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The Growth Effect of the Expansionary Monetary and Fiscal Policies Applied in the Periods When the Economies Shrank: Developed and Developing Countries Cases

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Abstract

Expansionary policies are implemented in periods when economies shrink and are generally considered to have a positive effect on growth. However, the structural differences, development levels and basic growth dynamics of the economies are as decisive as the applied policy set and composition. In this study, the effects of expansionary monetary and fiscal policies applied in developed and developing countries during the economic recession on growth are examined, considering basic growth dynamics, and the short- and long-term outlooks are analyzed. To measure the effectiveness of expansionary policy in developed and developing countries, 55 developed and 55 developing countries are studied. For each monetary and fiscal policy, the 2007-2009 period applications are considered, while the effects of the main growth variables are examined during the 2007-2016 period. The system GMM method is used in the panel to see the reflections of policy effectiveness on growth in the 10 years. While the results reveal how structural differences in the two country groups affect the effectiveness of policies, they also show that monetary and fiscal policies have different effects on growth.

Keywords

Expansionary Monetary and Fiscal Policies, Growth, Developed and Developing Countries, Main Growth Dynamics

1. Introduction

The expansionary coordination of monetary and fiscal policies comes to the fore

when looking at exit strategies that need to be adopted once the gross domestic product (GDP) of economies shrinks. While such a policy set is used to revive economies that contract and slow down during existing crises, it is also thought to support growth. Monetary and fiscal policies are generally implemented separate authorities, however, their effects on growth should be examined holistically. In addition, policies and the main determinants of growth and the structural differences of countries should be analyzed together. Therefore, this study investigates whether the coordination of monetary and fiscal expansionary policies affects growth and their permanence with scope will be investigated multidimensionally. Similar to the growth dynamics of countries, the composition of the applied policy set and changes in the implementation method also affect the results. This study investigates the short- and long-term effectiveness of expansionary monetary and fiscal policy sets applied by shrinking economies in the context of countries' growth as a whole. The main growth dynamics of different country groups and their contributions to the effectiveness of policy sets are also examined.

Expansionary policy sets take the form of expansionary money and fiscal policies, expansionary money-tight fiscal policies, and tight money-expansionary fiscal policies. While these practices aim to revive economic activity in general, they are also applied to reverse the decline in growth. However, the diversity of policies, the fact that the directions of monetary and fiscal policies differ from country to country, and country-specific dynamics differentiate the effectiveness of these policies from their reflections on growth. The issue of growth, on the other hand, emerges as a field in itself in terms of its inclusiveness, direction, and permanence. For this reason, in this study, while the effect of expansionary monetary and fiscal policies on growth is examined, growth dynamics are also examined according to the country's level of development.

Although many papers have explored the growth effect of expansionary policies, many analyzed monetary and fiscal policies partially, and very few looked at growth dynamics, the development level of countries, and even short- and long-term effects jointly. In this study, present paper examines not only the growth effect of monetary or fiscal policy variables in shrinking periods but also the basic growth dynamics, structural differences of countries, and development levels in terms of growth, taking into account the short- and long-term effects. The main objective of this study was to evaluate the effects of the fiscal policy composition determined within the scope of the present analysis on growth, together and separately, as well as the expansionary monetary policies in periods when economies contracted, in addition to investigating the effects of basic growth dynamics, the effectiveness of which changes with structural differences, and the level of development on growth. Therefore, this study differs from other studies in that it offers a collective analysis.

In order to measure the effect of monetary and fiscal policies applied during periods of shrinkage of economies on growth, data from 110 countries covering

the period of 2007-2016 were collected. To better understand the reflection of policy sets implemented by countries according to structural differences, the country sets in this study are divided into developed and developing countries. Thus, the differences arising from the internal dynamics of countries are reduced as much as possible. Within the scope of the present analysis, policy sets are examined for 55 developed and 55 developing countries to determine the main growth dynamics and policy effects. In addition to the GDP growth within the scope of the analysis; 4 main growth variables, 4 monetary policy variables and 6 fiscal policy variables were used. In order to find the effect of the policy applied in the periods when the economies shrank, a general impact analysis was tried to be made by taking into account the policies of the 2007-2009 period, which are common to all countries. Within the scope of the analysis, the dynamic panel method was used to see both the effects of the variables in the previous year and the effects of the past and present variables with each other. To provide a better analysis of independent variables that are not completely exogenous, analyzes were made with the system GMM (generalized method of moments) estimator developed by Arellano and Bond (Arellano & Bond, 1991; Roodman, 2009; Roodman, 2014).

Within the results of the analysis, it is seen how the main growth variables shape the effectiveness of expansionary policies in developed and developing countries. In addition, the importance of initial inflation levels, which determine the effectiveness of pre-policy monetary and fiscal policies, becomes evident. Within the scope of the study, although the composition of fiscal policies and their collective effect in all countries are lacking, the importance of the same-sided policy mix in monetary policy has also been revealed.

In this study, as well as the analysis of the effectiveness of basic growth dynamics such as savings, investment and capital stock according to the level of development, the contribution of these variables to the effectiveness of expansionary policies has also been observed. It also includes recommendations for the effectiveness of fiscal policies. In addition, the effectiveness of the development level and initial inflation level of the countries as well as the monetary policy providing the same directional expansion were also questioned and the results were obtained.

Within the scope of the study, firstly, the literature was searched and the analyzes examining the effects of the policies implemented in the shrinking periods on growth and the reflection of the basic growth dynamics were investigated. In the following sections, how the research was designed, model selection and the data used are given in detail. In the continuation of the study, the effectiveness of monetary policy and fiscal policy variables are examined separately and together with the growth dynamics in order to see the policy effectiveness in developed and developing countries.

2. Literature Review

In this section, while scanning the literature, it has been aimed to include studies

that may have effects on the variables used in the analysis. For this reason, studies in which the effects of growth variables used in the analysis, monetary and fiscal policies on growth are examined separately or together. It is observed that studies looking at the integrated effect are limited. In this part of the study, articles discussing the effectiveness of expansionary monetary or fiscal policies, which are made together or separately, are included in the developed and developing countries. In some of them only fiscal policy and in others monetary policy were studied. However, studies that only look at basic growth dynamics are also included. When we look at the general outlook, it is observed that collective studies on monetary, fiscal policies, growth variables, inflation level and level of development, as made within the scope of this analysis, are limited. It can be said that generally only a part of these variables is studied, and the country sets are more limited in number. However, each study is beneficial because it contains a specific set of policies and time intervals. For this reason, each one is given a separate place.

There are studies that affect the developed and developing countries in different periods on the basis of aggregated country on the effect of basic growth variables on growth. For example, Barro (1999) makes no distinction between development, examined 113 countries consisting of Asian, Latin American, OECD and African countries in terms of their growth dynamics for the 1965-1995 period. Variables such as share of investment, increase in trade, in time spent at school, democracy index, openness to foreign countries support growth; concluded that government expenditures and inflation had a negative impact. Fischer (1992) also examined the factors affecting growth in African, Latin American and Caribbean countries over the period 1970-1985. He found that while investment, budget surplus, human resources and education infrastructure supported growth, inflation negatively affected it.

On the other hand, the data sets, countries and results used in studies for developing countries on the growth efficiency of basic growth dynamics differ. Dollar (1992) analyzed the main variables determining the growth of 121 developing countries in the 1796-1985 period with panel data. It has been found that openness of countries, increase in investment rates and technological development support growth faster. In addition, Asian countries are more open to foreign markets than African and Latin American countries and that the general level of prices in the country is lower. Knight et al. (1992) in 1960-1985 period work emphasized that the contribution of public infrastructure investments in developing countries to growth is more evident, and that growth is supported in open countries that use less quotas, etc. in trade. In addition, investing in physical capital has been found to be less effective in developing countries due to insufficient human capital and social infrastructure while increase in savings has a positive effect on growth. On the other hand, Hamilton and Monteagudo (1998) in the period 1960-1985, has been found that physical investments have a positive effect on growth, while population growth has a negative effect. While many

studies have focused on the impact of savings and investments in developing countries, some studies have emphasized that the inadequacy of these items has a negative impact on growth in developing countries. For example, Chang and Mendy (2012) examined the factors affecting growth in 36 African countries during the 1980-2009 period. The contribution of trade openness and investments to economic growth is positive; they found that total national savings and direct investments did not contribute to growth and had a negative effect. Adom and Elbahnasawy (2016) studied the effect of savings, investment and capital stock on growth in developing African countries. He emphasized that investments and capital stock in developing countries will be supported by high savings and the cost of using foreign resources will be less applied. They found that closing the savings-investment gap in developing countries would support growth. Mamingi (1997) examined the relationship between savings and investments in a set of 58 developing countries. It has been found that the conversion of savings to investments in developing countries is lower than in OECD countries. Among the developing countries, it has been analyzed that the rate of conversion of savings into investment is higher in countries with middle income group than countries with low-income group. Some studies also emphasized the capital stock effect on growth. For example, Qi (2007) revealed that capital investments are important for growth in developing countries, while the effect of foreign direct investments seems uncertain. According to Santiago et al. (2019), public and private capital stocks have a positive contribution to growth, but they also found that the public capital stock has an exclusionary effect on the private capital stock in the short run.

There are many studies that refer to the effectiveness of investments on growth in developed countries as well as in developing countries. For example, Bleaney et al. (2001) examined the main factors affecting growth in 22 OECD countries during the 1970-1995 period. It has been found that investments and productive expenditures have a significant contribution to economic growth. Açıkgöz and Mert (2014) also analyzed the growth dynamics of 3 Asian countries, including Taiwan, Korea and Hong Kong, for the 1951-2007 period. They found that investments have a significant effect on economic growth in both the short and long run, and technological development supports growth in the short run.

Although there are studies on the negative effect of inflation on growth, the research of Lopez-Villavicencio and Mignon (2011) is an important study since it also takes into account the level of development and the initial inflation level. They found that inflation negatively affects economic growth in a non-linear way; inflation rates in developed and developing countries have a negative impact on growth after different threshold values. In the study, it was analyzed that inflation, which is 17.5% in developing countries and above 17.5% in developed countries, started to affect growth more negatively. It is thought that indexation differences, exchange rate effects and high inflation rates may be effective here. It has been emphasized that the relationship between the increase in money

supply and inflation should be evaluated over the non-linear negative effect of inflation on growth.

Studies on the effectiveness of expansionary fiscal policies on growth differ according to the selected country groups, data set and periodical, while studies that differentiate to the level of development are quite limited. In many studies, the growth efficiency of fiscal expenditures is limited. In some studies, emphasis was placed on the composition of expenditure. For example, Stockhammer et al. (2019) investigated the effect of expansionary fiscal policies implemented in the 2008-2009 period on growth in Germany, America, Greece, Ireland, Italy, Portugal and Spain. Neutral effect of fiscal policies on growth in Germany, America and England; they found that it had a negative effect in Greece, Ireland, Italy, Portugal and Spain. In their study, Baldacci et al. (2014) emphasized that the debt level and the lack of fiscal space reduce the applicability of these policies, especially in developing countries, it is important to have stronger institutions, to eliminate political risks and to solve budget problems. For this reason, a weaker effect can be observed in developing countries. However, it has emerged that the composition of fiscal policies is also important and that the trade-off between short-term demand growth and productive growth in the medium-term will be determined by the short and medium-term effects of fiscal policies. IMF (2010) also emphasized that the intensity of public expenditures including product and service purchases, the existence of a flexible exchange rate regime, and the excess of foreign currency reserves before the economic contraction would increase the impact of fiscal policies in developing countries positively. Ilzetzki et al. (2011) have been observed that the effect of public expenditures on growth in developing countries is negative, a possible increase has an effect between 2 and 4 quarters and then becomes zero. It has been found that public expenditures do not support growth in open economies under flexible exchange rate regimes. If public expenditures are transferred to investment rather than consumption, especially in developing countries, it has a growth-oriented effect and the expenditure composition changes the result. Blanchard and Perotti (2002) also found that the effect of increasing tax and fiscal expenditures at the same time reduces investment expenditures. In some studies composition of fiscal stimuli also emphasized. For example, due to Spilimbergo et al. (2009), the effects of public expenditures will change depending on whether they are directed towards products and services, consumers and companies. According to the study, spending on products and services can provide a more effective multiplier effect. However, the importance of where the expenditure is made, resources and budget deficits come to the fore. Expenditures towards consumers are evaluated as expenditures aimed at compensating the loss due to credit constraints, uncertainty and depreciation of assets. It is expected that the effects of the transfers made here will be different according to the application differences. While it is seen that the incentives for the companies primarily support the companies that have cash shortages, credit problems and are on the verge of

bankruptcy in an environment of uncertainty, it remains unclear whether they will directly increase investments. On the other hand, it has been emphasized that the effects of the practices may vary from country to country.

Although there are many country and group-based studies on the effectiveness of expansionist monetary policy on growth, the reflection of monetary expansion and interest rate policies on growth varies. For this reason, country-based studies in developing countries were also examined. For example, in their study, Twinoburyo and Odhiambo (2016) found that monetary policy both for M3 and interest rate has no effect on growth in the short and long term in Kenya. They determined that one of the main reasons for this was the domestic funding of fiscal deficits. In India cases, Mishra et al. (2016) found also the reduction of interest rates did not have a significant effect on production and aggregate demand. Kashani and Lashkary (2011) investigated the 1959-2008 period for Iran and found that monetary expansion had no effect on real variables such as real economic growth, production and employment. On the other hand, Nouri and Samimi (2011) found that the increase in money supply supported growth for the 1974-2008 period. Some papers on Nigeria found changing results within different periods. For example, Fasanya et al. (2013) show that the increase in interest rates and money supply did not have a significant effect on growth while Ifionu and Akinpelumi (2015) found that the increase in money supply supported growth and an increase in the money supply at a level that would not cause an inflationary effect. In Pakistan cases, Chaudhry et al. (2012) analyzed that the expansion in the money supply (M2) is inflationary because it is above the target, and growth is supported by the interest and credit channels. Starr (2005) also examined the effect of monetary policy variables on growth, including the policy rate and money supply, from the 1995-2003 period data set including Russia, Ukraine, Kazakhstan and Belarus. According to the results, the effect of monetary policy on growth is higher in Russia and weaker in other countries. It is emphasized that the effect is more pronounced in closed and large countries, and less effective in small and open economies. In some studies, it is also emphasized that inflationary effect dominated monetary policy. For example, in Egyptian case, Moursi et al. (2007) found that the long-term effect of monetary policy on growth remained weak and the inflationary effect emerged. For this reason, they advocate rule-based policies.

Although there are country-based and group-based examples in studies where the effectiveness of monetary and fiscal policies are studied together, it is seen that monetary policy is more pro-growth in most of the results. For example, some specific developing country cases like Ghana (Havi & Enu, 2014) and South Africa (Ndou & Mokoena, 2019) emphasized that monetary policy was more decisive, while the public expenditures had a double-sided effect and low inflation, and low economic uncertainty is necessary. One developed country study for USA also (Senbet, 2011) reveals the same results, as monetary policy is more effective on growth than fiscal policy. In developing country cases, it is also

evident that monetary policy impact is relatively seem low and fiscal policy has no positive effect on growth. For example, Agenor et al. (2000) for developing countries found that a positive but not very strong relationship between monetary variables and growth and a significant effect on the fluctuation of growth with real interest rates. The ratio of public expenditures to incomes was found to have a negative correlation with growth.

In general, many studies have focused on the fact that developed countries can implement a pro-growth monetary policy, but the fiscal policy is insufficient. For example, Silva and Vierira (2017) evaluated the effects of monetary and fiscal policies before and after the crisis with the system GMM panel analysis covering the 2001-2008 and 2009-2012 periods in 113 developed and developing countries. They found that in the pre-crisis policies, only the monetary policy was implemented in the opposite direction of the economic cycle, while the fiscal policy was implemented in the same direction. It has been observed that the post-crisis monetary policy stopped intervening in the output gap, especially with the interest rates approaching zero in developed countries, and preferred unconventional monetary policy. No relationship was found between the post-crisis output gap and government expenditures. Mitreska et al. (2010) also investigated the changes and effects of the monetary and fiscal policies of 61 developed and developing countries before and after the crisis in the 2000-2009 period. Developed countries are able to close the growth gap more aggressively; on the other hand, it has been found that the effects of monetary and fiscal policies in countries with high current account deficit and indebtedness are limited.

3. Research Design

In order to measure the effect of monetary and fiscal policies applied during periods of shrinkage of economies on growth, data from 110 countries covering the period of 2007-2016 were collected. In addition to the GDP growth within the scope of the analysis; 4 main growth variables, 4 monetary policy variables and 6 fiscal policy variables were used. In order to find the effect of the policy applied in the periods when the economies shrank, a general impact analysis was tried to be made by taking into account the policies of the 2007-2009 period, which are common to all countries. For this reason, for each policy variable, dummy variables were determined for these periods and only the policy effects of the shrinking period were analyzed. However, in order to decompose the effects of structural differences and level of development in countries, countries were further analyzed by dividing them into 55 developed countries and 55 developing countries. Thus, it has been tried to see the effects of basic growth dynamics and each policy effect in different group country categories.

Within the scope of the analysis, the dynamic panel method was used to see both the effects of the variables in the previous year and the effects of the past and present variables with each other. In order to provide a better analysis of independent variables that are not completely exogenous, analyzes were made

with the system GMM (generalized method of moments) estimator developed by Arellano and Bond (Arellano & Bond, 1991). There are many reasons why the Arellano and Bond dynamic panel estimator is preferred (Arellano & Bond, 1991). In studies that are likely to have an effect on the lags of the dependent variable in the panel data, putting these data as explanatory variables creates an endogeneity problem since it will cause the correlation of these variables with the error terms. For this reason, using OLS-ordinary least square estimators causes inconsistent results. In this case, the Arellano Bond estimator is recommended as a solution for panels with high N variables and short time dimension. On the other hand, for long panels, mean group estimator, pool mean group estimator and common correlated effects mean group estimator which also includes panel unit root and cointegration tests estimators are suggested. For this reason, the Arellano Bond estimator, which is used as a dynamic panel method, is suitable for models where the time dimension t does not exceed 10 periods and the number of n observations is at least 55. On the other hand, the relationship of dynamic variables with past realizations can be examined. It takes into account that the independent variables may also be related to the error terms of their past and present realizations, that is, they can also observe the case of not being completely exogenous. In addition, in case of heterogeneity in the data, the GMM method is an ideal method. It provides the most efficient estimation by using orthogonality conditions in case of heterogeneity, that is, changing variance. In addition to the heterogeneity problem, it is a preferred method because it provides a solution to the autocorrelation situation (Roodman, 2009). It is recommended to add dummy variables including time variables to the model in order to provide the assumption that there is no autocorrelation between cross-sections in the coefficients of the standard errors of the autocorrelation test and the robust estimators. For this reason, time dummy variables were added to the analysis for each year.

It is recommended that Sargan and Hansen tests be performed together to check the model and estimator accuracy of GMM model (Sargan, 1958; Hansen, 1982; Hansen et al., 1996). These tests are used in case the established model excludes explanatory variables or to test how valid the model is. Sargan tests the validity of the variables used in the model and evaluates the model as a whole. The Ho hypothesis of the Sargan test accepts that all variables in the model are valid. If the probability value in the model result is greater than 0.05, the Ho hypothesis is accepted and the variables used in the model are valid. In the opposite case, it is thought that there is over-identification in the model and the variables are not valid. The fact that the probability value is very close to 1 in the Sargan test causes the rejection of the Ho hypothesis, since it shows that asymptotic features are revealed. The Ho hypothesis of the Hansen test accepts that all variables are valid. It is recommended that the optimum probability value is between 0.1 and 0.25. It is stated that it will not be considered very valid between 0.4 and 0.9, and if it is above 0.9, the model should be

completely rejected (Roodman, 2009).

Another point to check in GMM estimators is that there is no autocorrelation in the error terms. As a result of the test, it is possible to measure whether there is AR (1) and AR (2) type autocorrelation. If the probability values are greater than 0.05, the validity of the Ho hypothesis, which accepts that there is no autocorrelation, is confirmed. The possibility of AR (1) type autocorrelation is predictable in the models, and the absence of AR (2) type autocorrelation is required for validity (Roodman, 2009; Roodman, 2014; Labra & Torrecillas, 2018).

4. Model

Within the scope of the research, countries were classified as developed and developing countries and the effects of monetary-fiscal policies were tried to be seen collectively. In this context, the results were tested on 4 different models for developed countries and 3 different models for developing countries. Another advantage of Arrellano-Bond GMM estimators is that they allow variables to be defined as endogenous, exogenous, fully exogenous, or predetermined. If the past period realizations of the data have an effect at t time, the data are considered endogenous. In this study, previous period growth data, basic growth variables (investment, savings, capital stock, human capital) and inflation are taken as endogenous variables. If the realizations at time t are thought to be effective only in the next period, the data are taken as predetermined. All policy variables with a dummy variable assigned in the model are defined in this way. On the other hand, time dummy variables were defined as completely exogenous.

It is possible to summarize the general structure of 9 different models defined according to each group and collective country data with model-1. Here, Y_{it} is the GDP growth at time t for country i, $\sum_1^n Y_i(t-n)$ is the sum of different periods of growth up to t-n time for each country, x_{it} is the vector of different lags of each explanatory variable $\beta(L)$, γ_t denotes the time effect for all countries, ε_{it} the error term for each country and time dimension.

$$Y_{it} = \alpha_1 \sum_1^n Y_i(t-n) + \beta(L) x_{it} + \gamma_t + \varepsilon_{it} \qquad (1)$$

In this context, each model is designed to see the effects of the variables, either together or separately, in the policy sets. In some models, the effects were tried to be observed by adding the variables gradually. All models were subjected to both Sargan and Hansen tests and both were significant. The models also passed autocorrelation tests (Sargan, 1958; Hansen, 1982; Hansen et al., 1996).

5. Data Set Used in the Research

Within the scope of the research, 12 different variables were used. Of these, 4 are basic growth variables, 4 are monetary realization data, and 3 are fiscal policy variables. Table 1 shows the variables.

Table 1. Data set and definitions.

Dependent Variable	Definition
Growth	Growth is calculated using real GDP data defined at constant national prices.

Independent Variables	Definition
Growth	Previous period realizations of growth
Capitalstock/GDP	Share of capital stock in GDP
Investment/GDP	The ratio of investments to GDP is expressed as a ratio of total investment in current local currency and GDP in current local currency. Investment or gross capital formation is measured as the total value of the gross fixed capital formation for a unit or industry and changes in inventories and acquisitions less the disposal of valuable assets.
Human Capital	Human capital index based on duration of education and return to education
Saving/GDP	Gross national saving, gross disposable income, minus final consumption expenditures, after taking into account an adjustment for pension funds, as a ratio of GDP
Interest	Central banks main policy interest rates
M1/GDP	Total money in circulation and demand deposits
M3/GDP	M1 + time deposits, funds from repo, money market funds, securities issued
Inflation	Change of consumer price index compared to the previous year (2010)
General Expenditure/GDP	Sum of employee expenditures, subsidies and social expenditures. Employee expenditure; Payments to employees; (cash wages and salaries, wages and salaries in kind, and employers' social contributions). Subvention; subsidies, grants and other social benefits, all unrequited, non-refundable transfers to private and public institutions on current accounts; grants to foreign governments, international organizations and other government agencies, and social security, social benefits and employer benefits in cash and in kind. Social expenditure; social contributions to households, employers and the self-employed, actual or accrued contributions to social insurance programs run by governments are also in this group
Income Tax	Effective income tax ratio
Corporation Tax	Announced corporate tax rates

6. Results

6.1. Analysis of the Effects of Monetary and Fiscal Policies on Growth in Developed Countries

In present analysis, first, the common variables affecting the basic growth in the data series of 55 developed countries and the effect of policies were examined. Model trials comprising different combinations of basic growth variables (previous growth, capital stock, human capital, savings, and investment), inflation, and monetary and fiscal policy variables were conducted. The period within the scope of the analysis encompassed the period 2007-2016, and the main growth variables and inflation items also covered this period. However, for the measurement of expansionary policy effects, the policies of the period 2007-2009,

when economic shrinkage was experienced, were determined with dummy variables, and the policy effects on growth were measured. Four different datasets were studied to measure the effects of monetary and fiscal policies on growth. In this context, four models were studied: one model (GMB1) to determine the effect of the main growth variables, two models (GP1-GP2) to elucidate the effect of monetary policy, and one model (GM1) to elucidate the effect of fiscal policy.

Each model's findings can be summarized (see Table 2) can be summarized as follows:

- In the first model, the main growth dynamics that determine growth in developed countries and the effects of inflation were examined together (GMB1). As a result of the model, investment, capital stock and inflationary effect were observed in the short run. However, the main contributor to growth in the long run comes from investment, whereas a change in capital stock does not support it. The negative inflationary effect disappears in the long term.

- In the second and third models, the effect of the monetary policy was gradually determined. In the second model (GP1), to observe the mainly interest-based growth, previous growth, inflation, and interest effects were included. In the third model (GP2), the monetary expansion variables M1 and M3 were added to expand the analysis. The results show that the effects of inflation, interest, and increases in M1 and M3 on growth can be observed in the short term. While interest-based growth can be observed in the short term, monetary variables appear to have a two-sided effect. However, interest-based growth is also significant in the long run and monetary expansion items lose their influence on growth. As expected, inflation negatively affects growth in both the short and long run. However, although growth was supported by the growth and interest rate policies of the previous period, the inflationary effect remained relatively low (Table 2, Table 3).

- In the fourth model, the effects of fiscal policies on growth were observed. In this model, the previous growth variable, inflation, general expenditure item, and tax rates were used for fiscal policies. The model showed that growth stems from previous growth realizations in the short run, while the effect of general expenditure items on growth is negative. Looking at the long-term effects, growth is supported by the growth dynamics of the previous period again, and the general expenditure items are the same as in the short run. No significant effect was observed between changes in tax rates and growth (Table 2, Table 3).

The developed country analysis reveals that the main determinants of growth within the main growth variables are the increment of the investment. In addition, the previous period's growth is reflected positively, which means that a country's structural stigma is a supporting factor for growth. However, the increase in investment remains relatively low from both short- and long-term perspectives. By contrast, a change in capital stock has a negative impact on growth.

Table 2. Policy impact in developed countries collective model results.

Variables	Model 1 (GMB1)	Model 2 (GP1)	Model 3 (GP2)	Model 4 (GM1)	Variables	Long Run Effects (Model 1-4)	Long Run Policy Direction
	Growth	Growth	Growth	Growth			
L. Growth	0.118 (0.609)	0.126 (0.435)	0.396*** (0.00)	0.354*** (0.00)	Growth	– –	Significant
L2. Growth	0.0433 (0.738)	0.0233 (0.883)	−0.258 (0.105)	−0.0782 (0.423)		0.46 (0.01) 0.48 (0.02)	
Investment	0.449* (0.025)					0.53 (0.09)	
L. Investment	−0.450 (0.109)				Interest		Positive Effect
L2. Investment	−0.218 (0.401)						
HumanCapital	−297.5 (0.179)						
L. HumanCapital	640.6 (0.141)				Human Capital	–	Insignificant
L2. HumanCapital	−347.1 (0.106)						
Saving	0.143 (0.120)						
L. Saving	−0.0644 (0.520)				Saving	–	
L2. Saving	−0.0033 (0.972)						
CapitalStock	−0.0231 (0.071)					−0.02 (0.05)	
L. CapitalStock	0.0206 (0.284)				Capital Stock		Negative Effect
L2. CapitalStock	−0.0018 (0.902)						
Inflation	0.294 (0.376)	−0.224 (0.495)	−0.266 (0.366)			–	
L. Inflation	−0.250 (0.177)	−0.106 (0.607)	0.102 (0.594)	−0.104 (0.473)	Inflation	−0.21 (0.06)	Negative Effect
L2. Inflation	0.0064 (0.958)	−0.179 (0.079)	−0.119 (0.489)	0.0293 (0.787)		–	

Continued

	A	B	C	Variable	Value	Effect
L3. Inflation			0.131 (0.504)	Inflation	−	Negative Effect
Interest	0.915* (0.030)	0.0459 (0.928)				
L. Interest	−1.238 (0.075)	0.210 (0.796)		Interest	1.24 (0.01)	Positive Effect
L2. Interest	1.378* (0.037)	−0.198 (0.825)			−	
M1			0.0271 (0.568)			
L. M1			0.465* (0.021)	M1	−0.05 (0.2)	Positive Effect
L2. M1			−0.513* (0.026)			
M3			−0.0214 (0.245)			
L. M3			−0.142* (0.034)	M3		Insignificant
L2. M3			0.152* (0.027)		0.01 (0.3)	
L. General Expenditure			−0.0899 (0.620)			
L2. General Expenditure			0.286 (0.228)	General Expenditure		Negative Effect
L3. General Expenditure			−0.255** (0.003)		−0.3 (0.002)	
L. Corporate Tax			0.0969 (0.213)	Corporate Tax	−	Insignificant
L. Income Tax			0.0093 (0.830)	Income Tax	−	Insignificant

Continued

N	440	440	440	385
Sargan	0.266 (28.95)	0.126 (13.9)	0.194 (12.36)	0.101 (9.20)
Hansen	0.215 (30.26)	0.110 (14.4)	0.111 (14.32)	0.363 (5.46)
Number of Inst.	50	25	31	22
AR(1)	0.033	0.020	0.053	0.004
AR(2)	0.104	0.074	0.565	0.506

Note: Values in brackets are p values.*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, year fixed effects are used in the model.

Table 3. Model results of short- and long-run impact on growth in developed countries.

	Model	Short Run	Long Run	Long Run Total Effect	Variables, Effect and Consequence
Growth	GMB1	L1. 0.11 (0.6) L2. 0.04 (0.7)	-	0.5 (0.11)	Growth variables, inflation Long-run investment and capital stock effect
	GP1	L1. 0.12 (0.4) L2. 0.02 (0.8)	-	1.03 (0.02)*	Growth, inflation, interest Inflation and interest rate effects in the long run
	GP2	L1. 0.39 (0.0)*** L2. -0.25 (0.1)	0.46 (0.01)*	0.41 (0.04)*	Growth, inflation, interest, M1 and M3 variables In the long run, the former growth effect
	GM1	L1. 0.3 (0.0)*** L2. −0.07 (0.4)	0.48 (0.02)*	0.13 (0.5)	Growth, inflation, general spending, taxes In the long run, previous growth, overall general expenditure effect

Note: Values in brackets are p values.*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

The analysis results of monetary policies show that the expansionary interest rate implemented during the shrinking period supported growth; however, the expansion of money supply had a double-sided effect in the short term, and this effect also faded in the long term.

Fiscal policy measures of growth reflected that the increase in general expenditure items, including employee expenditures, incentives, and social expenditures, is not pro-growth. It can be assumed that the expenditures made in this period are used to protect the existing environment, instead of for production and investment. In addition, these results may indicate that this expenditure composition is insufficient to support growth during the shrinking period. Considering the results of the change in tax rates, there is no significant relationship between the change in tax rates and growth.

When expansionary policies are included, the net inflationary results negatively affect growth in both the short and long terms. However, when the net ef-

fect of policies is analyzed, it is clear that the level of inflation is not high enough to reduce growth to a negative level or neutralize the policy effect.

6.2. Analysis of the Effects of Monetary and Fiscal Policies on Growth in Developing Countries

The developing-country dataset consists of 55 countries. Three different datasets are used to measure the effects of monetary and fiscal policies on growth. The model trials consisted of different combinations of basic growth variables (previous growth, capital stock, human capital, savings, and investment), inflation, and monetary and fiscal policy variables. Policy implementations for the 2007-2009 period was defined using dummy variables. In this context, the main growth variables were tested in the first model (GOB1), the monetary policy effect was examined in the second model (GOP2), and the fiscal policy effect was examined in the third model (GOM3)

Each model's findings can be summarized as follows:

- In the first model (Model 1-GOB1), the main growth variables and growth dynamics in developing countries were examined. The analysis shows that investments have a positive effect on growth in the short term, whereas capital stocks and savings have a negative effect. The results of the long-term analysis revealed that growth was supported by the growth of the previous period; the decrease in savings had a negative impact on growth, and the effect of capital stock and investment remained meaningless in the long run. The results show that investments are insufficient in developing countries and that decreasing savings negatively affects growth (Table 4, Table 5).

- In the second model (Model 2-GOP2), monetary policy variables were analyzed together with growth variables. In this model, savings were observed to have a negative effect. However, it was revealed that growth is supported by expansionary interest policies, both in the short and long terms, and that the effect of money supply expansion is not significant. The impact of inflation on growth can also be clearly observed in the long run. Considering the net effect, it was found that long-term growth is meaningless. In addition, the inflationary effect and decreasing savings are determinants of growth (Table 4, Table 5).

- In the third model (Model3-GOM3), the effect of fiscal policy was observed. In this model, the previous period's growth supports growth in the short and long term, while general expenditures and inflation negatively affect growth. The model results reveal that falling corporate tax rates negatively affect growth in the short term, even with a very low probability, whereas income tax rates support this. In the long run, while the corporate tax effect disappears, income tax reductions have a lower probability in the long run and have a positive effect on growth. The contribution of income tax to growth may be explained by supporting the labor force and labor productivity, and the demand-increasing effect is more evident at relatively lower income levels in developing countries (Table 4, Table 5).

Table 4. Policy impact in developed countries collective model results.

Variables	Model 1 (GOB1)	Model 2 (GOP2)	Model 3 (GOM3)	Variables	Long Run Effects (Model 1, 2, 3)	Long Run Policy Direction
	Growth	Growth	Growth			
L. Growth	0.327** (0.009)	0.213 (0.053)	0.331*** (0.00)		0.5 (0.08)	
L2. Growth	0.0538 (0.219)	0.0626 (0.676)	0.0625 (0.410)	Growth	0.2 (0.18)	Significant
L3. Growth			0.190*** (0.00)		1.25 (0.003)	
L. Investment	−0.734** (0.007)	0.0998 (0.512)	0.104 (0.485)		0.21 (0.5)	
L2. Investmnt	0.0521 (0.698)	−0.111 (0.178)	−0.115 (0.264)	Investment	−	Insignificant
L3. Investment		0.0107 (0.855)				
Investment	0.867*** (0.00)				−	
L. HumanCapital	−21.92 (0.971)	−2.831 (0.958)	−20.53 (0.482)		−	
L2. HumanCapital	−15.66 (0.962)	23.15 (0.791)	24.27 (0.429)	Human Capital	−	Insignificant
L3. HumanCapital		−22.23 (0.592)				
HumanCapital	32.78 (0.910)				−	
L. Saving	−0.0941 (0.688)	0.258 (0.346)	0.0249 (0.894)		−0.20 (0.05)	
L2. Saving	−0.129 (0.051)	−0.0233 (0.705)	−0.0194 (0.744)	Saving	−0.42 (0.14)	Negative Effect
Saving	−0.089 (0.660)	−0.305 (0.095)			−	
L. CapitalStock	0.0791 (0.098)	0.0014 (0.897)	0.0073 (0.565)		0.02 (0.4)	
L2. CapitalStock	−0.0307 (0.138)	0.0201 (0.118)	0.0033 (0.683)	Capital Stock	−	Insignificant
L3. CapitalStock		−0.0124 (0.221)				
CapitalStock	−0.0616* (0.047)				0.02 (0.4)	

Continued

L. Inflation	−0.182* (0.021)	−0.199* (0.044)			
L2. Inflation	−0.0116 (0.881)	0.0109 (0.910)	Inflation	−0.25 (0.01)	Negative Effect
L3. Inflation	0.0409 (0.546)			−0.4 (0.02)	
L. Interest	−0.279 (0.100)				
L2. Interest	−0.140 (0.332)		Interest	0.29 (0.03)	Positive Effect
L3. Interest	0.213*** (0.003)				
L. M1	0.0024 (0.984)				
L2. M1	−0.116 (0.411)		M1	−	Insignificant
L3. M1	0.113 (0.336)				
L. M3	−0.026 (0.579)				
L2. M3	0.0098 (0.868)		M3	−	Insignificant
L3. M3	−0.0150 (0.549)				
L. General Expenditure		0.127 (0.259)	General Expenditure		Insignificant
L2. General Expenditure		−0.167 (0.093)		0.30 (0.26)	
L. Corporate Tax		−0.538 (0.098)	Corporate Tax		Insignificant
L2. Corporate Tax		0.350 (0.299)		−1.29 (0.11)	
L. Income Tax		0.359* (0.049)	Income Tax		Positive Effect
L2. Income Tax		−0.259 (0.144)		0.86 (0.07)	

Continued

N	440	385	385
Sargan	0.094 (35.88)	0.152 (25.27)	0.115 (27.78)
Hansen	0.221 (31.20)	0.299 (21.70)	0.298 (22.80)
Number of Inst.	55	52	46
AR(1)	0.008	0.002	0.001
AR(2)	0.622	0.502	0.578

Note: Values in brackets are p values.*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, year fixed effects are used in the model.

Table 5. Model results of short- and long-run impact on growth in developing countries.

	Model	Short Run	Long Run	Long Run Total Effect	Variables, Effect and Consequence
Growth	GOB1	L0. 0.32 (0.009) L1. 0.05 (0.21)	0.5 (0.08)	0.56 (0.06)	*Growth variables* In the long run, the previous growth, saving effect is significant.
	G0P2	L1. 0.21 (0.05) L2. 0.06 (0.6)	0.2 (0.18)	0.04 (0.77)	*Growth, inflation, interest, M1, M3* Inflation and interest rate effects are significant in the long run.
	GOM3	L1. 0.33 (0.0) L2 .0.06 (0.4) L3. 0.19 (0.0)	1.25** (0.003)	−0.05 (0.9)	*Growth, inflation, general expenditure, tax rates* In the long run, the effect of previous growth, inflation, income tax is significant.

Note: Values in brackets are p values.*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Examining the effects of the variables obtained from the model results reveals that previous growth realizations and short-term investments support growth. On the other hand, monetary policy contributions come from expansionary interest policies, and decreasing income tax has a positive effect on growth.

The inflationary effect was also revealed in the models in which the implemented monetary and fiscal policies were analyzed (GOP2-GOM3). Looking at the long-term changes in the models, inflation and low savings levels change the direction of growth with a more pronounced effect than expansionary policies. The impact of investment on growth persists in the short term. Therefore, although long-term growth is supported by the previous growth effect in all three models, the reflection of aggregated policies on growth is more uncertain in the long run. In the first model, in which policies are excluded from the analysis, while long-term collective growth has a positive outlook, it can be observed that the reflection on growth is more neutral, since the effects of the policies implemented in the recessionary periods are two-sided (Table 4).

The growth dynamics and policy analyses of developing countries can be

summarized as follows. Growth is supported by the growth in the previous period, which may reflect structural stigma. Investment realizations have contributed to growth in the short run but are meaningless in the long run. On the other hand, since there is a significant decline in savings in developing countries, negative reflections on growth in both the short and long terms are also seen in the model. Although there is a large body of literature showing that savings cause growth and growth will lead to savings, in particular, the growth-saving trade-off, there are also studies showing that low saving rates in developing countries negatively affect growth. While the importance of high savings rates on growth is emphasized, especially for long-term growth, as well as the support of investments, the negative reflection of decreasing savings rates in developing countries on sustainable growth is also within expectations (Modigliani, 1970; Maddison, 1992, Bosworth, 1993; Carroll & Weil, 1994; Schmidt-Hebbel & Serven, 1997; Hamilton & Clemens, 1999; Öztürk, 2021; Loayza & Habbel, 2020; Güriş & Özkaya, 2019; Sağır, 2020). The model reveals that the capital stock has a two-way effect on growth in the short run and is meaningless in the long run.

Among the policies implemented during the contraction period, only the interest rate policy within expansionary monetary policy applications supported growth in both the short and long terms. It is possible that the effect of the interest rate policy was a determinant of the relatively increasing investments after this period. Money supply expansion was also revealed as not being directly reflected in growth in both the short and long runs.

On the other hand, when expansionary fiscal policies are examined, an increase in general expenditures does not contribute to growth. When the decline in tax rates is also analyzed, only income tax-driven growth is supported. It can be said that relatively lower-income developing countries are supported more by tax reductions. For this reason, it can be assumed that the additional income increase from this factor affects the total demand more. Encouraging a productive workforce may also positively affect growth. Along with all the policies, the inflationary effect also reduces growth. A reduction in corporate tax rates is not directly related to growth. It can also be observed that the tax reduction did not directly reflect the investment decisions of the institutions, and therefore, on growth in this period, but only as a cost-reducing policy for the institutions. In contrast to developed countries, the model results reveal that a higher current inflation level and an increase in the long-term outlook of developing countries reduce policy effectiveness.

7. Discussion

The analysis results are summarized in Table 6. When the basic growth dynamics are examined, it is observed that the investments in the developing countries are not sufficient to support growth in the long term, and the effect of the capital stock may change. The declining savings in developing countries, on the other hand, negatively affected growth. These results are also compatible with the literature examining the growth efficiency of basic growth dynamics (Mamingi, 1997; Barro, 1999; Qi, 2007; Adom & Elbahnasawy, 2016).

Table 6. Table type styles (Table caption is indispensable).

	Time	Main Growth Variables						Monetary Policy			Fiscal Policy		
		Previous Growth	Interest	Saving	Capital Stock	Human Resource	Inflation	Interest	M1	M3	General Expenditure	Income Tax	Corporate Tax
Developed Countries	Short Run	√ (+)	√ (+)	.	√ (−)	.	√ (−)	√ (+)	√ (−/+)	√ (−/+)	√ (−)	.	.
Developing Countries	Short Run	√ (+)	√ (+)	√ (−)	√ (+/−)	.	√ (−)	√ (+)	.	.	√ (−)	√ (+)	√ (−)
Developed Countries	Long Run	√ (+)	√ (+)	.	√ (−)	.	√ (−)	√ (+)	.	.	√ (−)	.	.
Developing Countries	Long Run	√ (+)	.	√ (−)	.	.	√ (−)	√ (+)	.	.	√ (−)	√ (+)	.

Expansionary monetary policies in the shrinking period resulted in one common effect. It is clear that the expansionary monetary policy made through the interest channel supports growth in all country groups. On the other hand, the increase in money supply has a two-way effect on growth only in developed countries in the short term. In other words, although the increase in money supply seems to affect growth positively in the short term, especially in developed countries, its effect disappears in the long run. In developing countries, however, the increase in money supply has not been found to be related to growth. In most of the studies in the literature, it has been concluded that money supply increases in developing countries are not pro-growth. For this reason, the results were also compatible with the literature. It is observed that the level of inflation is also a determining factor here. From this point of view, although it is not possible to say that money supply increases directly support growth, it can be said that where the resources are transferred becomes important. While the results of the analysis show that the expansion of money supply does not support long-term growth, the inflationary effect became evident both in the short run and the long run. The short-term and uncertain effect of money supply increases on growth also highlights the debates on the effectiveness of the monetary aggregates. The model results may also indicate that the increased money supply does not have a direct and long-term effect and that the demand for credit and investment do not increase at the same rate. It also suggests that no matter how much the money supply is increased, the demand in the system will determine the net effect of the money supply. The fact that there is an inflationary effect in the analysis made specifically for monetary expansion in the model may indicate

that money supply increases on demand have a short-term and uncertain effect on growth, as well as the inflationary effect. Looking at the details of the model, it is possible to say that the net effect of expansionary monetary policies on growth is more positive in developed countries, while it is more limited in developing countries due to problems such as higher inflation and decreasing savings.

When the fiscal policies of the shrinking period are analyzed, it is evident that the general expenditures do not directly support growth in all country groups. It is also known that composition is as important as the implemented fiscal policies. When we look at the general outlook, it is concluded that the expenditures made in this period are not sufficient to support growth by increasing the total expenditures on the demand side. There are also many findings in the literature section that show that expansionary fiscal policies are not pro-growth. The results are seen in the same direction with the literature. In addition, tax policies are also revealed that the total effect of the decrease in income and corporate tax rates does not support growth. Here, it is observed that the proportional decrease in corporate tax is a cost-reducing factor for institutions but does not contribute to direct investments or growth. Reducing income tax rates did not appear to be pro-growth in the analyses in which developed countries were evaluated collectively. On the other hand, it is possible to explain the positive effect of income tax rates on growth in developing countries as a result of the fact that, contrary to the general trend, individuals with relatively lower income levels and high consumption tendencies in these countries are better supported by their incomes compared to developed countries and are directly increasing demand. It is also possible that the income tax rate reduction policies implemented in developing countries may be more selective and aimed at lower incomes. For this reason, it is seen as a supporting factor in the aggregate demand in developing countries from the results of the analysis. It should also be taken into account that fiscal policies should be evaluated in terms of expenditures and sub-items, and that the results may differ on the basis of countries. It is known that the expenditure composition of countries varies and the resources allocated also differ. In some countries, expenditures remained quite limited due to budget limits. It has also been revealed that the collective effect of the general expenditures consisting of incentives, social expenditures and personnel expenditures, which are the expansionary policy items examined within the scope of the analysis, is not at a level that will increase the total demand. In other words, the expenditure items subject to the analysis made in the shrinking periods were insufficient to increase the total demand, and the incentives in this period were not pro-growth.

8. Conclusion and Policy Recommendations

This study analyzes the period 2007-2016 in 110 countries to measure the effects of the expansionary monetary and fiscal policies applied in periods when econ-

omies shrank. Within the scope of this analysis, 55 developed and 55 developing countries were examined. To analyze growth, basic growth dynamics and expansionary monetary and fiscal policy variables were used as independent variables. For all countries, the common period of 2007-2009 was used to investigate the impact of expansionary policies on growth in both the short and long terms.

A panel data analysis was performed using Arellano-Bond GMM estimators, and the findings were examined using different models. While the main growth variables are investments, human capital, savings, and capital stock; policy interest, M1 and M3 money supply items, inflation, public expenditures (consisting of incentives, employee expenditures, and social expenditures), income, and corporate tax rates are added to the fiscal policy instruments.

The results of the analysis show that expansionary policies differ according to a country's development level, and their short- and long-term effects can also vary. Among the basic growth dynamics, the fact that the investment item is a determinant of growth in both groups also shows that transferring expenditures to direct investments in these periods supports long-term growth. However, this also shows that the policies in developing countries cannot maintain a long-term increase in investment. The long-term increase in investments in developed countries also reflects that the contribution to growth through this channel is much greater than the negative effect of inflation. These results are also in line with the literature, which argues that the inflation-growth trade-off will be lower if expansionary policies support investment. The lower initial inflation level of developed countries compared to developing countries also increases the effectiveness of expansionary policies. The fact that the effectiveness of policies supporting growth in the models is higher than the negative impact of inflation on growth in developed countries also supports approaches that consider initial inflation levels. Therefore, the importance of the initial inflation level in the effectiveness of expansionary policies is also highlighted. The importance of countries' savings levels for long-term growth is also reflected in the results of the analysis. Decreasing savings over the years, especially in developing countries, has negatively affected the long-term effectiveness of policies. For this reason, the importance of the initial inflation level and the long-term inflation trend, as well as the investment and savings levels, in ensuring sustainable growth with policies implemented during periods of shrinking economies is revealed in the models.

Considering the integrated effect, the fact that the expenditure items examined within the scope of the fiscal policy analysis are not pro-growth can also be explained by the fact that they cannot be applied in the same direction as the monetary policy. Although monetary policy instruments diversified, they aimed to support growth by targeting interest rate cuts and monetary expansion. Therefore, it was revealed that interest rate cuts are in the same direction and pro-growth in all analyses conducted collectively. However, increasing the money supply can only be effective in the short run and will not directly lead to

growth in the long run. It is also known that in expansionary fiscal policies, countries do not transfer resources to the supply or demand sides at the same rate, and there is no uniformity in policies. This result was also reflected in the analyses, and it was observed that expenditures could not support growth directly through demand or supply channels. From this perspective, one recommendation is that the resources transferred to expand direct investments in fiscal policies and methods that directly increase basic consumption would be more pro-growth. Otherwise, incentives and corporate tax cuts are not pro-growth, which can be explained by the weak investment appetites in these periods. In developing countries, income tax reductions support growth with a direct demand-increasing effect. Making an income tax exemption for the segment with a higher consumption tendency would be pro-growth. Therefore, the relatively higher consumption trend in developing countries supported growth, as income tax reductions shifted directly to consumption. As a result, the investigated models explain that the level of development, initial level of variables, and structural factors are determinants of growth.

In summary, the results show that the effects of basic growth dynamics and policies on growth differ according to the level of development and are shaped by structural factors and initial inflation levels. While the analyzed countries show that monetary policy progresses more uniformly, country dynamics and budget limits in fiscal policy also change policy composition. For this reason, when the aggregated results are considered, monetary policy and expansionary interest policies are pro-growth, whereas demand-increasing and supply side incentives, which are among the expenditure items examined at the fiscal policy level, are insufficient. Therefore, it can be recommended that expenditures that increase direct investments and consumption in fiscal policies would be more pro-growth.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Açıkgöz, S., & Mert, M. (2014). Sources of Growth Revisited: The Importance of the Nature of Technological Progress. *Journal of Applied Economics, 17,* 31-62. https://doi.org/10.1016/S1514-0326(14)60002-7

Adom, A. D., & Elbahnasawy, N. G. (2016). Saving-Investment Gap and Economic Growth in Developing Countries: Simulated Evidence from Selected Countries in Africa. *London Review of Education and Science, 1,* 89-105.

Agenor, P. R., Dermott, C. J., & Prasad, E. S. (2000). Macroeconomic Fluctuations in Developing Countries: Some Stylized Facts. *The World Bank Economic Review, 14,* 251-285. https://doi.org/10.1093/wber/14.2.251

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies,*

58, 277-297. https://doi.org/10.2307/2297968

Baldacci, E., Gupta, S., Granados, C. M. (2014). Ch. 14. How Effective Is Fiscal Policy Response in Financial Crises. In S. Claessens, A. Kose, L. Laeven, & F. Valencia (Eds.), *Financial Crises: Causes, Consequences and Policy Responses* (pp. 431-457). International Monetary Fund.

Barro, R. J. (1999). Determinants of Economic Growth in a Panel of Countries. *Annals of Economics and Finance, 4,* 231-274.

Blanchard, O., & Perotti, R. (2002). An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output. *Quarterly Journal of Economics, 117,* 1329-1368. https://doi.org/10.1162/003355302320935043

Bleaney, M., Gemmell, N., & Kneller, R. (2001). Testing the Endogenous Growth Model: Public Expenditure, Taxation and Growth over the Long-Run. *Canadian Journal of Economics, 34,* 36-57. https://doi.org/10.1111/0008-4085.00061

Bosworth, B. P. (1993). *Saving and Investment in a Global Economy.* Brookings Institution.

Carroll, C., & David, W. (1994). Saving and Growth: A Reinterpretation. *Carnegie-Rochester Conference Series on Public Policy, 40,* 133-192. https://doi.org/10.1016/0167-2231(94)90006-X

Chang, C. C., & Mendy, M. (2012). Economic Growth and Openness in Africa: What Is Empirical Relationship? *Applied Economics Letters, 19,* 1903-1907. https://doi.org/10.1080/13504851.2012.676728

Chaudhry, I. S., Qamber, Y., & Farooq, F. (2012). Monetary Policy, Inflation and Economic Growth in Pakistan: Exploring the Co-Integration and Causality Relationships. *Pakistan Journal of Commerce and Social Sciences, 6,* 332-347.

Dollar, D. (1992). Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs. 1976-1985. *Economic Development and Cultural Change, 40,* 523-544. https://doi.org/10.1086/451959

Fasanya, I. O., Onakoya, A. B. O., & Agboluaje, M. A. (2013). Does Monetary Policy Influence Economic Growth in Nigeria? *Asian Economic and Financial Review, 3,* 635-646.

Fischer, S. (1992). Macroeconomic Stability and Growth. *Cuadernos de Economia, 29,* 171-186.

Güriş, S., & Özkaya, H. G. (2019). Gelişmekte olan ülkelerde tasarrufları etkileyen faktörler: Panel veri analizi [Factors Affecting Savings in Developing Countries: Panel Data Analysis]. *Finansal Araştırmalarve Çalışmalar Dergisi, 11,* 93-108. https://doi.org/10.14784/marufacd.599200

Hamilton, J. D., & Monteagudo, J. (1998). The Augmented Solow Model and the Productivity Slowdown. *Journal of Monetary Economics, 42,* 495-509. https://doi.org/10.1016/S0304-3932(98)00036-1

Hamilton, K., & Clemens, M. (1999). Genuine Saving Rates in Developing Countries. *The World Bank Economic Review, 13,* 333-356. https://doi.org/10.1093/wber/13.2.333

Hansen, L. P. (1982). Large Sample Properties of Generalized Method of Moments Estimators. *Econometrica, 50,* 1029-1054. https://doi.org/10.2307/1912775

Hansen, L., Heaton, J., & Yaron, A. (1996). Finite Sample Properties of Some Alternative GMM Estimators. *Journal of Business and Economic Statistics, 14,* 262-280. https://doi.org/10.1080/07350015.1996.10524656

Havi, E. D. K., & Enu, P. (2014). The Effects of Fiscal Policy and Monetary Policy on

Ghana's Economic Growth: Which Policy Is More Potent? *International Journal of Empirical Finance, 3,* 61-75.

Ifionu, I., & Akinpelumi, O. (2015). Macroeconomic Variables and Money Supply: Evidence from Nigeria. *African Research Review, 9,* 288-307. https://doi.org/10.4314/afrrev.v9i4.22

Ilzetzki, E., Enrique, G., Vegh, M., & Vegh, C. A. (2011). *How Big (Small) Are Fiscal Multipliers.* International Monetary Fund WP/11/52. https://doi.org/10.5089/9781455218028.001

International Monetary Fund (IMF) (2010). *How Did Emerging Markets Cope in the Crisis.* Strategy, Policy and Review Department. https://doi.org/10.5089/9781498337250.007

Kashani, B. H., & Lashkary, M. (2011). The Impact of Monetary Variables on Economic Growth in Iran: A Monetarists' Approach. *World Applied Sciences Journal, 15,* 449-456.

Knight, M., Loazya, N., & Villanueva, D. (1992). *Testing the Neoclassical Theory of Economic Growth: A Panel Data.* IMF Working Paper WP/92/106. https://doi.org/10.5089/9781451947052.001

Labra, R., & Torrecillas, C. (2018). Estimating Dynamic Panel Data. A Practical Approach to Perform Long Panels. *Revista Colombiana de Estadística, 41,* 31-52. https://doi.org/10.15446/rce.v41n1.61885

Loayza, N., Schmidt-Hebbel, K., & Serven, L. (2020). Saving in Developing Countries: An Overview. *The World Bank Economic Review, 14,* 393-414. https://doi.org/10.1093/wber/14.3.393

Lopez-Villavicencio, A., & Mignon, V. (2011). On the Impact of Inflation on Output Growth: Does the Level of Inflation Matter? *Journal of Macroeconomics, 33,* 455-464. https://doi.org/10.1016/j.jmacro.2011.02.003

Maddison, A. (1992). A Long-Run Perspective on Saving. *Scandinavian Journal of Economics, 94,* 181-196. https://doi.org/10.2307/3440445

Mamingi, N. (1997). Saving-Investment Correlations and Capital Mobility: The Experience of Developing Countries. *Journal of Policy Modeling, 19,* 605-626.

Mishra, P., Montiel, P., & Sengupta, R. (2016). Monetary Transmission in Developing Countries: Evidence from India. In C. Ghate, & K. Kletzer (Eds.), *Monetary Policy in India* (pp. 59-110). Springer. https://doi.org/10.1007/978-81-322-2840-0_3

Mitreska, A., Vojnovic, M. K., Georgievska, L., Jovanovic, B., & Petkovska, M. (2010). *Did the Crises Change It All? Evidence from Monetary and Fiscal Policy.* MPRA Paper 43163, University Library of Munich. https://ideas.repec.org/p/pra/mprapa/43163.html

Modigliani, F. (1970). The Life-Cycle Hypothesis of Saving and Intercountry Differences in the Saving Ratio. In W. A. Eltis, M. F. G. Scott, & J. N., Wolfe (Eds.), *Induction, Trade, and Growth: Essays in Honour of Sir Roy Harrod* (pp. 55-84)*.* Clarendon Press.

Moursi, T. A., Mossallamy, M. E., & Zakareya, E. (2007*). Effect of Some Recent Changes in Egyptian Monetary Policy: Measurement and Evaluation.* The Cabinet Information and Decision Support Center.

Ndou, E., & Mokoena, T. (2019). How Does Inflation Impact the Effects of Expansionary Monetary Policy and Fiscal Policies on Real GDP Growth? In *Inequality, Output-Inflation Trade-Off and Economic Policy Uncertainty* (pp. 389-398). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-19803-9_27

Nouri, M. N., & Samimi, A. J. (2011). The Impact of Monetary Policy on Economic

Growth in Iran. *Middle-East Journal of Scientific Research, 9,* 740-743.

Öztürk, V. (2021). *Tasarruflar ve ekonomik büyüme arasindaki ilişki: Türkiye örneği [The Relationship between Savings and Economic Growth: The Case of Türkiye].* Master's Thesis. Uludağ University.

Qi, L. (2007). The Relationship between Growth, Total Investment and Inward FDI: Evidence from Time Series Data. *International Review of Applied Economics, 21,* 119-133. https://doi.org/10.1080/02692170601035058

Roodman, D. (2009). How to Do Xtabond2: An Introduction to Difference and System GMM in Stata. *The Stata Journal, 9,* 86-136. https://doi.org/10.1177/1536867X0900900106

Roodman, D. (2014). *Xtabond2: Stata Module to Extend Xtabond Dynamic Panel Data Estimator.* Statistical Software Components S435901, Boston College Department of Economics.

Sağır, S. (2020). *Tasarruf ve Büyüme Ilişkisi: Çin ve Türkiye Karşılaştırmalı Analizi [Savings and Growth Relationship: China and Türkiye Comparative Analysis].* Master's Thesis, Uludağ University.

Santiago, R., Koengkan, M, Fuinhas, J. A., & Marques, A., C. (2019). The Relationship between Public Capital Stock, Private Capital Stock and Economic Growth in the Latin American and Caribbean Countries. *International Review of Economics, 67,* 293-317. https://doi.org/10.1007/s12232-019-00340-x

Sargan, J. (1958). The Estimation of Economic Relationships Using Instrumental Variables. *Econometrica, 26,* 393-415. https://doi.org/10.2307/1907619

Schmidt-Hebbel, K., & Serven, L. (1997). *Saving Across the World: Puzzles and Policies.* The World Bank Discussion Papers. https://doi.org/10.1596/0-8213-3852-8

Senbet, D. (2011). The Relative Impact of Fiscal versus Monetary Actions on Output: A Vector Autoregressive (VAR) Approach. *Business and Economics Journal, 2011,* 1-11.

Silva, C. G., & Vieira, F. V. (2017). Monetary and Fiscal Policy in Advanced and Developing Countries: An Analysis before and after the Financial Crisis. *The Quarterly Review of Economics and Finance, 63,* 13-20. https://doi.org/10.1016/j.qref.2016.04.013

Spilimbergo, A., Symansky, Steven A., Cottarelli M., & Blanchard, O. (2009). Fiscal Policy for the Crisis. *IMF Staff Position Notes 2008/001.* International Monetary Fund. https://doi.org/10.5089/9781589067981.004

Starr, M. (2005). Does Money Matter in the CIS? Effects of Monetary Policy on Output and Prices. *Journal of Comparative Economics, 33,* 441-461. https://doi.org/10.1016/j.jce.2005.05.006

Stockhammer, E., Qazizada, W., & Gechert, S. (2019). Demand Effects of Fiscal Policy Since 2008. *Review of Keynesian Economics, 7,* 57-74. https://doi.org/10.4337/roke.2019.01.05

Twinoburyo, E. N., & Odhiambo, N. M. (2016). *Monetary Policy and Economic Growth in Kenya: The Role of Money Supply and Interest Rates.* UNISA Economic Research Working Paper 11/2016.