

Original Paper

<https://doi.org/10.15826/jtr.2022.8.3.118>



The Effect of Fiscal Policies on Business Cycles in Turkey

Mustafa Alpin Gülşen  

Alanya Alaaddin Keykubat University, Antalya, Republic of Turkey

 alpin.gulsen@alanya.edu.tr

ABSTRACT

Fiscal policies are designed to balance cyclical fluctuations. Fiscal policies in developed countries are mostly countercyclical. However, fiscal policies alone cannot explain the cyclical effect of fiscal policies implemented in developing countries. This is due to weak institutional structures, political restrictions, and populist practices. The study examined the effect of fiscal policies on business cycles in Turkey between 1975–2020 using the ARDL model and annual data. According to the findings, public expenditures, investment expenditures, tax revenues, direct tax revenues, and budget balance increase the output gap. On the other hand, trade openness, government transfer payments, and indirect tax revenues reduce the output gap. Based on the empirical findings, the following comments can be made: (a) fiscal policy can be considered cyclical in this period; (b) cyclical fluctuations are reduced in open economies; (c) budget balance increases cyclical fluctuations (non-Keynesian effect). A possible reason for this is that the budget revenues mainly consist of indirect tax revenues (70% in Turkey). The significance of the results obtained in the study are as follows: (1) analyzes the impact of fiscal policies implemented by a developing economy on stability using a current and long time series; (2) provides an insight into the institutional quality and response of implemented fiscal policies through short- and long-term analysis; (3) analyzes the effect of Turkey's ability to implement fiscal policies, which prefers the global markets integration model, and the tax technique it creates, on the economy.

KEYWORDS

fiscal policy, fiscal stabilization, output volatility, tax revenues, business cycles, ARDL model, Turkey

JEL E32, E60, E62, H50

УДК 338.1, 338.23

Влияние фискальной политики на бизнес-циклы в Турции

М.А. Гюльшен  

Университет Алааддина Кейкубата, г. Анталия, Турецкая Республика

 alpin.gulsen@alanya.edu.tr

АННОТАЦИЯ

Фискальная политика, призванная сбалансировать циклические колебания в развитых странах, в основном носит контрциклический характер. Однако сама по себе налогово-бюджетная политика не может объяснить циклический эффект налогово-бюджетной политики, проводимой в развивающихся странах. Это связано со слабыми институциональными структурами, политическими ограничениями и populistскими практиками. В исследовании изучалось влияние налогово-бюджетной политики на деловые циклы в Турции в период с 1975 по 2020 г. с использованием модели ARDL и годовых данных. Согласно полученным данным, государственные расходы, инвестиционные расходы,

налоговые поступления, прямые налоговые поступления и баланс бюджета увеличивают разрыв выпуска. С другой стороны, открытость торговли, государственные трансфертные платежи и поступления косвенных налогов сокращают разрыв выпуска. На основе эмпирических данных можно сделать следующие комментарии: (а) фискальную политику можно считать циклической в этот период; (б) циклические колебания снижаются в странах с открытой экономикой; (с) баланс бюджета увеличивает циклические колебания (не кейнсианский эффект). Возможной причиной этого является то, что доходы бюджета состоят в основном из косвенных налоговых поступлений (70% в Турции). Значимость результатов, полученных в исследовании, заключается в следующем: (1) анализ влияния фискальной политики, проводимой развивающейся экономикой, важен для исследования стабильности экономики с использованием текущего и длительного временных рядов; (2) дает представление об институциональном качестве и реакции на проводимую налогово-бюджетную политику посредством краткосрочного и долгосрочного анализа; (3) анализирует влияние на экономику способности Турции проводить налогово-бюджетную политику, реализующую модель интеграции в мировые рынки и совершенствование налоговой техники.

КЛЮЧЕВЫЕ СЛОВА

фискальная политика, фискальная стабилизация, волатильность выпуска, налоговые поступления, деловые циклы, модель ARDL, Турция

1. Introduction

Cyclical fluctuations are fluctuations that are periodically repeated but not systematic and therefore difficult to predict. Although the conjuncture is a concept that concerns more than one macroeconomic size, in practice it is measured by the change in real GDP. There is no consensus in the literature on the reason for these periodic fluctuations in real GDP. According to Keynes [1], the reason for the conjuncture is the changes in the expectations regarding the profitability of investments, while according to M. Friedman [2], the changes in the money stock. According to the real business cycle theory pioneered by E. Prescott [3], technology shocks cause fluctuations [4, p. 82; 5, p. 218; 6, pp. 3–4].

According to the report [7] prepared with the contributions of Celasun & Rodrik, the first measure taken against cyclical fluctuations in Turkey is the adoption of the balanced budget principle. After WW2, national fiscal policies were not sufficient for the fluctuations in the macroeconomic structure and the first agreement was made with the IMF in 1961. Then, external shocks occurred in the economy due to the 1973 and 1978 OPEC crises. In the 1990s, macroeconomic instability continued, and budget deficits increased rapidly. In 1999,

macro instability in the public sector increased and a new stabilization program was implemented under the leadership of the IMF. Although there was a relative improvement because of the establishment of fiscal discipline, a new crisis occurred in 2001.

During these years, the total foreign debt interest payments in the budget increased and as a solution to this, the Transition to a Strong Economy Program was prepared with the IMF in 2002. Thus, the contractionary fiscal policy began systematically in Turkey. In this period, the share of current and investment expenditures in the budget was reduced and a Special Consumption Tax was adopted in terms of income policy. Therefore, discipline in public finance was targeted by following pro-cyclical policies. As of 2022, the foreign exchange and debt crisis in Turkey continues with the effect of low interest (neo-Fisherian) policy, even though it is tried to be prevented with various tax reforms.

This study aims to analyze the effect of fiscal policies against cyclical fluctuations between 1975–2020 in Turkey. The method of the study is the ARDL-ECM method, which shows the short- and long-term cointegration relationship

between the variables. The reason for choosing this method is to reveal how long it will take for the cyclical fluctuations to come back into balance with the long-term effect of the fiscal policies pursued fluctuations in GDP.

The theoretical structure and literature will be presented in the first part of the study. In the second part, the data set and method to be used in the study will be explained. The present study will be concluded with the discussion and conclusion part after the findings are stated.

In this research, *three hypotheses* are tested:

H1: Fiscal policy in Turkey is *pro-cyclical*.

H2: Fiscal policy in Turkey is *counter-cyclical*.

H3: Fiscal policy in Turkey is *neutral*.

2. Theory and Literature

The business cycle theories should help us understand the important features of the widespread and persistent fluctuations observed in the economy. Early writers on the subject highlighted the instability of the supply of credit used to purchase real and financial assets, as well as investment in fixed capital and stocks. Changes in relative input and output prices, interest rates, and profits are other important areas of interest.

Keynes [1] also drew attention to the uncertainty regarding future commercial ventures' "profitability and expectations" volatility. He was among the first discoveries of the investment accelerator, growth, and instability theories. With the rise of mathematical analysis in the 1930s-1940s, exogenous models were studied, which often had similar content to accelerator-multiplier models but were driven by shocks. Money and prices have received little or no consideration in the accelerator-multiplier interaction and other Keynesian disequilibrium models. In contrast, shocks to the money stock represent the major source of instability in monetarist theory [8, pp. 2–3].

The idea of countercyclical fiscal policy, first put forward by Juglar [9], has

been described as a "response to welfare". Juglar says that the most important cause of depression is the welfare period. He argues that the reason for economic prosperity lies in the conditions of easy money, low stocks, cheap labor, and raw materials in times of depression and that prosperity is only a result of these. W. Mitchell [10; 11] was the one who took this subject scientifically in the public finance literature [12, p. 143]. In addition, many opinions explain business cycle fluctuations in the fiscal literature.

According to the Keynesian approach, there are many reasons for fluctuations. The most important of these are marginal productivity of capital and liquidity preference. This is affected by expectations of future sales and profits [13, p. 157]. In Keynesian theory, the business cycle mechanism has two components: the multiplier effect and the response of aggregate supply to the change in aggregate demand. Also, expectations are important in cyclical fluctuations. Accordingly, if the expectations are positive, from the recovery period; if negative, it refers to the crisis circuit [14, pp. 16–18]. As a result, it is necessary to intervene in the economy with fiscal policies based on market failures.

According to the Monetarist approach, the cause of cyclical fluctuations is the fluctuations in the money supply realized by monetary policies [15, pp. 44–45]. Monetarists emphasize the inconsistencies between the changes in the supply of bank credit and the market and the equilibrium interest rates as the cause of the fluctuations. Falling interest rates due to the Central Bank's increase in money supply increase aggregate demand by increasing investments and consumption and bringing the economy to the recovery stage. On the other hand, the long-term decline in the monetary growth rate leads the economy into recession [16, p. 740].

According to the Rational Expectations Theory first proposed by Muth [17], money wages are determined by rational expectations. However, there are two different rational expectations regarding the economic conjuncture. First, Lucas [18, p. 13–15], fluctuations are caused by

unexpected shocks in aggregate demand, which distorts the relationship between the rate of change in nominal prices and the level of real output. According to the New Keynesian Business Cycle Theory, which is another approach, the cause of fluctuations in the economy is expected and unexpected fluctuations in aggregate demand. Accordingly, fluctuations are affected by changes such as technology and population. However, what all Keynesians agree on is their advocacy of fiscal policies in stabilizing economic activity [19, p. 23]. Cyclical fluctuations cannot be explained independently of monetary policies. However, to prevent cyclical fluctuations, fiscal policies should guide monetary policies [20, pp. 255–256].

The Real Business Cycle Theory argues that macroeconomic instability will occur in the long run due to external shocks. This theory argues that instabilities arise not from instability caused by the money supply, but from shocks caused by fiscal policies. The main reason behind fluctuations is changes in productivity. Accordingly, macroeconomic stability is ensured due to innovation and the productivity increase it creates [21, p. 251].

According to the theory, fiscal policy should be countercyclical throughout the cycle. Contrary to this approach, many countries follow cyclical policies in practice [22, pp. 14–15]. These studies in the literature show that economic crises are not only related to monetary and fiscal policies, but also the political structures of countries.

Çiçek & Elgin [22] used annual panel data for 78 countries between 1960–2007. Empirical analyzes were made with section, OLS, and IV techniques. Fiscal policy is more cyclical in countries with large informal economies. They also found that policies that reduce the size of the informal economy cause less fiscal responsiveness to shocks. Due to the high demand for the public sector, the counter-cyclical policy is expected to increase production overall, as it creates more jobs and increases disposable income [23, p. 76].

Temsurit [23] used annual panels for 63 developing countries between 1980–2013.

Empirical analyzes were performed using the GMM method. According to the findings, the improvement in the quality of institutions plays a vital role in limiting cyclical policy and these effects are more pronounced in democratic countries than in non-democratic ones.

Gavin & Perotti [24] used annual panel data for 13 Latin American countries from 1968–1995. Empirical analyzes were performed using the OLS. They found that fiscal policy is cyclical, especially during growth periods. In addition, in times of crisis, countries cannot borrow from abroad due to credit restrictions and therefore cannot use borrowing as a balancing fiscal policy tool. As a result, states must apply cyclical policies because they have to pay their debts [25, p. 4].

Calderón & Schmidt-Hebbel [25] tested with the OLS model using annual panel data for 136 between 1970–2005. Institutional factors explain most of the differences in the cyclical behavior of budget balances between industrial and developing countries, while financial openness and financial depth account for a smaller share of projected differences.

Fatás & Mihov [26] tested OLS and IV techniques for 93 developing countries using annual panel data from 1960–2007. They found that fluctuations are an important determinant of economic growth. They also found that public expenditures and revenues are not cyclical, and the primary deficit is not cyclical.

Rodrik [27], who also associates cyclical fluctuations with trade openness, states that as the number of external shocks increases, their negative effects on GDP increase, and there is a positive relationship between trade openness and public expenditures.

Alesina et al. [28] tested 87 OECD and non-OECD countries between 1960–1999 using the fixed effects technique. According to the findings, public revenues and budget surplus variables are statistically insignificant and only public expenditures are significant. In addition, it was emphasized that developed countries implement counter-cyclical policies while developing countries implement cyclical policies.

Kaminsky et al. [29] tested 104 emerging markets (EMs) between 1960–2003 with the OLS using panel data. Moreover, fiscal policies in developing countries are cyclical compared to OECD countries.

Ilzetzki & Végh [30] conducted tests with OLS and GMM using quarterly 1960–2006 panel data for 49 developing countries. In the study, there is a positive relationship between public consumption expenditures and output volatility in developing countries.

Badinger [31] tested 88 developing countries using annual panel data from 1960–2004, LS, and One Step Regression techniques. According to the findings, output volatility resulting from changes in cyclical and discretionary fiscal policy is negatively related to economic growth. The study advocates fiscal rules that limit the use of cyclical policy to improve growth performance.

Manasse [32], who relates the fiscal policies followed for fluctuations with political behavior, tested 50 developing countries between 1970–2004 with the MARS technique. The study argues that the policy response depends on the state of the economy and is cyclical during a growth period, but counter-cyclical fiscal policies are implemented during a recession. He argued that in countries where populist policies are common, fiscal stability can be prevented by fiscal rules and that counter-cyclical fiscal policies will have a stronger effect.

Studies in the literature have concluded that developing countries implement cyclical fiscal policies. Research on why governments follow a cyclical policy in developing countries claims that political factors are an important reason for the cyclical fiscal policy in these countries. These studies show that factors such as the type of political regime, the quality of institutions, and the level of political polarization determine cyclical fiscal policy [23, p. 75].

Vegh & Talvi [33] present a model that optimizes behavior for 56 countries that reveal political distortions during periods of growth. The study primarily explains the cyclical fiscal policies in de-

veloping countries where there are political distortions. According to the research, implementation of cyclical fiscal policies is preferred because it is low cost.

Lane [34] tested with the OLS using 1960–1998 panel data for 22 OECD countries. According to the findings, cyclical fiscal policy is more effective in countries with a separation of political powers.

On the other hand, Abbott & Jones [35] carried out a test with the GMM using the 1990–2003 panel data for 20 OECD countries. The study revealed that the cyclicity of social security expenditures varies according to the level of political polarization. Accordingly, if political polarization increases, cyclicity also increases.

Caballero & Krishnamurthy [36] tested 18 developed countries and 13 EMs separately with OLS and IV for the years 1960–2002. According to the findings, they concluded that the fiscal policy of developing countries is more cyclical than that of developed countries, and the use of fiscal policy as a counter-cyclical policy tool is also related to the development of countries.

Wyplosz [37] made separate time series analyses for the USA, Germany, France, and Sweden countries between 1971–2001 using the OLS. According to the findings, the budget balance acts against the conjuncture and the public debt creates a balancing effect on the size of the output gap.

Akanni & Osinowo [38] tested Nigeria for the period 1970–2010 with the OLS. In the study, it is seen that both growth and public expenditures have high volatility. He also states that fiscal discipline is necessary to prevent fluctuations in Nigeria.

De Mello [39] tested Brazil for the period 1995–2004 with the OLS. The study revealed that governments respond strongly to changes in borrowing by adapting their primary surplus targets and institutions are important for fiscal sustainability.

Khemani [40] examined the effects of elections on fluctuations in India between the years 1960–1992 using the OLS. He

concluded that before election periods, governments made expenditures on interest groups with populist expenditures.

Jad [41] studied Lebanon using the Bry-Boschan routine technique with data covering the years 1993–2015. According to the findings, fluctuations are seen in four-year cycles in Lebanon. Thus, the findings for Lebanon are like the cycles attributed to small and developing countries with open market economies.

Mora [42] investigated the sources of macroeconomic fluctuations for Venezuela between 1998–2014 using the structural VAR model. The study cited US production and oil prices as sources of external shocks. As a result, he determined that the most important source of volatility, in the long run, is not domestic shocks, but external shocks from developments in US output and oil prices. In addition, the effects of local shocks are temporary. The effects of oil price shocks on real exchange rates and production are greater than their effects on US production.

Considering the effect of fiscal policies on cyclical fluctuations, the statistical significance of fiscal policy variables is quite low. In this respect, it is not always possible to explain the effect of fiscal policy on cyclical fluctuations due to various uncertainties [26, p. 364].

The common aspects of the studies in the literature are as follows: (i) pro-cyclical policies are generally followed in developing countries; (ii) fiscal policies are cyclical in economies with the informal economy, corruption, and populist policies; (iii) fiscal rules that limit the use of cyclical policy need to be introduced to improve growth performance.

Undoubtedly, these partnerships in the literature differ according to the model applied, period, and country. The current study, unlike the studies in the literature, examines the effect of fiscal policies implemented in Turkey on cyclical fluctuations, considering a current and long time series. This indicates the effectiveness of the fiscal policies discussed in the literature of Turkey, which has passed from a closed economic system to an open market economy.

3. Data Set and Method

3.1. Variables Used in the Model

The variables and methodology used in the study were prepared using Temsumrit [23].

Macroeconomic variables consist of the output gap, trade openness, and capital account openness. output gap represents the difference between current and potential GDP. GDP output volatility data was obtained by using the filtering method proposed by Hodrick & Prescott [44] to the real GDP variable, and it was aimed to measure the response of fiscal policies to aggregate supply and aggregate demand volatility. Theoretically, the deviation of actual output from potential output is an output gap that must be eliminated through fiscal policy mechanisms. To calculate this volatility, the use of Hodrick & Prescott's [44] filtering technique, which is widely used in the literature, is suggested by Ganey [45].

The trade openness variable is the ratio of total foreign trade volume to GDP. Economies with a high trade openness have a higher risk of facing external shocks. For this reason, it is necessary to use fiscal policies actively to ensure macroeconomic stability. In economies exposed to external shocks, when public expenditures are increased to reduce the impact of the shock, a counter-cyclical policy is followed [27, p. 1011].

The capital account openness variable is an index that shows the changes in the capital flows of the countries. Due to the influx of foreign capital in the expansion period of the economy, the financing cost of counter-cyclical policies increases. In addition, the fiscal policies pursued by the instability caused by capital mobility remain insufficient in the post-instability period [46, p. 206], [47, p. 252].

Fiscal variables (as a ratio to GDP), tax revenues, primary public expenditure, public expenditure including interest, current public expenditure, public investment expenditure, public transfer expenditure, tax revenues on goods and services, tax revenues on income, and budget consists of balance variables. In the study, GDP was taken as a ratio to indicate the elasticity of

these variables. If there is an increase in financial variables while the economy is growing, pro-cyclical; otherwise, it means that a counter-cyclical fiscal policy is followed.

The political variables are institutionalized democracy and political constraint-POLCON. Institutionalized democracy measures the institutionalization of democratic rights in the relevant country. The fact that institutions are open and independent to stakeholders increases their tendency to act democratically. In this respect, counter-cyclical policies are unsuccessful in countries that do not have democratic institutions [23, p. 76].

The political constraint, on the other hand, considers the number of vetoes faced by government officials in parliament and the party differences to which the members of the government belong. Restriction of governments also affects the quality of fiscal policies. In this context, institutions are an intermediary institution that affects macroeconomic growth [26, p. 368]. Governments that are less constrained in implementing policies can respond more flexibly to the business cycle. However, although this effect of POLCON is uncertain, it continues to be proven empirically [31, p. 9].

Population data was used as the control variable in the study. Change in pop-

ulation affects fiscal policy choices. However, Barro [48, p. 165] says that making any inferences on the population variable will usually be the result of coincidence. For this reason, the population variable was used as a control variable in the study and was excluded from interpretation.

By using the variables explained above, cyclical policies in Turkey between 1975–2020 were examined using ARDL-ECM estimators with annual data. Information on related variables is shown in Table 1.

The models included in the study are as follows:

$$\text{Model 1: } GHP = a_0 + a_1TI + a_2GEEI + a_3TO + a_4CAO + a_5POLCON + \mu_{1t} \quad (1)$$

$$\text{Model 2: } GHP = a_0 + a_1TI + a_2GEEI + a_3TO + a_4CAO + a_5POLCON + \mu_{2t} \quad (2)$$

$$\text{Model 3: } GHP = a_0 + a_1CTE + a_2IE + a_3TE + a_4TI + a_5TO + a_6CAO + a_7POLCON + \mu_{3t} \quad (3)$$

$$\text{Model 4: } GHP = a_0 + a_1ITI + a_2DTI + a_3CAO + a_4POP + \mu_{4t} \quad (4)$$

$$\text{Model 5: } GHP = a_0 + a_1FB + a_2CAO + a_3TO + a_4IND + a_5POLCON + \mu_{5t} \quad (5)$$

The constant term a_0 in Model 1–5, $a_1 \dots a_7$ is the parameter that shows the effect of the relevant independent variable on the dependent variable; $\mu_{1t} \dots$ represents the error term of the relevant model.

Table 1

Variables Used in the Model

Variable	Abbreviation	Source
GDP output volatility (HP Filter)	GHP	World Bank, World Development Indicators
Trade openness	TO	
Capital account openness	CAO	The Chinn-Ito index (KAOPEN)
Tax Revenues/GDP	TI	Strategy and Budget Department, Indicators and Statistics
Tax revenues from goods and services	ITI	
Tax revenues on the income	DTI	
Non-interest public expenditure / GDP	GEEI	
Public expenditure/GDP (including interest)	GEEI	
Current expenditure	CTE	
Investment expenditure	IE	
Transfer expenditure	TE	
Budget balance/GDP	FB	
Political Constraint	POLCON	
Institutionalized Democracy	IND	World Bank, World Development Indicators
Population	POP	

Model 1 [28], one of the regression equations above, the effects of TI, GEEL, TO, CAO, and POLCON on GHP; in the Model 2, unlike Model 1, the effect of GEII is estimated. Model 3, public expenditures specified the Model 1 are divided into components and discussed in terms of IE, TE, and CTE [26; 35]. In Model 4, the effect of ITI and DTI on GHP is examined, and in the Model 5 the effect of FB, IND, and POLCON variables is examined [24].

3.2. ARDL Model

The ARDL model was first introduced by Charemza & Deadman [49] and developed by Pesaran [50], Pesaran & Shin [51], and Pesaran et al. [52]. This approach is a cointegration method used to test whether there is a long-term equilibrium in the economic system. In the ARDL model, after specification tests are performed, boundary tests are applied and then the short-run relationship is examined.

This model has many advantages over other cointegration methods such as Engle & Granger [53], Johansen & Juselius [54]:

- This method gives ARDL consistent results for small observations, unlike the Johansen cointegration method, which requires a large observation to ensure the reliability of the results.
- The ARDL test can be used regardless of whether the variables are I(0)-(I) or (I)-(I).

• To estimate the long-term equilibrium relationship in the model, it is sufficient to compare the F statistic calculated with the ARDL error correction model (ECM) with the given lower and upper values.

In this respect, it is more advantageous to use a single-stage ARDL-ECM model instead of using a two-stage regression such as Engle & Granger cointegration [53] and Johansen cointegration [54]. In this framework, (p,q) ARDL regression model can be expressed as follows:

$$\begin{aligned}
 & s_t + \beta_1 s_{t-1} + \dots + \beta_p s_{t-p} = \\
 & = \delta + \alpha_0 x_t + a_1 a_{t-1} + \dots + a_q x_{t-q} + \epsilon_t; \quad (6) \\
 & \beta(L)y_t = \delta + a(L)x_t + \epsilon_t.
 \end{aligned}$$

In the equation (6), L is the distributed delay component and ϵ_t is a random error term. In addition, the model is autoregressive because the y_t expression is explained with its lagged values.

3.3. Methodology

In the present study, firstly, two-unit root tests, Dickey-Fuller (ADF) test [55] and Phillips & Perron (PP) test [56], were performed. The null hypothesis of ADF and PP tests is that the variable is non-stationary or contains a unit root. The key point in unit root tests for variables is that the variables are stationary at the I(0) or I(1) level. According to Ouattara [57], if the variables are stationary at I(2) or higher, the calculated F-statistic is invalid.

Secondly, the model is determined for the ECM. Before the estimation of the model, the VAR model determines the lag lengths of the model. The ARDL model used in the study is given below:

Model 1:

$$\begin{aligned}
 \Delta GHP_t = & a_{01} + \sum_{i=1}^p \beta_{1i} \Delta TI_{t-i} + \\
 & + \sum_{i=0}^{q1} \beta_{2i} \Delta GEEL_{t-i} + \sum_{i=0}^{q2} \beta_{3i} \Delta TO_{t-i} + \\
 & + \sum_{i=0}^{q3} \beta_{4i} \Delta CAO_{t-i} + \\
 & + \sum_{i=0}^{q4} \beta_{4i} \Delta POLCON_{t-i} + \\
 & + \delta_{11} TI_{t-1} + \delta_{21} GEEL_{t-1} + \delta_{31} TO_{t-1} + \\
 & + \delta_{41} CAO_{t-1} + \delta_{51} POLCON_{t-1} + \epsilon_{1t}
 \end{aligned} \quad (7)$$

Model 2:

$$\begin{aligned}
 \Delta GHP_t = & a_{02} + \sum_{i=0}^p \beta_{1i} \Delta TI_{t-i} + \\
 & + \sum_{i=0}^{q1} \beta_{2i} \Delta GEII_{t-i} + \sum_{i=0}^{q2} \beta_{3i} \Delta TO_{t-i} + \\
 & + \sum_{i=0}^{q3} \beta_{4i} \Delta CAO_{t-i} + \delta_{12} TI_{t-1} + \\
 & + \delta_{61} GEII_{t-1} + \delta_{32} TO_{t-1} + \delta_{42} CAO_{t-1} + \epsilon_{2t}
 \end{aligned} \quad (8)$$

Model 3:

$$\begin{aligned}
 \Delta GHP_t = & a_{03} + \sum_{i=0}^p \beta_{1i} \Delta CTE_{t-i} + \\
 & + \sum_{i=0}^{q1} \beta_{2i} \Delta IE_{t-i} + \sum_{i=0}^{q2} \beta_{3i} \Delta TE_{t-i} + \\
 & + \sum_{i=0}^{q3} \beta_{4i} \Delta TI_{t-i} + \sum_{i=0}^{q4} \beta_{5i} \Delta TO_{t-i} + \\
 & + \sum_{i=0}^{q5} \beta_{6i} \Delta CAO_{t-i} + \sum_{i=0}^{q6} \beta_{4i} \Delta POLCON_{t-i} + \\
 & + \delta_{71} CTE_{t-1} + \delta_{81} IE_{t-1} + \delta_{91} TE_{t-1} + \delta_{13} TI_{t-1} + \\
 & + \delta_{33} TO_{t-1} + \delta_{43} CAO_{t-1} + \delta_{52} POLCON_{t-1} + \epsilon_{3t}
 \end{aligned} \quad (9)$$

Model 4:

$$\begin{aligned} \Delta GHP_t = & a_{04} + \sum_{i=0}^p \beta_{1i} \Delta ITI_{t-i} + \\ & + \sum_{i=0}^{q1} \beta_{2i} \Delta DTI_{t-i} + \sum_{i=0}^{q2} \beta_{3i} \Delta cCAO_{t-i} + \\ & + \sum_{i=0}^{q3} \beta_{4i} \Delta POP_{t-i} + \delta_{101} ITI_{t-1} + \quad (10) \\ & + \delta_{201} DTI_{t-1} + \delta_{44} CAO_{t-1} + \delta_{301} POP_{t-1} + \epsilon_{4t} \end{aligned}$$

Model 5:

$$\begin{aligned} \Delta GHP_t = & a_{05} + \sum_{i=0}^p \beta_{1i} \Delta FB_{t-i} + \\ & + \sum_{i=0}^{q1} \beta_{2i} \Delta CAO_{t-i} + \sum_{i=0}^{q2} \beta_{3i} \Delta TO_{t-i} + \quad (11) \\ & + \sum_{i=0}^{q3} \beta_{4i} \Delta IND_{t-i} + \sum_{i=0}^{q4} \beta_{5i} \Delta POLCON_{t-i} + \\ & + \delta_{401} FB_{t-1} + \delta_{45} CAO_{t-1} + \delta_{34} TO_{t-1} + \\ & + \delta_{501} IND_{t-1} + \delta_{53} POLCON_{t-1} + \epsilon_{5t} \end{aligned}$$

ΔGHP_t in the above models is the output gap variable in the literature review. This variable is included in the model as a dependent variable. β terms are long-term coefficients and δ are short-term coefficients. In addition, p and q give the optimal lag lengths in the ARDL model. Δ denotes the first difference and ϵ denotes the error terms.

Third, after testing the models, the bound test was performed. Here, with the F statistical value, Pesaran et al. [52]. The table developed by is compared with the critical value. Then, the null hypothesis of the F test that the null hypothesis variables were not in a cointegration relationship was rejected, and it was concluded that there was a cointegration relationship.

Fourth, since the above Models 1-5 are cointegrated, their long-term relationships are estimated. This estimation refers to the equation with the β terms above but without the δ term, which represents the short term. In this case, the variable expressed by the term δ is expressed as $\lambda_{1...s} ECM_{t-1}$ for each model. The expression ECM_{t-1} in question indicates the error correction term, which should be negative and statistically significant [58, pp. 7-11; 59, pp. 141-142; 60, pp. 393-394].

Fifth, specification tests for the ARDL model were performed. According to Pesaran [50], stability testing for the predicted parameters of the ARDL

model is necessary to avoid the mis determination of the functional form due to fluctuations in the time variable. To test the parameter stability in the model, cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) values were examined. In these tests, when the statistical value is between the confidence intervals (5%), it is understood that the estimated coefficients are stable. However, the Ramsey Reset test, autocorrelation test (Breusch-Godfrey Serial Correlation LM Test), heteroscedasticity test (Breusch-Pagan-Godfrey), and normality test (Jarque-Bera) were used to test the presence of technical error in the model.

4. Research Results

Table 2 shows the results of the descriptive summary statistical analysis of the variables in the study. The result shows that the GDP output volatility for Turkey in the 1975-2020 period varies between 4.780 and 9.577, with an average value of 5.349 and a standard deviation of 3.119. Summary statistics of other variables are shown in Table 2.

Whether the stability condition of the parameter estimation in the analysis is met or not is shown in Figure 1 with the CUSUM and CUSUMQ tests. Table 2 and Figure 1 are considered together, the selected model is statistically stable and the parameters corresponding to all variables in the model are reliable.

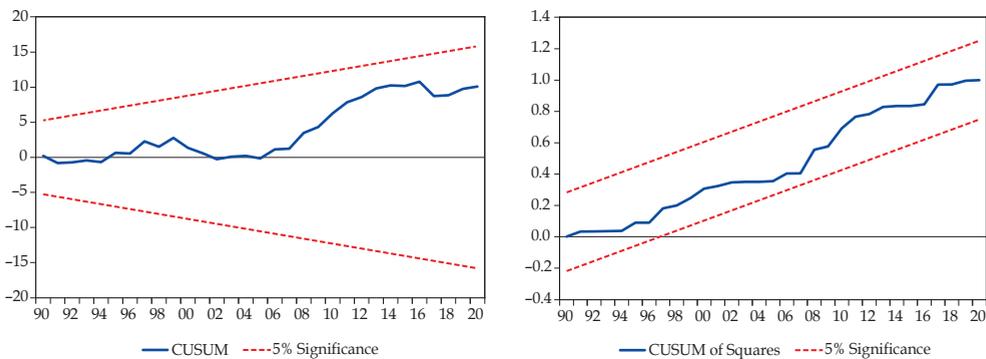
The time series of the variables in the study were examined using the ADF and PP unit root tests, which are frequently used in the literature. According to the stationarity test results shown in Table 3, the GHP, TO and POP variables are stationary at the level, while the other variables are stationary at the first difference.

The existence of a cointegration relationship between the variables in the models established within the scope of the study is determined by the F-bounds test. The fact that the F-statistics values specified in Table 4 are greater than the critical values of 5% and 10% indicates that there is a cointegration relationship between the variables.

Table 2

Descriptive Statistics												
	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.	Sum	Sum Sq. Dev.	Obs.
GHP	4.78	5.34	9.57	0.10	3.11	-0.06	1.49	4.39	0.11	219.88	437.78	
TO	39.86	43.29	62.61	9.09	14.08	-0.51	2.41	2.71	0.25	1833.95	8925.59	
CAO	-0.87	-1.22	-0.02	-1.92	0.65	0.16	1.66	3.61	0.16	-40.35	19.35	
TI	13.17	12.39	18.01	7.83	3.68	-0.04	1.29	5.56	0.06	606.25	610.69	
GEII	9.11	11.04	21.70	2.32	6.13	0.28	1.60	4.34	0.11	419.47	1694.86	
GEEI	20.24	14.97	35.55	9.01	9.22	0.26	1.41	5.35	0.06	931.11	3828.30	
CTE	7.68	7.52	17.74	4.33	2.73	2.23	8.68	100.28	0.00	353.31	335.92	
TE	10.54	10.93	22.80	3.46	5.33	0.46	2.19	2.86	0.23	485.14	1281.40	46
IE	1.99	2.09	3.76	0.85	0.65	0.52	3.01	2.11	0.34	91.66	19.29	
DTI	5.02	4.77	6.85	3.66	0.762	0.558	2.336	3.233	0.198	231.15	26.12	
ITI	5.87	5.00	10.45	2.02	3.02	0.12	1.24	6.00	0.04	270.13	412.09	
FB	-2.84	-2.22	6.05	-12.15	3.30	-0.60	4.74	8.65	0.01	-131.09	492.38	
IND	6.78	8.00	9.00	0.00	3.03	-1.39	3.40	15.24	0.00	312.00	413.82	
POLCON	0.37	0.39	0.53	0.00	0.13	-1.70	5.86	38.06	0.00	17.12	0.79	
POP	7.77	7.78	7.93	7.59	0.09	-0.23	1.97	2.44	0.29	357.65	0.42	

Model 1



Model 2

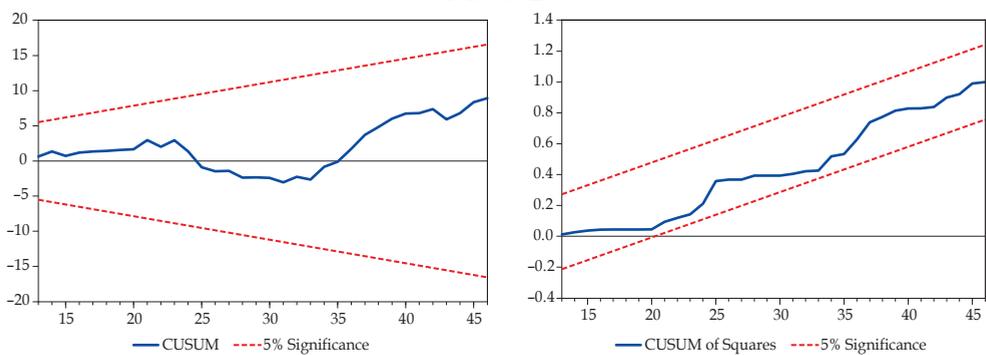
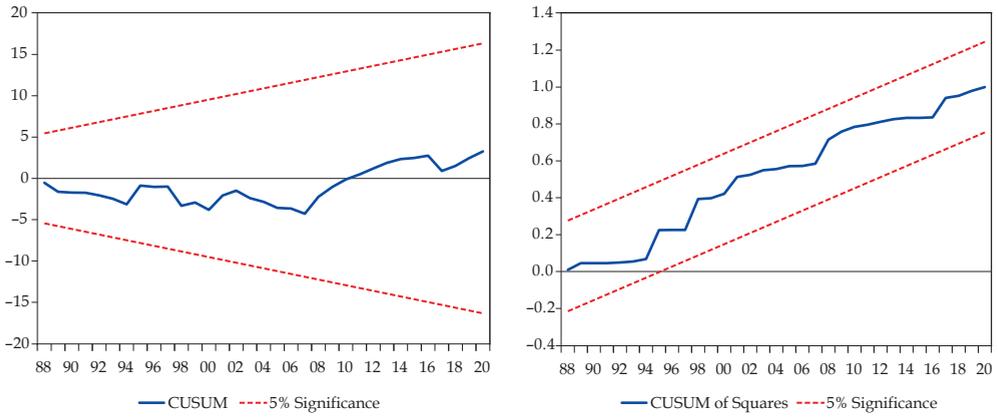
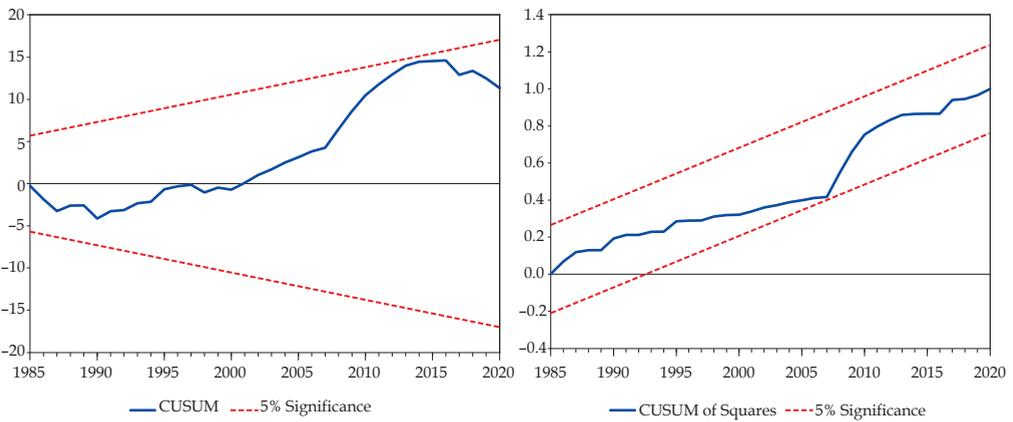


Figure 1. CUSUM and CUSUMQ Graphs

Model 3



Model 4



Model 5

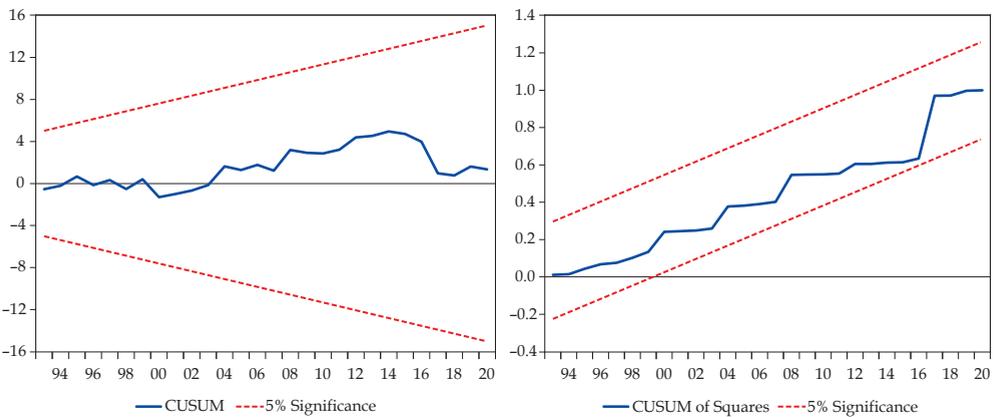


Figure 1. CUSUM and CUSUMQ Graphs (end)

In Table 4, the long-term coefficients of the variables are shown in Table 5 after the cointegration relationship between the series was determined. The table also includes the specification tests of ARDL models.

According to the result of *Model 1*, a 1% increase in GEEI increases GHP by 0.256%. However, if the TO variable increases by 1%, GHP is affected by -0.163%. In *Model 2*, a 1% increase in the GDP (TI) ratio of total tax revenues affects GHP by 0.891% and a 1% increase in TO

affects by 0.146%. On the other hand, in *Model 3*, a 1% increase in the TI variable affects the GHP by 0.858%, a 1% increase in IE affects the GHP by 1.240%, and TE by -0.421%. In *Model 4*, however, a 1% increase in FB affects the GHP by 0.639%. Finally, in *Model 5*, TO affects the output gap by -0.577%, while ITI affects -5.645% and DTI by 3.068%.

As a result of the analysis, the variables of CAO, GEII, CTE, IND, and POLCON were statistically insignificant. Although these variables influence cyclical

Table 3

Variables	Unit Root Tests			
	Level		First difference	
	ADF	PP	ADF	PP
GHP	0.000*	0.257	0.000*	0.159
TO	0.049**	0.181	0.000*	0.000*
CAO	0.619	0.522	0.000*	0.000*
TI	0.835	0.755	0.000*	0.000*
GEII	0.259	0.252	0.000*	0.000*
GEEI	0.594	0.631	0.000*	0.000*
CTE	0.968	0.968	0.000*	0.000*
IE	0.566	0.681	0.000*	0.000*
DTI	0.380	0.233	0.000*	0.000*
ITI	0.550	0.492	0.082***	0.000*
TE	0.806	0.619	0.000*	0.000*
FB	0.922	0.917	0.000*	0.000*
INA	0.194	0.265	0.000*	0.000*
POLCON	0.266	0.207	0.000*	0.000*
POP	0.025**	0.988	0.022**	0.558

Akaike Information Criteria is used as a basis for the choice of lag values of the variables in the table. Statistically, 1%, 5% and 10% significance levels are shown as *, **, ***, respectively. The values reported in the table are probability values.

Table 4

F-Limit Tests						
Model	k	F-stat.	%5 critical value		%10 critical value	
			I(0) lower bound	I(1) upper bound	I(0) lower bound	I(1) upper bound
1	5	6.886	2.62	3.79	2.26	3.35
2	4	5.450	2.86	4.01	2.45	3.52
3	7	7.395	2.32	3.50	2.03	3.13
4	5	3.436*	2.62	3.79	2.26	3.35
5	4	4.376	2.86	4.01	2.45	3.52

* Statistically significant at 10% critical value.

fluctuations, it is likely to be insignificant due to model specification error.

The value of the error correction coefficient indicated by $\text{CointEq}(-1)^*$ in Table 5 should be between 0 and -1 and be statistically significant. The ECM model indicates the time for the deviation to occur in the long-term equilibrium to reach equilibrium [61, p. 342].

Accordingly, within the scope of *Model 1* and *Model 2*, the balance is 1.3. It has been found that the equilibrium will be reached again in 1 year in the *Model 3*, 1.9 in the *Model 4*, and finally 2.9 years in the *Model 5*. According to the results of the diagnostic tests in Table 5, it was concluded that there was no specification problem in the models.

Table 5

Long- and Short-Term Coefficient Findings					
Model	(I)	(II)	(III)	(IV)	(v)
Dependent variable: GHP	(2,2,0,1,2,0)	(2,2,0,1,0)	(1,1,0,0,0,1,0,1)	(1,0,0,1,0,0)	(3,0,3,1,3)
TO	-0.163 (0.002)*	-0.146 (0.006)*	-0.039 (0.392)	-0.032 (0.647)	-0.577 (0.009)*
CAO	0.437 (0.504)	0.289 (0.678)	0.151 (0.835)	-0.490 (0.738)	-1.864 (0.393)
TI	0.251 (0.462)	0.891 (0.000)*	0.858 (0.000)*		
GEEI	0.256 (0.061)***				
GEII		0.124 (0.300)			
CTE			0.210 (0.231)		
IE			1.240 (0.091)***		
TE			-0.421 (0.008)*		
ITI					3.068 (0.004)*
DTI					-5.645 (0.059)***
FB				0.639 (0.034)**	
IND				0.047 (0.888)	
POLCON	8.165 (0.128)		1.170 (0.719)	7.299 (0.313)	
Panel B					
Observation	44	44	45	45	42
Adj. R ²	0.73	0.67	0.77	0.43	0.74
$\text{CointEq}(-1)^*$	-0.75 (0.00)	-0.74 (0.00)	-0.95 (0.00)	-0.52 (0.00)	-0.34 (0.00)
Panel C					
Breusch-Godfrey LM Test	0.53	0.31	0.55	0.26	0.14
Breusch-Pagan-Godfrey	0.72	0.39	0.21	0.77	0.90
Ramsey Reset Test	0.46	0.92	0.53	0.79	0.71
Jarque-Bera	0.32	0.51	0.79	0.08	0.48

Statistically, 1%, 5% and 10% significance levels are shown as *, **, ***, respectively. In Panel A, coefficients outside the parenthesis; The contents of the parenthesis are the probabilities. In Panel B, in the expression $\text{CointEq}(-1)^*$, except the parentheses are the coefficients; The ones in parentheses are the probabilities. Values reported in Panel C are probability values.

5. Discussion

The results of the research on the fiscal policy in Turkey from 1975 to 2020 and the analyzed sample of 13 variables affecting it show that the *H1* and *H2* hypotheses are confirmed. In other words, while voluntary fiscal policies are pro-cyclical, the automatic stabilizer creates a counter-cyclical effect. In *Model 1*, the GEEI variable proved to have a positive effect on GHP ($p < 0.10$), while in *Model 2*, TI proved to have a statistically significant effect on GHP ($p < 0.01$). In *Model 3*, investment ($p < 0.10$) and transfer ($p < 0.01$) expenditures from voluntary fiscal policies, budget balance ($p < 0.05$) in *Model 4*, indirect ($p < 0.10$) and direct ($p < 0.01$) in *Model 5* ($p < 0.01$) tax revenues proved to be significant. Therefore, among the three hypotheses tested in this study, it has been determined that *H1* is valid for indirect tax revenues, public expenditures, and balanced budget, and *H2* is confirmed for transfer and investment expenditures and direct tax revenues.

Testing the hypotheses in the study includes: (i) Unit root tests test for stationarity within a time series. A time series is stationary if a shift in time does not cause a change in the shape of the distribution. A unit root is a stochastic trend in a time series. The presence of unit roots can cause serious problems in your analysis, such as spurious regression. (ii) F-Test is any test that uses the F-distribution. The F-value is a value in the F distribution. Various statistical tests generate an F-value. The value can be used to determine whether the test is statistically significant. (iii) ARDL bounds test is a linear approach to examine the long- and short-term effects between variables and, more importantly, to test whether there is cointegration between variables.

The models are constructed according to different fiscal policy instruments in the open economy (TO and CAO). In *Model 1*, tax revenues and non-interest public expenditure, and in *Model 2*, public expenditure including interest are analyzed. In *Model 3*, while tax revenues are given, the components of public expenditures are tested. The budget balance in *Model 4* and tax revenue components (indirect/direct) in *Model 5* is examined. Thus, it was aimed

to see the effect of the variables clearly and clearly on the GHP.

Hypothesis testing should contribute to a better understanding of policy structure and provide a basis for institutional reform of fiscal policy. However, assumptions in theory (*ceteris paribus*) do not exist and therefore it is not easy to establish a deterministic relationship. The fiscal policies of another country create unexpected effects not only at the national level but also at the global level.

After 1980, Turkey completely switched to an open market economy (24 January Decisions). The cyclical fluctuations that emerged after these years mostly emerged due to integration into global markets and were replaced by crises in the following years. The measures taken against the crises often led to populist fiscal policies. With the Transition to a Strong Economy Program implemented under the leadership of the IMF in 2001, comprehensive measures were taken, and many structural problems were solved.

However, the institutional structure in Turkey could not reach the targeted quality and it was directly affected by the global crises due to political constraints. After the reform movements in 2001, public finance (Law No. 5018) became quite strong and became an active policy tool in the fight against crises. For this reason, most fiscal policy tools are used against cyclical fluctuations. This time, however, the problem of inflation arose.

Fiscal policies implemented between 2001–2015 did not have an inflationary effect. The most important reason for this is the financial investments coming to Turkey from sovereign wealth funds. This, in turn, led to a decrease in the exchange rate, which is one of the most important determinants of inflation, and to significant economic growth.

However, due to the decrease in short-term speculative capital movements from wealth funds and the interest policies applied (*neo-fisher*), inflation (about 90%) has increased today. Monetary and fiscal policies followed in such a conjuncture are mostly pro-cyclical. In the Medium-Term Plan published in September 2022, it is estimated that

the budget deficit will triple in 2023–2025. Considering the COVID-19 and immigration problems, Turkey's fiscal policy-oriented policy should be an expected result.

There are subjective and objective reasons for this. For subjective reasons, institutional problems can be expressed as the increase in unemployment during the pandemic period, the closure of companies, the increase in social security expenditures of immigrants, and the inability to abandon the inflationary growth policy. For objective reasons, the decrease in exports, especially during the pandemic period, followed by the increase in interest rates by the USA, the decrease in foreign exchange reserves, and global instability necessitate fiscal policies. Therefore, the fiscal policy variables used in the study did not show a homogeneous feature.

This situation can be explained by the insufficient capital accumulation in Turkey and the fact that the private sector is still in the development stage. On the other hand, while the effect of investment expenditures on the components of public expenditures supported the crowding-out finding, the transfer expenditures coefficient was negative. Accordingly, unrequited transfer of the public sector, such as health expenditures in Turkey, increases the total demand by increasing public expenditures and ultimately has a reducing effect on fluctuation (auto-stabilizer). When the effect of public revenues on cyclical fluctuations is examined, it has been determined that direct tax revenues have a reducing effect. Accordingly, while taxes on income reduce fluctuations, taxes on consumption increase fluctuations. On the other hand, the increase in the budget balance in the GDP ratio has an increasing effect on the fluctuations. It can be said that the fluctuations will move away from the balance because the fiscal policies followed by the balanced budget principle are financed by indirect taxes.

6. Conclusion

The main purpose of this article was to make some comments on the fiscal policy in Turkey.

The empirical results obtained from this study show that transfer and invest-

ment expenditures and direct tax revenues act as automatic stabilizers against economic fluctuations in Turkey. It reveals that indirect tax revenues, public expenditures, and budget balance move together with the conjuncture.

Turkey has been trying to rapidly integrate into global markets since the 1980s. For this reason, panel data analyzes are also included in the study besides time series analysis. The results of the analyzes made for OECD, developing and EMs countries also include Turkey. The findings of the study are in parallel with many studies. These studies emphasize that especially government expenditures in developing economies move with the conjuncture. In addition, studies suggesting that public revenues and expenditures will create a crowding-in effect instead of a crowding-out effect in the economy have suggested that this is happening in underdeveloped countries.

Policymakers in Turkey cannot fight cyclical fluctuations using only fiscal policies. Especially in an economy where inflation is high, tax reforms should be designed to ensure vertical and horizontal justice of the tax. In this case, the effect of inflation on the real tax burden will also decrease, but there has not been an inflation adjustment for the tax tariff in Turkey yet. The increase in the tax burden with inflation will cause a contraction in the economy as it reduces disposable income, and thus, while the injustice in income distribution increases, the cyclical fluctuation will become more severe.

Therefore, to improve growth performance by reducing volatility, it is necessary to introduce fiscal rules that limit the use of the cyclical policy. Studies in the literature advocate the introduction of fiscal rules against fluctuations in economies with high populist tendencies and fluctuations and argue that fiscal rules are an important factor in reducing fluctuations.

Of the three hypotheses tested in this study, it has been determined that *H1* is valid for indirect tax revenues, public expenditures, and balanced budget, and *H2* is confirmed for transfer and investment expenditures and direct tax revenues.

References

1. Friedman M. *The case for a monetary Rule*. New Jersey: Thomas Horton; 1975.
2. Keynes J.M. *The general theory of employment interest and money*. Cambridge: Cambridge University Press; 1936.
3. Prescott E.C. *Theory ahead of business cycle measurement*. Staff Report 102, Federal Reserve Bank of Minneapolis; 1986. Available at: <https://ideas.repec.org/p/fip/fedmsr/102.html>
4. Mankiw N.G. Real business cycles: a new Keynesian perspective. *Journal of Economic Perspectives*. 1989;3(3):79–90. <https://doi.org/10.1257/jep.3.3.79>
5. Rebelo S. Real business cycle models: past, present and future. *The Scandinavian Journal of Economics*. 2005;107(2):217–238. <https://doi.org/10.1111/j.1467-9442.2005.00405.x>
6. Burns A.F., Mitchell W.C. *Measuring business cycles*. National Bureau of Economic Research; 1946. Available at: <https://www.nber.org/books-and-chapters/measuring-business-cycles>
7. The impact of globalization on the Turkish economy. Ankara, Central Bank of the Republic of Turkey; 2002. Available at: <https://www.tcmb.gov.tr/wps/wcm/connect/16555e2a-dfcb-4e4b-9ef9-ec2797f3f2d8/global.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-16555e2a-dfcb-4e4b-9ef9-ec2797f3f2d8-m3fBaj8>
8. Zarnowitz V. *Business cycles: theory, history, indicators, and forecasting*. Chicago: University of Chicago Press; 2007.
9. Juglar C. *Des crises commerciales et de leur retour périodique en France en Angleterre et aux États-Unis*. Paris: Guillaumin; 1862.
10. Mitchell W.C. *Business cycles*. Berkeley: University of California Press; 1913.
11. Mitchell W.C. The processes involved in business cycles. National Bureau of Economic Research; 1927. Available at: <http://www.nber.org/chapters/c0680>
12. Schumpeter J.A. *A theoretical, historical and statistical analysis of the Capitalist process. Business cycles*. London: McGraw-Hill Book Company; 1939.
13. Keynes J.M. *The general theory of employment, interest and money* ebook (No.: 0300071). Gutenberg: Gutenberg University Press; 2003
14. Pérez Caldentey E. Chicago, Keynes and fiscal policy. *Investigación económica*. 2003;62(246):15–45. Available at: <https://www.jstor.org/stable/42779507>
15. Friedman M. A monetarist View. *The Journal of Economic Education*. 1983;14(4):44–55. <https://doi.org/10.2307/1182527>
16. Moore G.H., Zarnowitz V. The development and role of the national bureau of economic research's business cycle chronologies. In *The American business cycle: Continuity and change*. University of Chicago Press; 1986, pp. 735–780.
17. Muth J.F. Rational expectations and the theory of price movements. *Econometrica: Journal of the Econometric Society*. 1961;29(3):315–335. <https://doi.org/10.2307/1909635>
18. Lucas Jr. R.E. Expectations and the neutrality of money. *Journal of Economic Theory*. 1972;4(2):103–124. [https://doi.org/10.1016/0022-0531\(72\)90142-1](https://doi.org/10.1016/0022-0531(72)90142-1)
19. Greenwald B., Stiglitz J. New and Old Keynesians. *Journal of Economic Perspectives*. 1993;7(1):23–44. <https://doi.org/10.1257/jep.7.1.23>
20. Goodfriend M., King R.G. Financial deregulation, monetary policy. National Bureau of Economic Research. 1997;(12):231–296. Available at: <http://www.nber.org/books/bern97-1>
21. Begg D., Vernasca G., Fischer S., Dornbusch R. *Economics*. New York: McGraw Hill; 2014.
22. Çiçek D., Elgin C. Cyclicalities of fiscal policy and the shadow economy. *Empirical Economics*. 2011;41(3):725–737. Available at: <https://ideas.repec.org/e/pel118.html>
23. Temsumrit N. Democracy, institutional quality and fiscal policy cycle: evidence from developing countries. *Applied Economics*. 2022;54(1):75–98. <https://doi.org/10.1080/00036846.2021.1959894>
24. Gavin M., Perotti R. Fiscal policy in Latin America. *NBER Macroeconomics Annual*. 1997;(12):11–61. Available at: <http://www.nber.org/chapters/c11036>
25. Calderón C., Schmidt-Hebbel K. Business cycles and fiscal policies: the role of institutions and financial markets. *Documentos de Trabajo (Banco Central de Chile)*. 2008;(481):1–68. Available at: <https://dialnet.unirioja.es/descarga/articulo/2870597.pdf>
26. Fatás A., Mihov I. Policy volatility, institutions, and economic growth. *Review of Economics and Statistics*. 2013;95(2):362–376. Available at: <https://www.jstor.org/stable/43554391>
27. Rodrik D. Why do more open economies have bigger governments? *Journal of Political Economy*. 1998;106(5):997–1032. <https://doi.org/10.1086/250038>
28. Alesina A., Campante F.R., Tabellini G. Why is fiscal policy often procyclical? *Journal of the European Economic Association*. 2008;6(5):1006–1036. Available at: <https://www.jstor.org/stable/40283091>

29. Kaminsky G.L., Reinhart C.M., Végh C.A. When it rains, it pours: procyclical capital flows and macroeconomic policies. *NBER Macroeconomics Annual*. 2004;(19):11–53. Available at: <http://www.nber.org/books/gert05-1>
30. Ilzetzki E., Végh C.A. Procyclical fiscal policy in developing countries: truth or fiction? *NBER Macroeconomics Annual*. 2008. No. 14191 61 p. Available at: <http://www.nber.org/papers/w14191>
31. Badinger H. *Cyclical fiscal policy, output volatility and economic growth*. CESifo Working Paper. No. 2268; 2008. 38 p. Available at: https://ideas.repec.org/p/ces/ceswps/_2268.html
32. Manasse P. *Procyclical Fiscal policy: shocks, rules, and institutions – a view from mars*. IMF Working Paper; 2006. 41 p. Available at: <https://www.imf.org/external/pubs/ft/wp/2006/wp0627.pdf>
33. Vegh C.A., Talvi E. *Tax Base Variability and Procyclical Fiscal Policy*. NBER Macroeconomics Annual. No. 7499; 2000. 37 p. <https://doi.org/10.3386/w7499>
34. Lane P.R. The cyclical behavior of fiscal policy: evidence from the OECD. *Journal of Public Economics*. 2003;87(12):2661–2675. Available at: <https://ideas.repec.org/a/eee/pubeco/v87y2003i12p2661-2675.html>
35. Abbott A., Jones P. Procyclical government spending: Patterns of pressure and prudence in the OECD. *Economics Letters*. 2011;111(3):230–232. <https://doi.org/10.1016/j.econlet.2011.02.009>
36. Caballero R., Krishnamurthy A. *Fiscal policy and financial depth*. NBER Working Paper. No. 10532; 2004. 21 p. Available at: <http://www.nber.org/papers/w10532>
37. Wyplosz C. *Fiscal Policy and institutions vs. rules*. HEI Working Paper. No. 03/2002. Available at: <https://RePEc:ii:gihei:heiw03-2002>
38. Akanni K., Osinowo O.H. Effect of fiscal instability on economic growth in Nigeria. *Advances in Economics and Business*. 2013;1(2):124–133. <https://doi.org/10.13189/aeb.2013.010207>
39. De Mello L. Estimating a fiscal reaction function: the case of debt sustainability in Brazil. *Applied Economics*. 2008;40(3):271–284. <https://doi.org/10.1080/00036840500461873>
40. Khemani S. Political cycles in a developing economy: effect of elections in the Indian states. *Journal of Development Economics*. 2004;73(1):125–154. <https://doi.org/10.1016/j.jdeveco.2003.01.002>
41. Jad S.S. Monitoring business cycles in Lebanon: Is economic growth cyclical? Is economic growth cyclical? *Bank for International Settlements*. 2017;43. Available at: https://www.bis.org/ifc/publ/ifcb43_v.pdf
42. Mora J.U.M. *Inflation, exchange rate instability, and balance of payments deficits in Venezuela: A VAR approach*. University of Illinois at Chicago; 2002. Available at: <https://uic.figshare.com/account/projects/71123/articles/10922645>
43. Claeys P. Sustainability of EU fiscal policies: A panel test. *Journal of Economic Integration*. 2007;22(1):112–127. Available at: <https://www.jstor.org/stable/23001222>
44. Hodrick R.J., Prescott E.C. Postwar US business cycles: an empirical investigation. *Journal of Money, Credit, and Banking*. 1997;29(1):1–16. <https://doi.org/10.2307/2953682>
45. Ganey K. *Statistical estimates of the deviations from the macroeconomic potential: an application to the economy of Bulgaria*. Agency for Economic Analysis and Forecasting Working Paper Series No. 12004; 28 p. Available at: <https://ideas.repec.org/p/eaf/wpaper/12004en.html>
46. Singh A. Capital account liberalization, free long-term capital flows, financial crises, and economic development. *Eastern Economic Journal*. 2003;298(2):191–216. Available at: <https://www.jstor.org/stable/40325410>
47. Aghion P., Marinescu I. Cyclical Budgetary policy and economic growth: what do we learn from OECD panel data? *NBER Macroeconomics Annual*. 2007;(22):251–297. Available at: <http://www.nber.org/books/acem07-1>
48. Barro R. J. Determinants of democracy. *Journal of Political Economy*. 1999;107(S6):158–183. <https://doi.org/10.1086/250107>
49. Charemza W.W., Deadman D.F. *New Directions in Econometric Practice*. Aldershot: Edward Elgar; 1992.
50. Pesaran H.M. The role of economic theory in modelling the long-run. *Economic Journal*. 1997;(107):178–191. Available at: <https://www.jstor.org/stable/2235280>
51. Pesaran H.M., Shin Y. *Autoregressive Distributed lag modelling approach to cointegration analysis*. In: Strom S., (ed.) Chapter 11 in *Econometrics and Economic Theory in the 20th Century the Ragnar Frisch Centennial Symposium*. Cambridge University Press; 1999, pp. 371–413.
52. Pesaran M., Shin Y., Smith R. Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*. 2001;16(3):289–326. Available at: <https://www.jstor.org/stable/2678547>
53. Engle R.F., Granger C.W.J. Co-integration and error correction: representation, estimation, and testing. *Econometrica*. 1987;(55):251–276. <https://doi.org/10.2307/1913236>

54. Johansen S., Juselius K. Maximum likelihood estimation and inference on cointegration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*. 1990;(52):169–210. Available at: <https://ideas.repec.org/a/bla/obuest/v52y1990i2p169-210.html>

55. Dickey D.A., Fuller W.A. Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*. 1979;(74):427–431. <https://doi.org/10.1080/01621459.1979.10482531>

56. Phillips P.C.B., Perron P. Testing for a unit root in time series regression. *Biometrika*. 1988;75(2):335–346. [https://doi.org/10.1016/0304-4076\(92\)90107-3](https://doi.org/10.1016/0304-4076(92)90107-3)

57. Ouattara B. Foreign aid and fiscal policy in Senegal, Unpublished manuscript. Manchester: University of Manchester; 2004.

58. Cañal-Fernández V., Fernández J.T. *The long run impact of foreign direct investment, exports, imports and GDP: evidence for Spain from an ARDL approach*. EHEC Working Papers in Economic History. No. 128; 2018. 23 p. Available at: <https://ideas.repec.org/p/hes/wpaper/0128.html>

59. Chandio A. A., Jiang Y., Rehman A. Using the ARDL-ECM approach to investigate the nexus between support price and wheat production: empirical evidence from Pakistan. *Journal of Asian Business and Economic Studies*. 2019;19(16):139–152. <https://doi.org/10.1108/JABES-10-2018-0084>

60. Guan X., Zhou M., Zhang M. Using the ARDL-ECM approach to explore the nexus among urbanization, energy consumption, and economic growth in Jiangsu province China. *Emerging Markets Finance and Trade*. 2015;51(2):391–399. <https://doi.org/10.1080/1540496X.2015.1016840>

61. Turhan M.S., Arı Y. Organizational foundings, disbandings, and the COVID-19 pandemic: evidence from the Turkish construction sector. *Ekonomski vjesnik/Econviews – Review of Contemporary Business, Entrepreneurship and Economic Issues*. 2021;34(2):337–350. <https://doi.org/10.51680/ev.34.2.7>

Information about the author

Mustafa Alpin Gülşen – PhD in Public Finance, Assistant Professor, Faculty of Economics, Administrative and Social Sciences, Alanya Alaaddin Keykubat University (Kestel Street, 07450 Alanya/Antalya, Republic of Turkey); ORCID: <https://orcid.org/0000-0002-2860-4469>, e-mail: alpin.gulsen@alanya.edu.tr

For citation

Gülşen M.A. The Effect of Fiscal Policies on Business Cycles in Turkey. *Journal of Tax Reform*. 2022;8(3):218–235. <https://doi.org/10.15826/jtr.2022.8.3.118>

Article info

Received August 23, 2022; Revised September 12, 2022; Accepted October 22, 2022

Информация об авторе

Гюльшен Мустафа Альпин – PhD in Public Finance, доцент факультета экономики, административных и социальных наук, Университет Алааддина Кейкубата (Kestel Street, Анталия, 07450, Республика Турция); ORCID: <https://orcid.org/0000-0002-2860-4469>; e-mail: alpin.gulsen@alanya.edu.tr

Для цитирования

Gülşen M.A. The Effect of Fiscal Policies on Business Cycles in Turkey. *Journal of Tax Reform*. 2022;8(3):40–53. <https://doi.org/10.15826/jtr.2022.8.3.118>

Информация о статье

Дата поступления 23 августа 2022 г.; дата поступления после рецензирования 12 сентября 2022 г.; дата принятия к печати 22 октября 2022 г.