ajisafe and Folorunso (2002) determined the relative efficiency of monetary and fiscal policy on economic activity for the period 1970-1998 through cointegration test and error correction model. Their findings showed that monetary policy rather than fiscal policy had a greater impact on economic activity in this country. To conclude, the emphasis on fiscal actions of the government led to greater distortions in the Nigerian economy.

Dungey and Fry (2009) examined the efficiency of monetary and fiscal policy in New Zealand. For this purpose, they applied the Structural Vector Autoregressive (SVAR) model to the quarterly data set covering the period 1983:q2-2006:q4. According to their findings, good economic management depended on understanding shocks from fiscal policy, monetary policy, and other sources that affect the economy. Their study shed light on the empirical estimation of the interactions between monetary policy, fiscal policy, and other economic shocks through an SVAR framework. They showed that omitting a debt feedback could result in incorrect estimates of the dynamic effects of fiscal shocks. In particular, the absence of an effect of fiscal shocks on long-term interest rates could be

explained by their misspecification. Therefore, Dungey and Fry (2009) used public debt variable in their empirical analysis. Their model characterised the behaviour of output in New Zealand over the last 20 years and showed that in general fiscal policy shocks were larger than monetary policy shocks. On the other hand, taxation and debt policy shocks were more significant than government expenditure shocks.

Another study, which was recently made about the efficiency of monetary and fiscal policy, belongs to Darrat, Kenneth, and Cedric (2014). They used cointegration and Granger causality analysis to determine which one was more efficient during the period 1959:q1-2010:q2 in the US economy. Their results were similar to those of Senbet (2011); namely, while only fiscal policy Granger-caused by real output in the long-run, both fiscal and monetary actions Granger-caused by real output in the short-run.

2.2.2 Some Examples of Studies on Selected Country Group Studies

There are studies on the relative efficiency of monetary and fiscal policy not only for single countries but also for country group such as the EU countries, OECD countries, developed countries, and developing countries. There are some studies on country groups on the following pages.

In his study on five Latin American countries,[26] some of which are the fast-growing emerging economies, Darrat (1984) investigated the efficiency of monetary and fiscal policy by employing modified St. Louis model to annual data ranging from 1950 to 1981.[27] He concluded that fiscal actions had more predictable and more powerful effects on nominal GNP in countries considered. He criticised the first studies on the efficiency of monetary and fiscal policy for using only developed countries data, so they concluded that policymakers should give priority to monetary actions for economic stabilisation. Nonetheless, different results in the same model were found by using developing countries data.

Using the SVAR model for the quarterly data spanning from 1980:q1 to 2000:q4, Van Aarle et al. (2003) analysed the transmission of monetary and fiscal policy for the EMU

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[26] Those countries are Brazil, Mexico, Venezuela, Chile, and Peru.
[27] In the original St. Louis model, nominal GNP was used as a dependent variable, while government expenditure and money supply were used as independent variables. In the study, export was also included as an independent variable.

countries. In their study, the EMU countries were considered as an aggregate entity and the SVAR model of the aggregate of the EMU countries was compared with SVAR models of the US and Japan. The transmission of monetary and fiscal policy was a very important issue in the analysis of macroeconomic policy in the EMU countries. Attention was also given to the efficiency of monetary and fiscal policy and the efficiency of government spending and government revenues. Symmetric supply and demand shocks are transmitted in a more symmetric way for different countries. Hence, common monetary policy and/or coordinated fiscal stabilisation policies that seek to counteract such a demand or supply shock will not result in large divergent adjustments of output and prices. The innovations in the common monetary and fiscal policy tools could generate various adjustment dynamics of output, fiscal balance, and prices in the EMU countries.

In his model that included six developed and six developing countries,[28] Atchariyachanvanich (2007) investigated the relative effect of monetary and fiscal policy on GDP, real GDP, GDP deflator, and consumer price index. He described four main implications between developed and developing countries: i) while more open developing countries exhibited relatively poor performance of public policy, the results for the industrialised countries were unclear although in rather close economies, public policy had very limited power; ii) while in developed countries, which adopted inflation-targeting, the monetary aggregates was no longer significant as monetary policy instrument, the situation was quite opposite with developing countries in which the framework was just adopted; iii) in developed countries that had constant budget deficits and high levels of public debt, inflation rates were negatively influenced by the budget-balanced growth rate; iv) government spending in developing countries had a greater effect than in developed countries.

To identify the leadership regime in monetary and fiscal policy interactions in three developed countries, the UK, the US, and Sweden, Fragetta and Kirsanova (2010) applied a VAR model for the period 1992:q3-2008:q2. They specified a small-scale structural general equilibrium model of an open economy and estimated it by using Bayesian methods. Unlike the most existing empirical studies, they explicitly took into account that

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[28] Those countries include the US, Spain, Sweden, Switzerland, the Netherlands, Australia, Brazil, Mexico, Peru, the Philippines, South Africa, and Thailand.

the solvency constraint, which fiscal authority faced, played an important role as an identification restriction. For the UK and Sweden, they found empirical support for the hypothesis that the fiscal and monetary authorities acted in a non-cooperative manner under the regime of fiscal leadership. They did not find any evidence that the Fed in the US explicitly took into account the fiscal stance when it made decisions. Instead, the fiscal and monetary authorities in the US were likely to operate under a Nash regime, or they might behave non-strategically. These results could help to design more flexible fiscal policy which would not counteract monetary policy because of different policy targets. It was important to know the leadership structure to avoid a conflict between the authorities, as the strength of such conflict and its welfare consequences depended on the ability of the authorities to lead in the policy game. They provided an empirical account of leadership interactions in the three economies that have retained independent monetary policy.

In his recent study, Hussain (2014) analysed the effects of fiscal and monetary variables on GDP for Asian countries including Bangladesh, India, Nepal, Pakistan, and Sri Lanka for the period 1974-2007. According to their findings, fiscal policy had a more powerful effect than monetary policy on output in Bangladesh, India and Nepal. On the contrary, monetary policy was more effective on output than fiscal policy in the case of Pakistan and Sri Lanka.

2.2.3. The Studies on Turkey

In reviewing the literature, we observe that there have been several studies that examine the relative efficiency of monetary and fiscal policy in Turkey. To the best of our knowledge, these studies are composed of Kızılyallı (1978), Ataç (1979), Uludağ and Serin (1987), Kibritçioğlu (1988), Dönek (1995), Javed and Şahinöz (2005), Saçkan (2006), Dikmen (2006), Düzgün (2010), İlgün (2010), Altuntepe (2011), Çebi (2012), Çekin (2013), and Şen and Kaya (2015b). The pioneering study on Turkey carried out by Kızılyallı (1978). In his study based on OLS method using St. Louis model, Kızılyallı (1978) examined the relative efficiency of monetary and fiscal policy in Turkey. The same model was used in the other studies on Turkey as well such as Ataç (1979), Uludağ and Serin (1987), Dönek (1995), and Dikmen (2006).

Investigating which policy was more efficient for the Turkish economy, Kızılyallı (1978) used OLS method based on St. Louis model for the period 1946-1974. His study showed

that it was possible to explain the GDP in Turkey by the changes in the money supply. According to the result of his analysis, the other variables, public expenditures, inflation, and balance of payments, had no effect on the GDP.

Ataç (1979) used St. Louis model like Kızılyallı (1978). He examined the relative importance of monetary and fiscal policy about providing economic stability in the period 1950-1977 was examined in the study using OLS method. The established model tested three hypotheses that fiscal policy had bigger, more predictable, and faster effects on GDP than monetary policy. The results of the analysis showed that monetary policy had bigger and more predictable effects. Nonetheless, it could not find any convincing evidence about which one had a faster effect.

Another study on Turkey belongs to Uludağ and Serin (1987). They analysed the efficiency of monetary and fiscal policy by employing St. Louis model based on annual data set for the period 1956-1986. The empirical findings of their study are as follows: one-unit increase in the following independent variables; narrow money supply, the velocity of money, inflation, and public revenue caused 0.68, 0.58, 0.21, and 0.77 units of increase over the dependent variable, nominal GDP, respectively. However, one-unit increase in other two independent variables, broad money supply and credit ratio, caused -0.40 and -0.46 units decrease on nominal GDP respectively. Based on these findings, they concluded that fiscal policy transactions were relatively more effective. They also found that the Turkish economy showed a good growth trend in the time-period covered, and the mixture of monetary and fiscal policy was effective on the growth. Especially, fiscal policy showed more profound and positive effects over nominal GDP in contrast to monetary policy. As a consequence, they claimed that fiscal policy could lead more significant and predictable results over economic activities than monetary policy could do.

Dönek (1995) investigated the relative efficiency of monetary and fiscal policy in Turkey by employing OLS method for the period 1950 to 1990. In his empirical analysis, he focused on three suitable variables, M1 money supply, inflation, and budget deficit. Although, he used St. Louis model for his analysis like Uludağ and Serin (1987), he reached different results from them. He found that the coefficients of the monetary variables were statistically significant and more reasonable than fiscal variables. Hence,

between years 1950 and 1990, the monetary policy was more effective and predictable than fiscal policy on the nominal GNP in Turkey.

Dikmen (2006) implemented an OLS method using St. Louis model by an annual data set covering the period 1987-2003 to examine the efficiency of monetary and fiscal policy in Turkey. He found that one-unit increase in the money supply increased the nominal GNP by 0.587 unit while one-unit increase in the government expenditure reduced the nominal GNP by 0.127 unit. Their findings showed that monetary policy is more efficient than fiscal policy on nominal GNP in the case of Turkey.

Kibritçioğlu (1988) argued that the conclusions were derived for Turkey based upon St. Louis model and similar models could not be reliable because these models were developed for developed countries. Thus, the assumptions underlying these models were determined based on the conditions of developed countries. According to him, it was not suitable that these models were adopted to developing countries inasmuch as some of the assumptions did not fit the conditions of developing countries. He claims that because of the assumptions that these models contained, it was concluded by many studies on developing countries that monetary policy had a permanent and stronger effect on nominal GNP, and fiscal policy lost its positive effect over nominal GNP in a very short period due to the crowding-out effect. Furthermore, he pointed out the invalidity of the estimations derived from the models similar St. Louis within the conjecture of Turkey, and the significance of including budget constraint into models for developing countries.

He developed a model and made estimations based on OLS method. In his model, GNP and GDP deflators were dependent variables while export, money base, and nominal public expenditure were all independent variables. According to estimation findings; it was concluded that it was not possible to answer which policy was more effective than the other in order to attain the goal of domestic and foreign economic stability without considering a budget constraint in the analysis of the economy where the monetary authority was significantly dependent upon fiscal authority.

In his study on Turkey, Javed and Sahinoz (2005) addressed the causality between fiscal policy, monetary policy, and economic growth. They employed Engle-Granger and Philips-Ouliaris tests to using quarterly Turkish data spanning the period 1992:q1–

2003:q3. The empirical studies analysing the relationship between economic growth and fiscal policy showed one-way and positive causality from economic growth to government expenditure. The important dilemma of the studies was to make bivariate causality analysis; consequently, they ignored some associated variables. However, in a multivariate system in which money supply was integrated into the analysis as a third variable, the findings indicated that there was a positive and bi-directional causality between money supply and economic growth, whereas there was positive and unidirectional causality between public expenditure and money supply in the same period. Engle-Granger and Philips-Ouliaris tests showed weak cointegration while Johansen test pointed robust cointegration relationship between these variables. According to them, the distortions of the Turkish economy may be adjusted with precautions to be taken related to the constant growth rate of money supply, reduction in unproductive expenditures, and implementation of structural adjustment programmes.

Analysing in the framework of FTPL approach, Saçkan (2006) identified the dominant[29] regime in monetary and fiscal policy interactions in Turkey by applying a VAR model for the period 1988-2005. He used a similar model that Canzoneri, Cumby, and Diba (1998) and Telatar (2002) used in their analysis. The expectations of the analysis were that fiscal policy was dominant before 2001 while monetary policy was dominant after 2001 in the Turkish economy owing to fiscal stability measures and the Central Bank independence. He tried to answer to the following question: "Did an increase that occurred in the primary surplus in the current period cause a decrease in the obligations of future periods?" and to determine dominant policy in Turkey based on this answer. If the answer of this question is yes, it can be said that monetary policy is dominant; if the answer is no, then it can be said that fiscal policy prevails. The findings of his study were suitable for predictions. As a result of economic policies that took place in Turkey after 2001, dominant trend moved towards monetary policy from fiscal policy. For the past three decades, price stability and fiscal discipline have been considered two important tools to reach the objective of stronger and more sustainable growth.

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[29] In FTPL literature, the regimes of fiscal policy dominant is named as non-Ricardian regimes, while the regimes of monetary policy dominant is named Ricardian regimes.

By using Autoregressive Distributed Lag (ARDL)[30], Düzgün (2010) analysed the interaction of monetary and fiscal policy in Turkey by using quarterly data from 1987:q1 to 2007:q3. To the results of his study, fiscal policy is more efficient on GDP in both the short and long term. It was found that the sign of the variable that represented fiscal policy was negative and significant while the sign of the variable that represented monetary policy was positive but insignificant. Those results show that expansionary fiscal policy contracts while expansionary monetary policy expands the Turkish economy. He suggested that contractionary fiscal policy should be applied to overcome any crisis in Turkey.

Analysing the interaction of monetary and fiscal policy in Turkey in his study, İlgün (2010) used SVEC[31] model, by using quarterly data spanning from 1987:q1 to 2007:q3. According to the results of his study, fiscal effect which represented discretionary fiscal policy had a positive effect, primary deficit had a negative effect, and general budget balance had a positive effect on the first term and had a negative effect in the later terms. The effect of a contractionary monetary policy by means of an increase in interest rate on output was positive in the short term and negative in the long term.

To him, if monetary and fiscal policy are thought to be independent of each other, the efficiency of these policies will be predicted more than their real values because both policies affect each other. In the circumstances, the other variables that are affected by monetary and fiscal policy are incorrectly estimated. On the basis of the model, he asserted that fiscal policy was countercyclical and monetary policy was procyclical. IMF findings showed that fiscal policy had countercyclical effects in developed countries and had procyclical effects in developing countries. Based on the findings, he stated that it would not be wrong to say that fiscal policy in Turkey acted in a similar way with those in developed countries.

Using the VAR Model, Altuntepe (2011) analysed the effects of monetary and fiscal policy on manufacturing industry, the most important part of the industry sector in regard to an increase in GDP, in Turkey during the period 1980-2009. According to his findings, both

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[30] Developed by Pesaran, Shin, and Smith (2001), ARDL model allows us to operate with non-stationary variables.

[31] In this study, SVEC model was chosen because it did not require the differentiation of dependent and independent between variables, it took in consideration the short and long run effects between them and it gave an opportunity cointegrated series to be able to analyse at their own levels.

fiscal policy and monetary policy were efficient on employment, added value, capacity usage ratio, product index, and fixed capital in the manufacturing industry.

A recent study by Şen and Kaya (2015b) analysed the relative efficiency of monetary and fiscal policy in Turkey. In their study, they used SVAR model to predict the effects of the variables that represented monetary and fiscal policy. Based on the results of the study, both policies were effective in Turkey for the period 2001:q1–2014:q2. However, monetary policy had a relatively larger effect on growth. Interest rate and inflation rate variables represented monetary policy, while central government deficit and government debt stock were included in the model as a proxy variable for fiscal policy. To his findings, 6.51% of the change in GDP growth rate was explained by the fiscal policy variables, the rest of the change was accounted for by the monetary policy variables.

In sum, there has been a large number of empirical studies that examined the relative efficiency of monetary and fiscal policy. There is a growing literature on developing countries in recent years although most of the first studies have focused on developed countries such as the US, the UK, Germany, and Italy. The first empirical studies started with the pioneer study of Andersen and Jordan (1968) over the US, in regard to the effects of monetary and fiscal policy on growth was concentrated on firstly the US and other developed countries. Because the studies used mostly St. Louis model that based upon monetarist assumptions, they concluded that the monetary policy had bigger, faster, and more predictable effects on growth. Nonetheless, few studies on developing countries in the 1970s suggested different results so that, it was inferred that the results of this model cannot be generalised to developing countries.

Indeed, in the sample studies regarding the relative efficiency of monetary and fiscal policy summarised above, it is clear that the results have differentiated in accordance with the development level of the countries, the analysed period, the kind of the model used, and the variables included in the model. Hence, it is possible to conclude that different policies are relatively efficient for two different countries although the same model is used. Similarly, two different studies for the same country can reach different results since they analyse different time periods. Consequently, it is necessary to avoid from saying certainly which policy is more efficient for a specific country or country groups.

3. MONETARY AND FISCAL POLICY FROM PAST TO PRESENT IN TURKEY

The Turkish economy has often experienced serious deviations from its macroeconomic balance since the beginning of the establishment of the Republic of Turkey, in 1923, until today. Those deviations enlarged soon, and led crises to turn into macroeconomic imbalances. While some of the deviations were the domestic-based, others were foreign-based. Former governments applied different components of economic policy instruments in order to eliminate the deviations.

When the consequences of economic policies that were followed in the history of the Republic of Turkey were monitored, it was seen that in the years of 1923-1929, liberal policies were applied, which corresponded to the decisions taken at İzmir Economics Congress dated 17 February 1923. Liberal policies, nevertheless, had to be postponed in the 1930s due to the domestic-based as well as foreign-based economic and political reasons; thus, etatist policies were put into place for about two decades before 1950.

However, industrialisation movement that etatist policies started was interrupted by the footsteps of the World War II. Problems that the war economy caused resulted in government change, cancellation of etatist policies, and activation in partial liberal policies in the 1950s. In order to tackle the instabilities and restart the industrialisation movement, five-year development plans started to be applied from 1963 to 1980. After the first two five year plans were implemented successfully, it was not possible to sustain development plans based on import-substitution industrialisation due to some economic and political reasons, and the Turkish economy terminated economic development plans as a result of 24 January decisions.

The Turkish economy, which underwent serious economic policy changes by 24 January decisions, switched from import-substitution industrialisation strategy to export-based industrialisation strategy. In that period of time, monetary and fiscal policy could not be applied steadily. The Turkish economy, which followed increasingly liberal policies

in line with24 January decisions in general and the strategy chances in specific, performed critical structural reforms through tight monetary and fiscal policy implementations after the 2000 and 2001 crises.

In the following paragraphs, monetary and fiscal policy, which were applied to reach macroeconomic objectives in the Turkish economy, and to cope with or reduce the negative impacts of crises, were examined. The policies were classified in six different eras: foundation years, etatist (governmental) industrialisation, partial liberalisation, mixed economy-based planned, transition to market economy, and structural reform.

3.1 Foundation Years (1923-1932)

In the early years of the Republic, liberal economic policies were adopted by the government of that time due to several domestic and external factors, such as the dominant economic thought and the limiting items that were imposed at Lausanne Peace Treaty. In accordance with those policies, the state played a regulative role in the economy.

Newly established republic administrators determined the construction and development of national industry as a primary economic goal. Reaching this goal through the hand of private sector was planned. As parallel the demands of industrial groups at İzmir Economic Congress, İş Bank was founded in 1924 as the first financial institution of the Republic with an aim of supplying private sector capital requirements. The duties of the bank were not only to provide credit to industrial sector and business organisations, but to deal with every kind of industrial and mercantile activities.

On the other hand, the industrial promotion law was put into effect with the expectation of attracting industry for private entrepreneurs in 1927. However, expected consequences from the law could not be obtained due to the limiting agreement clause regarding customs tariff of Lausanne Peace Treaty, the inadequacy of private capital accumulation, poor substructure, and absence of private entrepreneur.

Abolition of tithe in 1924 was one of the important event in terms of fiscal policy. It resulted in serious revenue loss because tithe was approximately one fourth of the total state revenues. The revenue loss was tried to compensate through introducing new taxes,

such as expenditure tax, land tax, and fiscal monopolisation on some merchandise. Nevertheless, the revenue loss could not be compensated with these taxes until the 1980s.

The Ottoman Bank founded as a bank of British and French in 1863 undertook the mission of being central bank in the early years of the Republic. The Central Bank of the Republic of Turkey (hereafter CBRT) was founded in 1931. However, till the 1935s, the Republic of Turkey could not implement independent and national monetary policy because monetary policy was conducted dependent upon the Ottoman bank. On the other hand, balanced budget was accepted as a core principle of fiscal policy. The essence of the policy was firstly the determination of government revenues and then the determination of spending policy that the revenues would determine its upper limit. In other words, it can be said that the government should spend proportionally with its revenues.

In the following years, the government avoided financing public expenditures through money creation. Thus, the CBRT establishment law was not included in any provision regarding whether the Bank would grant short-term advance to the Treasury. On the other hand, through the legislative proposal concerning the protection of the value of Turkish currency in 1930, it was aimed to prevent the fluctuation in the value of Turkish lira.

In sum, in the period, tight fiscal policy focused on balanced budget rule based on the principle of spending proportionally with the tax revenues was applied. As a result of the policy, the state avoided financing by monetising and by borrowing to reach the balanced budget goal. Sometimes, there were surplus in the budget. At the same time, tight monetary policy was implemented in order to avoid financing by monetising that caused inflation, and the stability of Turkish lira was maintained.

3.2 Etatist Industrialisation Era (1933-1945)

The Republic of Turkey switched to etatist policies from liberal policies based upon market economy in 1933. The reasons for this policy change might be attributed a number of factors, such as the under capitalisation of private sector, the negative effects of the 1929 crisis over Turkey, the expiration of unfavourable clauses of the Lausanne Peace Treaty, and that Russia, which had a central planned economy, was not affected from the crisis.

In the etatist industrialisation era, along with the acceptance of market economy, the state undertook the industrial investments where the private sector was unsatisfactory. Public sector did not omit private sector entirely; on the contrary, they helped private sector develop. Moreover, it was planned that the public economic enterprises would be transferred to private sector when they started to make profit (Şahin, 2009).

The etatist policies were followed in not only industrial sector but also agricultural one. Owing to serious decreases on the prices of agricultural products, deterioration was seen in the foreign trade rates of the Turkish economy where the export was based on agricultural products. In order to stop the decrease in harvest, the government broke into the market as an agricultural product buyer and imposed minimum price for some products. In summary, in the era, state came into play as a powerful entrepreneur, and dozens of public economic enterprises, from Sümerbank to Etibank and Seka, were established.

Moreover, the first industrial plan, which was the initial sectoral development plan covering the years 1933 to 1937, was came into play. Through this plan, it was intended to increase the foreign exchange reserve through import substitution of basic necessities and to close the foreign trade deficit. The attempts of the second industrialisation plan in 1938 and 1942 followed the first plan that was successfully implemented, yet the footsteps of World War II prevented to realise the second industrialisation plan. All policies, just as in the other fields, were determined by war economy conditions. Such that the portion of defence expenditures reached approximately 50% of general budget receipts in the period 1941-1944.[32]

Abnormal conditions that the war economy caused leaded to deviations from tight monetary and fiscal policy, which had been embraced as main principle since the beginning of Republic; besides, the goal of keeping stable the value of national currency could not be reached.

3.3 Partial Liberalisation Era (1946-1962)

The year 1946 was a symbol for the transition from one-party system to multi-party system

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[32] Due to the declaration of mobilisation based upon the possibility of entering the war, over one million workforce were recruited to army. This loss of workforce created increase in defense expenditure and decrease in production (Şen, Sağbaş, & Keskin, 2007).

politically. At the same time, the year symbolised the beginning of transition from etatist policies to liberal policies economically. The foundations of economic policy of Democrat Party (DP) consisted of being operated market economy, being encouraged private sector in investment, being given primacy to the agriculture sector rather industry one, and being concentrated on energy and highways in terms of public investments. According to Şahin (2009), Keynesian policies that became widespread after World War II and the changes in the role of state also played an important role in the policy differentiation.

After 1950, there was another important change in the relationship between the CBRT and the Treasury. Through the legislated law numbered 6544 in 1955, the CBRT law was amended and arrived at the decision that the CBRT would be enabled to grant short-term advance to the Treasury under the condition of not exceeding 15% of current year's budget expenditure. The law became a legal base for financing budget deficit through the CBRT resources and set a bad example for the following terms (Şen, 2004).

In the period, the increase in substructure investments, losses of the State Economic Enterprises (SEE), and agricultural support programs resulted in a significant increase in public expenditures. Budget deficit was tried to be financed through the raise in price of the SEE products and the CBRT credits. Nonetheless, those financing tools caused inflationist pressure over the general level of prices. Slack monetary and fiscal policy took over the place of monetary and fiscal policy of the pre-1950s (Şen, Sağbaş, & Keskin, 2007). As a result of the policies put into practice, the budget deficit and inflation dragged the Turkish economy into the first domestic-based crisis in 1958. Due to the fact that the government could not handle the crisis with its own means, it applied for IMF support and put economic and fiscal measures package into action under the name of "1958 Stability Program".

3.4 Economic Planned Era (1963-1979)

In this period, five-year development plans, the first of which was prepared and put into action in 1963 by State Planning Organisation, directed economic policies. Although the 1930s' industrial plans were sector-based, these development plans were macro-based plans, in which industrialisation was among their priorities. On the other hand, these macro

plans were prepared with a 15-year perspective, which included short, medium, and long terms.

A comprehensive tax reform was carried out in the framework of the first Five-Year Development Plan. It was aimed that the planned investments would be financed by the budget revenues, and budget allocations would not be exceeded. The positive effects of the first plan showed itself in the form of a reduction in the budget deficit.

In 1960, the amount of short-term advances that the Treasury could use from the CBRT resources was reduced from 15% of current budget allowances to 5%. However, this ratio was increased to 10% in 1965; moreover, the necessity to pay the advance at the end of the year was removed. This decision became an indicator of the fact that short-term advances from the CBRT seemed like a regular financing tool.

After the Central Bank Law No. 1715 which remained in for about 40 years was abolished in 1970, Law No.1211 was enacted. Along with this law, the share of the Treasury in the CBRT which was 15% before was determined as at least 51%. The provision was also an indicator of the change in the view of governments to the CBRT (Eğilmez & Kumcu, 2012). With the new law, supervision and control power of the Treasury and/or the governments over the CBRT increased. Another important change in the new CBRT law was the removal of the provision that the Bank could not open unsecured loans and grant advances. Instead of this removed provision, 15% of current expenses was determined as an upper limit for the advances.

Although an increase in public revenues was observed through the tax reform, which was carried out in the 1970s, fiscal policy lost its efficiency with the erosion of public revenues due to inflation and with the public expenditures, which increased as a result of OPEC crisis, Cyprus issue, and the populist policies of unstable governments. Budget deficit and the financing of the deficit with the CBRT resources were the most important factors of high inflation which became chronic in Turkey. Furthermore, an increase in oil price and decline in industrial production due to the strikes with political reasons became the other factors that fuelled inflation increase.

On the other hand, in the second half of the 1970s, the existing balance of payments deficit

showed itself in the form of foreign exchange bottle-neck. Increased import input prices and an overvalued exchange rate policy put an end to the import substitution industrialisation policy. In the process, IMF-supported stability programs were implemented in 1978 and 1979 in the Turkish economy. However, they could not go beyond producing temporary solutions because there was a need for serious changes in the economic structure.

3.5 Transition to Market Economy Era (1980-2000)

Political instability that frequently overthrown coalition governments caused, insecurity and uncertainty that the left-right incidents triggered, obstruction of import substitution policy, foreign exchange bottle-neck, and the search for solution to the chronic structural problems in the economy made compulsory to take January 24, 1980 decisions. The theoretical philosophy of the program was comprised of neo-liberal policies. The purposes of the decisions were to control the money to prevent inflation, to shrink the state, to reduce the weight of the state on the economy through privatizations, and to facilitate the free market mechanism.

With the decisions of January 24, state intervention was removed from the goods and factor markets in the economy. Import substitution industrialisation policy was replaced by export-oriented industrialisation policy. The fixed exchange rate application was abandoned, daily rate application began after 1981, and all authority in determining exchange rates was given to the CBRT. Along with this change, the CBRT became the unique authority for monetary policy applications.

After 1980, the share of both transfer and interest expenditures reached significant proportions in Turkey. The essential factor for the situation was public finance policies. On the other hand, supply-side economics, which claimed that reducing the direct tax burden on industrial, commercial capital and financial capital would develop private investments and encourage production and growth, was effective all over the world in that period. Those policies were applied in Turkey as well; nevertheless, those led to diminish tax revenues which had been already insufficient. Therefore, a process in which borrowing

policies were preferred instead of tax policies in public finance began in the Turkish economy.

In the 1980s, another reason why public revenue/GDP ratio remained at low levels was extra-budgetary funds. The number of extra-budgetary funds, which was 33 before the period, increased to 105 in the 1990s. Moreover, an important part of the consolidated budget revenues were transferred to those funds (Şen et al., 2007). The governments after 1984 displayed a marked tendency to give weight to domestic borrowing together with the CBRT resources. The development brought about severe interest payments; consequently, public expenditures drastically increased. The rise in domestic borrowing led to the shortening of maturities and increase in interest rates. As a result, public deficit increased, borrowing and monetisation became like the usual funding sources of the budget deficit (Şen, 2004). Hence, the reduction in public revenues and the increase in public expenditures led to a perpetual increase in public sector borrowing requirement.

The Turkish economy in the 1990s confronted with high inflation, high budget deficit, fragile banking sector, and macroeconomic instability (Çekin, 2013). Although a small but active public sector employee was targeted in the first half of the 1990s, an increase in public expenditures was observed due to salary increases in 1989, increase in defence expenditures because of the Gulf War, and agricultural support policies. In the 1990s, a rapid rise in domestic debt stock and severe interest payments weakened the budget in terms of investment expenditures (Yeldan, 2001).

Turkey, which encountered the biggest current account deficit and budget deficit in its history, was plunged into a currency crisis in 1994. Thus, the first half of 1994 became the period when economic problems turned into a crisis and serious short, and medium-term stability programs became inevitable. Especially, two reasons led to the emergence of the crisis: i) open positions of banks with the liberalisation of capital movements, banks' funding of Treasury with cheap resources that they provided from abroad and the policy of the CBRT to keep Turkish Lira valuable within the framework of fighting against inflation, ii) the increase in domestic demand owing to high wage increases (Binay & Kunter, 1999).

On April 5, 1994, the emergency measures package that was called "April 5th decisions" was put into action. In the framework the decisions, a significant devaluation was experienced and 16th Stand–by Agreement with IMF was signed. The main aim of the devaluation and the agreement was to ensure stability in public finance by privatising, to control public expenditures, and to increase public revenues. There was a decrease in budget deficit through the additional taxes and reduce in public expenditures in this period. However, as a result of 1995 elections and the reluctance of politicians in reducing inflation, expected decline in inflation could not achieved.

In order to prevent increasing public expenditures, alternative fiscal rules were implemented during the term. In this framework, the term "primary balance" started to be used as the fiscal policy performance indicator. In the same year, with the change in Law No. 1211 of the CBRT, it was projected that the share of the amount of advance, which was given to the Treasury by the Central Bank, in the total general budget appropriations were decreased from 15% to 3% until 1998. Along with the protocol that was signed between the Treasury and the CBRT, it was determined that the Treasury would not henceforth apply to the CBRT resources, and as of 1998, the provision was put into practice.

Even though the program provided an improvement in the budget balance, the desired decrease in public expenditures could not realise; furthermore, inflation continued to remain at high levels due to the Russia Crisis, 1999 elections, and the earthquake that influenced on tremendous area and had severe disruptive effect on the economy in 1999.

In an attempt to overcome inflation, which could not be taken under control, 17th Stand-by Agreement was signed with IMF in 1999. Within the framework of this agreement, Disinflation Program (DIP), which was initially aimed at decreasing inflation, reducing public debt and the ratio of current account deficit to GDP, and achieving stable growth was announced to be in effective from beginning January 1, 2000. These targets depended on the implementation of structural reforms such as the reorganisation of the financial sector, public finance reform, and running privatisation program. That the noninterest surplus should become 6.5% of GDP was the initial fiscal policy rule of the program. A close relationship was established between the income that would come from privatisation of energy and telecommunication facilities and the attainment of basic macroeconomic

targets. Hence, the fact that privatisation targets remained far behind the program played a significant role in the failure of the DIP.

Despite the observed relative improvement in macroeconomic indicators, the fragile structure of the banking sector led Turkey to new economic crises in November 2000 and February 2001. Confidence in the banking sector was lost due to those crises, and there occurred significant reduction in the Central Bank reserves, decline in the stock market, and increase in interest rates.

3.6 Structural Reforms Era (2001-2015)

The Turkish economy reached the 2000s by experiencing many crises and instabilities in the spiral of budget deficit, debt, and inflation. High inflation was seen as the source of the fundamental problem in the economy. However, the main reasons underlying inflation could not be reached. Therefore, the desired results could not be achieved through the economic measures and the stabilisation programs that were implemented to decrease inflation. As a result of 2000 and 2001 crises, decisions which showed a turning point in the Turkish economy were taken. On April 14, 2001, Transition to the Strong Economy Program (TSEP) was proclaimed. Under this program, structural reforms were made especially in the areas of public finance and banking.

The lack of an efficient control mechanism in the banking sector caused a moral hazard problem. On the one hand, the banks which were transferred to Saving Deposit Insurance Fund (SDIF) due to their inefficient financial structures and on the other hand the duty losses of state-owned banks formed a considerable load. In 2000, the Banking Regulation and Supervision Agency (BRSA) was established in order to correct the unhealthy structure of the banking sector. The main tasks of BRSA were determined as ensuring confidence and stability in financial markets, running efficiently the credit system, and providing the development of the financial sector.

In the TSEP, it was underlined the significance of the coordination between monetary and fiscal policy to ensure macroeconomic stability. Furthermore, it was emphasized in the program that both policies would be implemented strictly. There occurred a decline in the public sector borrowing requirement with the increase in tax revenues and the decline in

public expenditures. It was decided that the Bank could not give advance and open credit to the Treasury with an amendment to the Law No.1211 of the CBRT in 2000. Additionally, in the section of the transactions that the Bank could not do, it was also stated that the Bank could not purchase the debt instruments that were issued by the Treasury and other public institutions in the primary markets.

Monetary policy that was implemented after 2000 can be determined within 4 different periods: i) exchange rate targeting during January 2000-February 2001 ii) transition term from February 2001 to December 2001 iii) dual targeting including the targeting of implicit inflation and monetary aggregate during 2002-2005, and iv) explicit inflation targeting after 2006. While the CBRT adopted the floating exchange rate system in 2001, it adopted implicit inflation targeting through short term interest rates in 2002.

The two most important factors that ensured the success of the inflation targeting regime were the independence of the Central Bank and fiscal discipline (Akyazı & Ekinci, 2009). The Turkish economy enjoyed a good growth trend along with the structural reforms made. One of the most important reasons for the positive developments that were observed in the economy after 2001 was the implementation of tight fiscal policy. Enforcing budgetary discipline contributed to the reduction of risk premiums through expectations and to the decrease in interest rates (İlgün, 2010). That primary surplus was held about by 6.5% was one of the key objectives not only for the DIP but also for the TSEP. In the Law on Regulating Public Finance and Debt Management that was adopted in 2002, a legislative limit on the amount of public debt was set. According to the legal provision, the government was allowed to use net debt up to the amount of difference between total initial appropriations that was specified in the budget law and estimated revenues. In the amendment that was made in 2008, it was determined that the limit could be increased by 5% within the current year; however, the additional 5% increase could only be made with the Cabinet decision on the opinion of the Treasury Undersecretariat and proposal of the Ministry of Finance. Besides, it was determined that maximum borrowing might be increased up to 5% of the principal payment in the case of a balanced budget.

After 2002, the Turkish economy has shown significant progress in many ways till now. During the period up to the 2007-2008 crisis, not only did it record high GDP growth rates,

but also its inflation rate dropped to single digits. Those developments put the Turkish economy in a good position between emerging economies (Şen & Kaya, 2015b). Turkey responded to the 2008 global economic crisis, the impact of which was felt all over the world, by decreasing interest rates and maintaining tight fiscal policy. When the detrimental effects of the crisis were observed on the real sector, Turkey switched to expansionary fiscal policy by increasing the credit facility and tax breaks (Bocutoğlu & Ekinci, 2009). After the crisis, providing fiscal discipline was regarded as a major objective again. Hence, it was announced in the Medium-Term Program in 2009 that the budget deficit rule would be implemented in 2011, but the rule was not implemented. The development might be regarded as a first attempt to apply fiscal rule in Turkey.[33]

The above-mentioned applications could be expressed with the help of FTPL literature as well. Persistent inflation before 2000 stemmed from the regime of dominant fiscal policy. Therefore, the desired results could not be obtained from the declared stability programs. After 2000, under the influence of FTPL literature, monetary policy was determined and implemented in a coordinated manner with fiscal policy. It can be said that until 1994, the strength of the monetary authorities was restricted by the effect of increasing public deficits; between 1994 and 1998, the improvement in the budget balance by revenue growth was supported by tight monetary policy; in the period until 2001, under the influence of internal and external factors, targeted policies could not be implemented; in the 2001-2006 period, structural reforms were realised with the coordination of the tight monetary and fiscal policy.

Though the Turkish economy achieved appropriate values for the Maastricht criteria in the budget deficit and public debt indicators under the influence of structural programs that were implemented after 2001, it performed below the acceptable threshold due to the lack of the reforms in growth, inflation, unemployment and the current account deficit (Eğilmez, 2014). Today, Turkey is faced with macroeconomic problems such as current account deficit exceeding even Dornbusch threshold, slowing growth rate, failure to achieve the targeted inflation figures, and high unemployment rate (Şen & Kaya, 2015b).

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[33] Temporary applications in the form of primary surplus target such as in the agreement with IMF in 1999 are not considered as financial rules by some authors. According to Kopits and Symansky (1998), the restrictions imposed on fiscal policy tools should be considered as alternative fiscal rules not as fiscal rule applications unless they are permanent.

4. ECONOMETRIC ANALYSIS

In this section, an empirical analysis of the relative efficiency of monetary and fiscal policy in Turkey is presented. To do so, first of all, the data used in the model are described, the literature on unit root tests and OLS method are summarised later on. Finally, the results of these tests and regressions are presented and interpreted.

4.1. Data Set

In this study, the relative efficiency of monetary and fiscal policy in Turkey was examined with an econometric model by using OLS method with data sets consisting of 52 observations in the range from 2003:q2 to 2016:q1. The reasons for why this time period was chosen for the analysis are; i) to avoid the negative effects of the 2001 crisis in the analysis, ii) to be established a relatively more stable economic structure after the 2002 election and iii) to be taken serious measures in public finance and being the beginning of a new era in the management of the monetary policy by the amendment in the law of the Central Bank after 2002.

In reviewing the empirical literature, it seems that a number of variables have been used to stand for those two policies in the studies concerning the relative efficiency of them, such as government expenditures, government revenues, budget deficit, and public sector borrowing requirement to represent fiscal policy; M1 money supply, M2 money supply, interest rate, inflation rate, and money base to represent the monetary policy.

In this study, the GDP growth rate is taken as a dependent variable. On the other hand, independent variables for this study are the rate of public expenditures and budget revenues to the GDP as representative of fiscal policy and the rate of the M2 money supply to the GDP as representative of monetary policy. In the empirical literature, most preferred variables to represent monetary and fiscal policy are public expenditure, public revenues, and money supply. Therefore, the model in this study is generated by these variables.

The data used in the model and its sources are shown in Table 4.1. Y, NE, R, and M2 represent real GDP growth rate, the rate of non-interest expenditures to GDP, the rate of

budget revenues to GDP, the rate of broad money supply to GDP respectively. In order to mitigate the effects of heteroscedasticity among variables and to ease the comparison, each variable is expressed as a share of real GDP. All data were transformed to real values by 2003=100 price index and adjusted seasonally. Besides, a dummy variable was added to the model to account for the effect of the 2008 crisis. The graphs of the series are represented in Figure 4.1.

Table 4.1: The Variables and Their Sources

	Variables	Data Source
Y	Real GDP growth rate	: Turkish Statistical Institute
NE	The rate of non-interest expenditure to real GDP	: General Directorate of Budget and Fiscal Control, Ministry of Finance
R	Budget revenue growth	: General Directorate of Public Accounts
M2	The rate of broad money supply (M2) to real GDP	: The Central Bank of the Republic of Turkey

Source: Arranged by the author.

Figure 4.1: A Visual Presentation of the Series
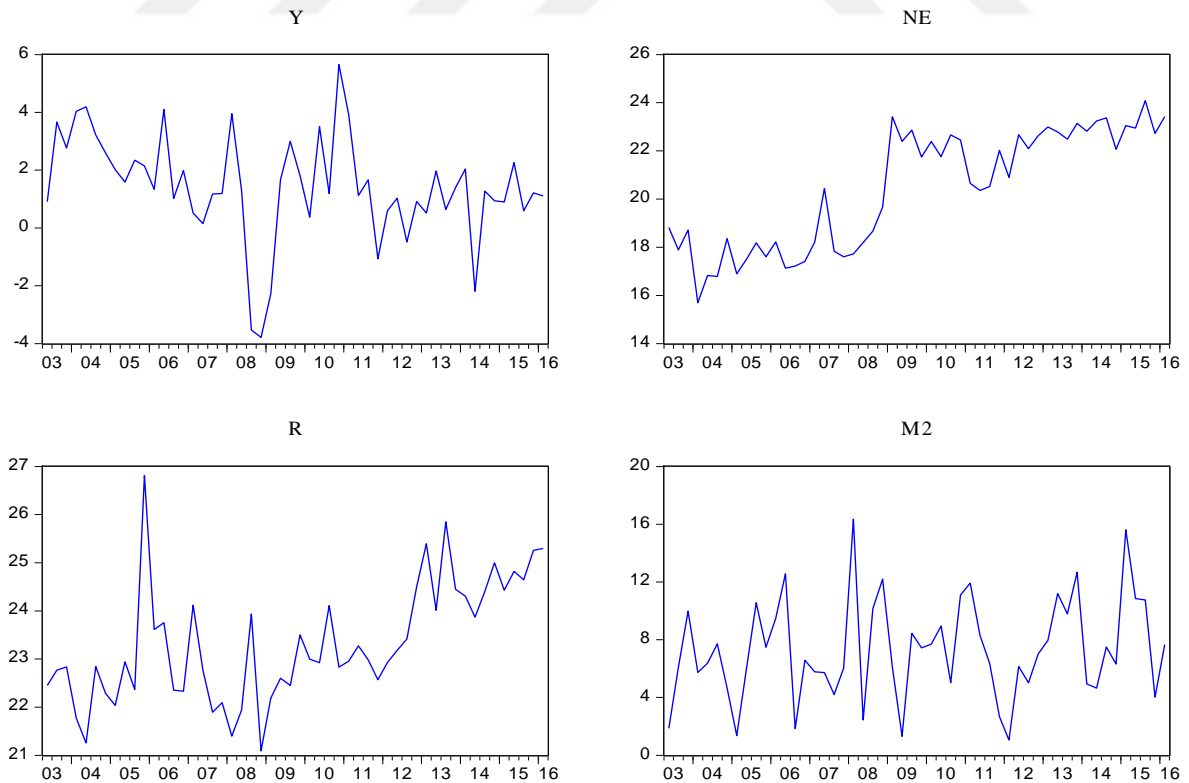
Source: Arranged by the author.

4.2. Methodology

In the econometric studies in which time series are used, what should be firstly done is to test whether the series are stationary or not. Namely, it should be determined whether they have a unit root or not. In case time series are non-stationary, estimates in any regression analysis may be misleading.

A stochastic process is determined as stationary whereas its mean and variance are constant over time, the value of its covariance between the two time periods depends only on the lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2003). In other words, that a series has a unit root means that the effect of a shock that will be given to the series does not end over time; on the contrary, the effect remains at the same or a higher level.

By means of some test may be specified whether a series is stationary or not. Dickey and Fuller (1979) are the first econometricians to develop such a test. In their test, the relationship between a series and its one lag is examined in an AR(1) process. Dickey-Fuller (DF) test consists of three different models; no-intercept, intercept, and trend and intercept. The relevant Dickey and Fuller equations can be written as follows;

$$\Delta Y_t = \delta Y_{t-1} + u_t \qquad \text{(no-intercept)} \qquad (4.4)$$

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + u_t \qquad \text{(intercept)} \qquad (4.5)$$

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + u_t \qquad \text{(trend and intercept)} \qquad (4.6)$$

In the above-mentioned equations, the value of the coefficient δ allows us to make a decision on whether the series has a unit root or not. The null and alternative hypothesis of the test are as follows;

H_0: $\delta=0$ (There is a unit root or the series is non-stationary.)
H_1: $\delta<0$ (There is no unit root or the series is stationary.)

The test has separately critical values for three different forms. The critical values that are used for DF test are gained from T (Tau)-statistic, which Dickey and Fuller developed with the help of a Monte Carlo application; namely, student t-statistic critical values cannot be used. If the calculated value of T-statistic is greater than the table value of T-statistic, H_0

hypothesis can be rejected. In other words, it is concluded that the series does not include a unit root, or it is stationary.

However, if there is autocorrelation in the error term in the DF test, T-statistic becomes biased, and the test is unable to fulfil its function. To fill the deficiency, Dickey and Fuller (1981) developed Augmented Dickey-Fuller (ADF) test. In the test, the lagged values of a differenced series are also included in the ADF equation. The test has critical values for three different forms as DF test. The form including intercept and trend for ADF test is as follows:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + c_i \Sigma \Delta Y_{t-i} + u_t \tag{4.7}$$

Another test that would be used to identify whether a time series was stationary or not was developed by Phillips and Perron (1988). They proposed an alternative (nonparametric) method of controlling for serial correlation when testing for a unit root. The Philips-Perron (PP) method estimates DF test equation and modifies the ratio of the coefficient so that serial correlation does not affect the asymptotic distribution of the test statistic. The distribution theory supporting the Dickey-Fuller tests assumes that the error terms have a constant variance and are statistically independent. Phillips and Perron (1988) developed a generalisation of the DF procedure that allows for fairly mild assumptions concerning the distribution of the error terms (Enders, 2008).

The PP unit root tests differ from the ADF tests mainly in how they deal with serial correlation and heteroscedasticity in the errors. In particular, where the ADF tests use a parametric autoregression to approximate the ARMA structure of the errors in the test regression, the PP tests ignore any serial correlation in the test regression. The test regression for the PP tests is:

$$\Delta y_t = \beta_0 D_t + \pi y_t - 1 + u_t \tag{4.8}$$

where u_t is I(0) and may be heteroskedastic. The PP tests correct any serial correlation and heteroscedasticity in the errors u_t of the test regression by directly modifying the test statistic. One advantage of the PP tests over the ADF tests is that the PP tests are robust to general forms of heteroscedasticity in the error term u_t. Another advantage of the tests is that a lag length for the test regression does not have to be specified.

After the unit root tests, the second stage is to select an appropriate econometric model. The oldest model to do this is Ordinary Least Squares method (OLS). OLS is a method for estimating the unknown parameters in a linear regression model, with the aim of minimising the differences between the observed values in some random dataset and the predicted values by the linear approximation of the data (visually this is seen as the sum of the vertical distances between each data point in the set and the corresponding point on the regression line - the smaller the differences, the better the model fits the data).

OLS method is based on Gaussian assumptions. The Gaussian classical linear regression model, which is a keystone for the econometric theory, has ten basic assumptions. These assumptions which J. C. Gauss developed in 1821 have been a standard for the comparison of regression models till now. The relevant assumptions are: i) linear regression model, ii) values of independent variables are fixed in repeated sampling, iii) zero mean value of error term, iv) homoscedasticity or equal variance of errors, v) no autocorrelation between the errors, vi) zero covariance between errors and independent variables, vii) the number of observations must be greater than the number of parameters to be estimated, viii) variability in values of independent variables, ix) the regression model is correctly specified, x) there is no perfect multicollinearity.

These assumptions are the ideal assumptions, and many of econometric models do not provide a lot of these. In the case of violation of the assumptions, either the model should be corrected with different econometric methods or the models except for OLS should be used. There are the assumptions of Gaussian model in the background of OLS method. According to the Gauss-Markov theorem, OLS estimators that include these assumptions are the best linear unbiased estimators (BLUE). After a regression made by any data set, the validity of the classic linear regression assumptions should be tested. There are numerous tests to detect whether an econometric model satisfies the above-mentioned assumptions.

The model structure tests were developed to test whether the structure of a model was properly formed. Some of those tests are R^2, Ramsey Reset, Durbin-Watson, White, Wald, and Lagrange Multiplier tests. R^2 value shows how well independent variables, which are added to a model, have the ability to explain the changes in the dependent variable. If R^2 value, which can take values between 0 and 1, has values close to 1, it indicates that the

explanatory power of the independent variables is high. Each independent variable, which is added to a model, however, can increase the R^2 value. The increase may be only with mathematical origin in a misleading manner, so it cannot actually increase the explanatory power of the model on the dependent variable. Adjusted $\overline{R}^2$ test was developed to make this discrimination and to see only the explanatory power of additional variables included in the model on the dependent variable. As distinct from R^2 value, adjusted $\overline{R}^2$ value increases only in the case where absolute t value of the additional independent variable is higher than 1 and always $\overline{R}^2 \leq R^2$.

Another test used to detect whether all independent variables are significant is F-test. F-test compares the joint effect of all variables together. The null hypothesis of this test is that all coefficients are equal to zero. If the F-statistic is larger than F critical value, it means that all variables is significant. Therefore, the null hypothesis can be rejected.

4.3 Empirical Results

4.3.1 Unit Root Tests Results

ADF and PP unit root tests are used to specify whether the time series data used in the model is stationary or not. The results of unit root tests for variables of Y, NE, R, and M2 variables are presented in Table 4.2.

Table 4.2: Unit Root Tests Results

	ADF		PP	
	Level		Level	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
Y	-4.461 (0.000)* [0]	-4.757 (0.000)* [0]	-4.461 (0.000)* [0]	-4.757 (0.001)* [0]
NE	-1.062 (0.723)[1] [1]	-4.115 (0.010)** [0]	-1.192 (0.670)[1] [6]	-4.115 (0.010)** [0]
R	-2.083 (0.251) [1]	-5.236 (0.000)* [0]	-3.831 (0.004)* [4]	-5.351 (0.000)* [3]
M2	-6.620 (0.000)* [0]	-6.669 (0.000)* [0]	-6.614 (0.000)* [2]	-6.660 (0.000)* [3]

Note: The values in parentheses represent the p-values. The values in brackets show optimum lag length. * and ** denote 1% and 5% significant levels respectively.
Source: Calculated by the author.

According to the test results, Y and M2 series are stationary at level for the forms with intercept and intercept and trend. On the other hand, NE and R series are stationary at level only for the model with intercept and trend. Besides, KPSS test shows that these series are stationary too.

Therefore, it can be said that all series used in the analysis are stationary. Namely, H_0 hypothesis, which the series has a unit root, can be rejected because their t-statistics is higher than the critical values of MacKinnon (1996) or p-values are lower than 1% and 5% significance levels. All of the variables are stationary at level as a result of the unit root tests; therefore, OLS method can be used for regression analysis.

4.3.2 Regression Results

In this part, the coefficients of the variables representing monetary and fiscal policy are estimated by using OLS method because all variables are stationary at level. To this end, five different models are generated. In the first three models, each variable is included in the model separately, and then, in the last two models, the variables that represent monetary and fiscal policy are included in the model together. Therefore, in this study, regression results for five different models are calculated and commented. The aforementioned models are as follows:

Model 1: Y = C + NE

Model 2: Y = C + R

Model 3: Y = C + M2

Model 4: Y = C + NE + M2

Model 5: Y = C + R + M2

The estimation results of the coefficients of the models, in which real GDP growth rate is the dependent variable, and the rates of non-interest public expenditures, budget revenues, and money supply to the real GDP are independent variables are presented in Table 4.3.

Based on the regression results, the sign of the variables of non-interest expenditures and budget revenues, which are included in the model to determine the effect of the fiscal policy on the growth, is negative and significant. The results of the estimation show that

both public expenditures and revenues have important effects on growth rate in Turkey. On the other hand, in parallel to the monetarist expectations, the coefficient of the broad money supply (M2) variable, which is included in the model to observe the effects of monetary policy on growth, is positive and significant.

Table 4.3: Regression Results

Dependent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
NE	-0.240 [-2.963] (0.000)*			-0.265 [-3.389] (0.000)*	
R		-0.399 [-2.337] (0.023)**			-0.476 [-2.868] (0.006)*
M2			0.104 [1.741] (0.087)***	0.120 [2.359] (0.022)**	0.135 [2.390] (0.020)**
R^2	0.416	0.380	0.351	0.477	0.446
$\bar{R}^2$	0.392	0.355	0.325	0.444	0.412
F-statistics	17.481 [0.000]	15.068 [0.000]	13.303 [0.000]	14.596 [0.000]	12.918 [0.000]

Note: (*), (**), and (***) denote 1%, 5%, and 10% significant levels respectively.
Source: Calculated by the author.

Model 1, 2, and 3 estimate the effect of non-interest expenditures, budget revenues and broad money supply on real GDP respectively. According to the model 1 and 2, a one-unit increase in the ratio of non-interest expenditures and budget revenues to GDP result in by 0.24 and 0.40-unit decrease in the real GDP respectively. On the other hand, according to the model 3, a one-unit increase in the ratio of broad money supply to GDP is associated with by 0.10-unit increase in real GDP. Model 4 and 5 show the common effects of monetary policy and fiscal policy. Namely, the sign of the all fiscal policy variables is negative while that of monetary policy variable is positive. Besides, all variables are statistically significant.

These results are relatively in line with some previous studies on Turkey, such as Dikmen (2006), Saçkan (2006), Javed and Sahinoz (2005), Dönek (1995), Ataç (1979), and Kızılyallı (1978). Nonetheless, the findings are contrast to some other studies, for example Düzgün (2010) and Uludağ and Serin (1987).

4.4 Policy Discussions

In the light of the aforementioned results, we can make some inferences about the monetary and fiscal policy in Turkey. As a result of the findings, expansionary public expenditures have a negative effect on the real GDP. Therefore, the government should take necessary measures to reduce public expenditures. Especially, it should avoid unnecessary current expenditures. The employment in public sector should not be increased for political concerns or objectives. Besides, the waste in public sector expenditures should be prevented.

Similarly, budget revenues have a negative effect on real GDP. It is understood from the result that budget revenues have restricted private investments. Therefore, budget revenues should be consistent with public expenditures. Especially, the rates of income and corporation taxes should be determined so as not to prevent private investments. When these two results are considered together, the budget size and the budget deficit should be reduced.

The Turkish economy has shown significant growth since the 2000s. However, the growth has stemmed from an increase in private consumption, so private saving has dramatically decreased. Turkey has experienced savings gap since at the beginning of the 2000s, so it has become dependent on foreign capital inflows. Besides, the increase in both private consumption and petroleum imports have led to the current account deficit. On the other hand, the Turkish economy needs to augment hi-tech products into export. Thus, to increase private saving and to diversify the export by hi-tech products should be primary objectives of the government. In this regard, the government-backed private pension saving scheme, which was put in place in 2013, has been a good implementation for a saving incentive.

On the other hand, M2 money supply has a positive effect on real GDP, unlike fiscal policy variables. This result shows that the efficient policy for the Turkish economy is monetary policy. Therefore, the CBRT's policy decisions are very important because it has become the sole authority for monetary policy after 2002. Of course, the primary objective of the Bank is to achieve and maintain price stability; it should not be forgotten that the Bank's policies affect other macroeconomic objectives. The CBRT has adopted to ensure financial stability as a secondary objective after 2010 due to increasing current account deficit.

Thus, the Bank should employ money supply policy compatible with the price stability policy and other macroeconomic objectives.

5. CONCLUSION

For almost all economies, there are two main macroeconomic policy tools, monetary policy and fiscal policy, to avoid or eliminate crises and to reach their macroeconomic objectives. The relative importance that is attributed to monetary and fiscal policy has changed throughout economic history. Classical and neo-classical economists advocated that the economy should not be intervened by using monetary and fiscal policy. On the other hand, while Keynesian economists asserted that an economy could be come to full employment balance by means of government intervene, and fiscal policy from the intervention tools was more efficient than monetary policy, monetarist economists argued that monetary tools should be primary. In the economic thought after the 1980s, it was claimed that monetary policy could not be seen as merely policy instruments. Therefore, it should be used in a coordinated manner through fiscal policy.

There are a large number of studies about the efficiency of monetary and fiscal policy on macroeconomic variables; nonetheless, there is no consensus in their findings. The initial studies are about developed countries by monetarist assumptions. Most of the studies conclude that monetary policy has more effective and predictable effect than fiscal policy. On the other hand, in the following years, some analyses that were used developing/ emerging countries data concluded that fiscal policy was more effective. The third section of this study summarises those studies. In the light of the aforementioned studies, it may be claimed that it is not possible to determine what policy is more effective in a certain manner. Because, the relative efficiency of monetary and fiscal policy varies by the countries' development levels, social and political statuses, methods and models used, and theoretical approaches, etc. Besides, it is possible that different results for different time periods are found in the same country. Consequently, every country and every term should be determined on their own speciality, and it should be avoided from block comparisons.

The year 1980 is a milestone for Turkey where after 1950, import-substituting industrialisation strategy as other developing countries was adopted. After the year, export-based industrialisation was adopted. Free currency system was accepted and the Turkish

economy was integrated into global markets. The integration process was completed by the law that allowed foreign capital to enter domestic markets in 1989. However, the Turkish economy, which completed its integration process in its real and financial markets, confronted some crises, stemmed from both domestic-origin and foreign-origin political and economic instabilities, such as 1994, 2001, and 2008 crises.

The biggest problem that the Turkish economy could not solve till the 2000s was the chronic high inflation. At the background of the problem, there was that the budget deficits were closed through the CBRT credits and advances. In the previous years, constraints like fiscal rule were wanted to apply; however, it could not be executed due to various causes. The government revealed a serious declaration of intention to solve the chronic problems with the help of Transition to the Strong Economy Program after the 2001 crisis. For this reason, measures that increase tax revenues and decrease government expenditures were taken to provide budget discipline. Besides, the CBRT was dependent and it stated that the primary objective of the Bank is to achieve and maintain price stability. The government indicated its intention of achieving economic stability through contractionary monetary and fiscal policy; thus, the expectations transformed from negative to positive. The positive improvements in the expectation ensured to have single digit inflation rates and significant growth rates in a short period, in 2004.

After the 2001 crisis, the Turkish economy has shown significant improvements inasmuch as both contractionary fiscal policy that aims to provide the budget discipline and contractionary monetary policy that provides price stability. Therefore, the year 2003 has been accepted as the beginning point in the empirical study for the Turkish economy, and the effects of monetary and fiscal policy on GDP growth have been examined through the quarterly data. In the model, public expenditure and budget revenues to represent fiscal policy, M2 money supply to represent monetary policy have been used.

Based on the empirical analysis, we found that while public expenditure variable and budget revenues have a negative effect on the growth. On the other hand, M2 money supply has positive effect on the growth. Therefore, we can say that monetary policy is efficient policy instrument for the Turkish economy. As a consequence,

- Turkey should continue fiscal consolidation being started after the 2000s.

- The private savings should be encouraged by the government while budget revenues are used for necessary and productive fields.

- The CBRT should follow a monetary policy compatible with inflation target and the other macroeconomic targets.

However, it should not be forgotten that public expenditures and revenues may have indirect or non-linear effects on growth and monetary variables. Besides, it is worth studying to analyse the effect of each component of public expenditures and revenues on GDP. These effects can be investigated in further studies with the help of advanced econometric methods that pave the way for seeing short and long-run effects.

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Appendix: Selected Empirical Studies on the Relative Efficiency of Monetary and Fiscal Policy, 1968-2014

	Empirical Study	Country	Period	Method or/and Model Employed	Empirical Findings
1	Darrat et al. (2014)	US	1959:q1-2010:q2	Cointegration and Granger Causality Analyses	They used the same variables and period as in Senbet (2011). Results they obtained from cointegration and error-correction tests are similar to those of Senbet.
2	Hussain (2014)	Bangladesh, India, Nepal, Pakistan and Sri Lanka	1974-2007	VAR Model	This paper exposed that money supply, government expenditure, the real exchange rate and the foreign interest rate were cointegrated for all countries. The results indicated that monetary policy was more effective in output than fiscal policy in the case of Pakistan and Sri Lanka while fiscal policy had a more powerful effect than monetary policy on Bangladesh, India and Nepal.
3	Rakić and Rađenović (2013)	Serbia	2003:q1-2012:q4	Unit Root and Cointegration Tests and Regression Analysis	Monetary policy was more effective in stimulating economic growth compared to fiscal policy. The result might stem from insufficient coordination between monetary and fiscal policy in the previous period. During the following period, policymakers would be able to face some challenges concerning achieving of macroeconomic objectives. Therefore, the Serbian Government should pay more attention to the fiscal policy to improve its efficiency in the future.
4	Tomsik (2012)	Czech Republic	2004-2008	Method Developed by the European Commission and Method Developed by European System of Central Banks	For a better understanding of how monetary and fiscal policy interact, three things emerge: i) government bond yields are an important determinant of client long-term interest rates in the Czech Republic, ii) persistent government deficits exist which have a predominantly structural nature, and to the procyclicality of Czech fiscal policy in most years, iii) the fiscal impulse influences private consumption, investments, the exchange rate and trends in productivity and technology.
5	Lima, Maka, and Pumar (2012)	Brazil	2000:m1-2008:m6	SVAR Model	There was some evidence that the government follows a Ricardian (monetary dominance) regime, and there is no evidence whatsoever that a tighter monetary policy would lead to higher inflation in the long-run.
6	Senbet (2011)	US	1959:q1-2010:q2	VAR Model	Only fiscal policy Granger-caused real output over the long-run. On the other hand, both fiscal and monetary actions Granger-caused significant short-run effects on the real side of the economy.

Appendix: Continued…

	Empirical Study	Country	Period	Method or/and Model Employed	Empirical Findings
7	Raj, Khundrakpam, and Das (2011)	India	2000:q2 - 2010:q1	Causality Test, VAR Model	In almost in all conditions, fiscal policy continued to influence substantially the conduct of monetary policy. Specifically, the reaction of these two policies to shock in inflation and output was mostly in the opposite direction.
8	Leu (2011)	Australia	1984:q1- 2009:q4	New Keynesian SVAR model.	External shock induced aggregate demand shocks. Furthermore, positive monetary policy shocks had significant contractionary effects on output and inflation.
9	Fragetta and Kirsanova (2010)	UK, US, Sweden	1992:q3- 2008:q2	VAR Model and DSGE Model	It was observed that while fiscal authority was more dominant than monetary authority in the UK and Sweden, both authorities in the US acted independently of each other.
10	Dungey and Fry (2009)	New Zealand	1983:q2- 2006:q4	SVAR Model	The study showed that most of the movement in output arising for the sample period were clearly not a result of policy shocks; in many cases, New Zealand was greatly affected by external-sourced shocks and internal-sourced demand and inflation shocks. However, a decomposition of monetary policy shocks showed that it mainly responded to inflationary shocks, providing a validation of the conduct of monetary policy in New Zealand.
11	Atchariyachanvanich (2007)	Australia, Brazil, Mexico, the Netherlands, Peru, the Philippines, South Africa, Spain, Sweden, Switzerland, Thailand, and the US	1990:q1- 2004:q4	OLS Model	There were no clearly distinguished roles of monetary and fiscal policy on GDP growth and inflation rate.

Appendix: Continued…

	Empirical Study	Country	Period	Method or/and Model Employed	Empirical Findings
12	Van Aarle et al. (2003)	EMU Countries	1982:q1-1998:q4	SVAR Model	Common monetary policy and rule-base fiscal policy expected to counteract a demand or supply shock will not cause various large adjustments of output and prices. On the other hand, innovations in the tools of common monetary policy and fiscal policy could yield different adjustment dynamics of output, prices and fiscal balances in EMU countries.
13	Bruneau and De Bandt (2003)	France, Germany, and the whole Euro Area	1979:q1-2000:q2	SVAR Model	SVAR models for the euro area, Germany, and France, provide evidence that monetary policy shocks had a significant effect on the economy. Despite economically significant, fiscal shocks were not found to have a statistically significant effect on GDP and prices.
14	Ansari (2002)	Malaysia	1960-1996	VAR Model	In the considerable progress that the Malaysian economy showed, while the development of the financial sector was a significant variable, money supply, and government expenditure were insignificant ones.
15	Ajisafe and Folorunso (2002)	Nigeria	1970-1998	Cointegration Analysis and ECM Model	Monetary policy rather than fiscal policy produced a greater impact on economic activity in Nigeria.
16	Ansari (1996)	India	1963-1993	VAR Model	Fiscal policy was more efficient for growth.
17	Kretzmer (1992)	US	1950-1991	VAR Model	Though the efficiency of monetary policy had been lower by year to year, it had still more efficient.
18	Darrat (1984)	Brazil, Mexico, Venezuela, Chile and Peru	1950-1981	OLS Method	Fiscal actions had more powerful and more predictable effects on nominal GNP.
19	Ajayi (1974)	Nigeria	1960-1970	OLS Method	Monetary actions were more efficient for output than fiscal actions.

Appendix: Continued…

	Empirical Study	Country	Period	Method or/and Model Employed	Empirical Findings
20	Moroney and Mason (1971)	US	1953-1965	OLS Method	Monetary policy, conducted chiefly through changes in the adjusted monetary base via open market operations, affects both consumption and investment. Its impact on consumption was registered strongly during the current quarter. Government spending also affected consumption and investment, and its effects in both areas are prompt. Besides, its effects were dispersed much more quickly than those of monetary policy.
21	Andersen and Carlson (1970)	US	1953:q1-1969:q4	OLS Method	Monetary supply had more powerful and more predictable effect on nominal GNP.
22	Andersen and Jordan (1968)	US	1952:q1-1968:q4	OLS Method	The non-inflationist growth might be ensured by being adjusted together with government expenditures and money stock. The coefficients of monetary variables were found significant, the ones of fiscal variables, however, were found insignificant.
23	Şen and Kaya (2015b)	Turkey	2001:q1-2014:q2	SVAR Model	In the example of Turkey, both policies influenced the GDP growth rate, yet monetary policy had a larger effect on it. Nonetheless, it was necessary to use coordinately both of them in order to achieve the target of higher GDP level.
24	Altuntepe (2011)	Turkey	1980-2009	VAR Model	Both monetary and fiscal policy were efficient on manufacturing industry.
25	İlgün (2010)	Turkey	1987:q1-2007:q3	SVEC Model	The variables of both monetary and fiscal policy had effects on output and inflation in Turkey.
26	Düzgün (2010)	Turkey	1987:q1-2007:q3	ARDL Model	Fiscal policy was effective in the Turkish economy, not monetary policy. This effect was in a negative way.

Appendix: Continued…

	Empirical Study	Country	Period	Method or/and Model Employed	Empirical Findings
27	Dikmen (2006)	Turkey	1987-2003	OLS Method	The dominant policy in Turkey was monetary policy. The cumulative effects of government expenditures and money supply on nominal GNP were found insignificant for the former and significant for the latter.
28	Saçkan (2006)	Turkey	1988-2005	VAR Model	The monetary and fiscal policy that were coordinatively applied after 2001 ensured significant acquirements on behalf of stable growth.
29	Javed and Şahinöz (2005)	Turkey	1993-2002	Cointegration Analysis	The findings from the models that were separately included monetary and fiscal policy variables were misleading.
30	Dönek (1995)	Turkey	1950-1990	OLS Method	Monetary policy was more efficient than fiscal policy on the nominal GDP.
31	Kibritçioğlu (1988)	Turkey	1951-1986	Impulse-Response Analysis	It is not possible to determine the efficiency of monetary and fiscal policy in emerging countries through the models that do not pay attention to the budget deficit.
32	Uludağ and Serin (1987)	Turkey	1950-1986	OLS Method	The fiscal policy affairs were relatively more efficient on nominal the GDP.
33	Ataç (1979)	Turkey	1950-1977	OLS Method	Monetary policy had bigger and more predictable effects on the GDP. However, it could not find convincing evident about which policy has a faster effect.
34	Kızılyallı (1978)	Turkey	1946-1974	OLS Method	The other variables except for money supply were not significant. To the results, only money supply had an effect on the GDP.