

Fiscal and monetary policy effects on economic growth in Romania (1990-2020)

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Abstract. *This research paper aims to assess the impact of both fiscal and monetary policy on economic growth in Romania. Hence, an empirical model elaborated and estimated by ARDL method covering a period between 1990 and 2020.*

Results show that fiscal policy has a significant positive impact on growth in both short and long run while monetary policy has a positive impact on economic growth only in short term. To notice a negative impact of inflation in both short and long term enhancing the role of monetary policy.

Keywords: fiscal, monetary, ARDL, growth, Romania.

JEL Classification: E23, E51, E62, C22.

Introduction

Economic growth has, of all times, been in the center of economic and political debates. This interest is due to the importance of this measure of economic activity in a country which enables economic decisions for enterprises, governments and central banks.

In the other hand, both central banks through monetary policy and government through fiscal policy could have an impact on economic growth through their interventions. But this effect is still not an evidence as an opposition in economic theories exist between Keynesian economists and neoclassical ones. This debate is even stronger during economic crises or when a country knows big structural changes (Ahrend, 2003).

In this context, Romanian economy started its shift through market economy by 1990, especially following the Ceausescu fall in 1989, conclusion of considerable economic and institutional reforms. After the adoption of market economy, Romania has experienced two cycles of strong economic growth disrupted by the financial crisis of 2008 and the covid-19 crisis (Alesina, 2008).

The progress made in terms of real convergence by Romania is considerable, supported by its integration into the European Union in 2007. Despite a diversified private sector, progress is yet to be made in order to include the entire population in the EU growth dynamic.

In a worrying fiscal context, the new government has succeeded in developing the beginnings of a fiscal consolidation, which should be successful in the medium term. The forthcoming European funds, totalling 80 billion €, represent a major challenge for making structural investments and for Romania to converge towards a digital, inclusive and more environmentally friendly economy.

From 2015 until the covid-19 crisis, Romania's economy experienced a very sustained growth cycle, at a rate of + 4.9% per year on average, which remarkably accelerated real convergence of the country: the GDP / capita in PPS of the EU27 average amounting to 70 in 2019 (EU27 = 100), i.e. +18 pp compared to 2011.

Largely focused on household consumption, economic expansion came at the cost of worsening twin deficits. Successive governments have developed pro-cyclical fiscal policies, notably by significantly increasing pensions and salaries in public administration. As a result, the public deficit (ESA) gradually deteriorated, reaching -4.4% of GDP at the end of 2019. Moreover, domestic demand was satisfied by imports, widening the trade deficit and the current account deficit (-4.7% of GDP in 2019).

Hence, in this study, we analyse the impact of both fiscal and monetary policy on economic growth by focusing on the variations of different instrument of the two policies. The data covers a period between 1990 and 2020 for Romania. The problem of this research is centered around the question: "What is the impact of fiscal policy and monetary policy on economic growth in Romania?"

To answer the main question, this study will be split into two parts. The first is devoted to the theoretical aspect of monetary and fiscal policy. The second will focus on the empirical study of the impact of fiscal and monetary policy on economic growth in Romania and the results of the estimates.

Thus we use an ARDL modelling including to estimate fiscal and monetary policy indicators effects on economic growth in both short and long term.

1. Review of literature

1.1. Theoretical analysis of the effect of monetary policy on growth

The role of monetary policy has been the area of focus to many academic researchers and politicians. At the beginning of the 18th century, the classical school asserted that the money is neutral and has no impact on production or real economy, its sole role is as a mean of exchange. This theory has been dominant through 19th century until the Second World War.

The analysis of neoclassical monetary theory assumes, too, that monetary variables do not endeavour any influence on the real economy, money is an instrument intended only to facilitate transactions. Moreover, money has a unique role which is to determine the general level of prices through the quantitative theory of money. In this context, money has no real effects on the real economy, it is neutral, any variation on money stock only leads to inflation.

Countries affected by the great depression between 1929 and 1933 had experienced a period characterized by massive unemployment, decline of production, absolute misery which proved the ineffectiveness of the classical view of monetary policy adopted by European countries and USA (Zaman, 2011).

In this context, the Keynesian theory came to suggest solutions to get out of the crisis. Keynes with his famous book "general theory of employment, interest, and money" in 1936 criticizes the classical model and thoughts and affirms that the money can influence the real economy, it can stimulate economic growth.

Money is a link between the present and the future, that's what gives it all the importance in the economic circuit. According to Keynes, to emerge from the crisis of the Great Depression 1929-1933, we must use a stimulus, monetary policy, that stimulates investment and therefore production and helps reduce unemployment (Oprea, 2011).

At the end of the Sixties, a new economic doctrine appeared, to demonstrate the ineffectiveness of the policies of periodic Keynesian stimuli. This new economic thinking is known as monetarism, led by Milton Friedman. For him, in the long term, variations in the stock of money have repercussions only on the price level; in the short term, production can also be influenced by variations in the stock of money.

The monetarists consider, same as the Keynesians, that monetary policy is effective on short term, but become ineffective in the long term when anticipations adapts to the variations of money. In the other hand, they have adopted a monetary policy rule that focus precisely on price stability, especially with inflation acceleration by 1970.

In the early 1980s, the phenomenon of stagflation translated into unemployment, which reached its highest levels in Europe. At that time, the new classical economists appeared, they criticized the monetarist theory that suppose that the economic agents determine their behaviour on the basis of adaptive anticipation.

The new classical economics assumed that economic agents determine their behaviour on the basis of rational expectations. This concept of anticipation is taken up from the work of many economists such as: Robert Lucas (1972), Robert Barro (1978), Thomas Sargent (1981).

According to their works, monetary policy is necessarily ineffective in both short term and long term, and therefore unnecessary to intervene, in particular to support economic activity through stimulus policies, i.e. the analysis of the New Classical Economics asserted that monetary variables are unable to impact the real economy even in the short run, hence the super neutrality of money. As an outcome, Jean-Luc Bailly (2006) writes that “the state then has no chance of influencing real variables, even in the short term, and we can then speak of the super neutrality of money”.

Bringing up the rear, the central bank has a necessary role in administrating monetary mass stability to avoid its faster progress than the real production of an economy. To monitor its growth and guaranty prices stability in a long term (Hansen, 1949).

Likewise, studies by F. Kydland, and E. Prescott (1977), C. Guillermo (1978) and R. Barro and D. Gordon (1983) have indicated that the discretion and non-credibility of monetary policy induces the problem of temporal inconsistency of discretionary policies, they rather promote the notion of rules, which they oppose to discretionary decisions. Thus, according to this studies, discretionary policies generate unwanted fluctuations in economic activity and are seen as a source of anticipation errors.

With the extension of the new Keynesian theories, due to J. Stiglitz (1984), L. Summers (1990), G. Mankiw (2007) accepts the rational expectations hypothesis, i.e. they affirm that an unanticipated policy in the case of a stimulus policy or a restrictive policy can be effective. Therefore an anticipated monetary policy has an effect on the real economy.

As about empirical works, one of the earliest studies establishing an empirical link between finance and growth dates back to the econometric study of Mundell and Tobin (1965). They found that there is a positive relationship between the rate of inflation and the rate of capital accumulation, which translates into a positive relationship to the rate of economic growth.

They clarified that a rise in inflation leads to a rise in the level of capital accumulation through a portfolio transfer of money to capital and that in this way one achieves the stimulation of a high economic growth rate.

In other words, this model shows that an increase in money or inflation leads to an increase in investment, capital and product. In this context, Tarawalie et al. (2012) underline that: “a rise in inflation leads to a reduction in the wealth of populations, a corollary of the fall in the rate of return on real capital available to economic agents. People save better when they turn to acquiring financial assets to ensure the availability of wealth and this implies increasing the prices of their assets and lowering the interest rate. Increased savings lead to greater accumulation of capital and hence the rapid growth in output”.

Other cases studies have studied effect of monetary shocks on growth for other countries as shown in (Bouyacoub, 2018) or (Maamar and Amani, 2015) the two studies held on Algerian economy conclude to a positive effect of money stock on both growth and inflation.

1.2. Theoretical analysis of the effect of budgetary policy on growth

On the subject of the effects of budgetary policy on growth, economists consider that state intervention with public spending could positively influence the level of economic activity in a country, especially in a period of slowdown in production or decline in production. The neo-classicals, on the other hand, think that public spending would be neutral on activity.

For them, each component of demand has a multiplier effect on production. If this is kept at a normal rate then growth can be self-sustaining. As for the Liberals, public spending is neutral on economic growth, which has its own exogenous determinants and therefore independent of the economic sphere.

Paradoxically, some of them have contributed to the rehabilitation of the role of the State in terms of public expenditure. The theorists of endogenous growth want to demonstrate that any public expenditure is potentially effective depending on the economic sphere, this would legitimize certain interventions of the State (Iosif, 2014).

Empirically, Ben and Hassad (2006) in their cross-sectional analysis of the efficiency of the financing of public services and growth in 45 developing countries, over the period 1990-2002, have shown that public expenditure is not yet the bearer of growth. On the contrary Rodrik (1998) provided evidence that long-term growth in sub-Saharan Africa during the years 1965-1990 was significantly affected by budgetary policy.

Furthermore, Morley and Perdikis (2000), focused on Egypt case and they affirm that, there is in the long term a positive effect of total public expenditure on growth, in particular after the fiscal reforms of 1974 and 1991. In the short term, however, no significant effect could be demonstrated. Low central government surpluses tended to slow the growth rate of per capita income in the region.

Likewise, in the same direction of alternative Keynesian school, Ojos and Oshikoya (1995) showed for their part, that in the case of the sub-Saharan countries, an increase in public expenditure reduces the growth of the GDP per capita.

2. Method

To assess of monetary and fiscal policies on economic growth, an econometrical model based on theoretical studies was elaborated. Thus, we will present in this section used variables, mathematical model and preliminary studies while in the next section we discuss the result of the model.

2.1. Theoretical model and variables

The econometrical model is based on the one adapted for developing countries elaborated by World Bank (Thomas et al., 2000) to assess economic growth fluctuations, which will be augmented to integrate fiscal and monetary policies variables. The model is based on a Cobb-Douglas production function:

$$Q = AK^{\alpha}L^{\beta}$$

This mathematical equation is linearized by introducing a logarithmic function:

$$\log(Q) = \log(A) + \alpha \cdot \log(K) + \beta \cdot \log(L)$$

Dependant variable, the production Q in the Cobb-Douglas function, is represented in our model by the constant local currency Gross Domestic Product designed as “GDP” that is considered as a universal measure for growth. While for exogenous variables we use labour force designed as “Labor” to represent the human capital. As for physical capital, as suggested by theoretical and empirical literature, it is determined by monetary and fiscal factors. Thus we integrate in the model money stock “M2”, real effective exchange rate “REER” and consumer price index “CPI” as monetary factors. Government expenditures “GEXP” and government revenues “GREV” represent the fiscal factors affecting capital.

The production function can be rewritten as follow:

$$gdp = f(gexp, grev, m2, reer, cpi, labor)$$

The logarithmic form of the equation is as follow:

$$\log(gdp) = \alpha_0 + \alpha_1 \log(gexp) + \alpha_2 \log(grev) + \alpha_3 \log(m2) + \alpha_4 \log(reer) + \alpha_5 \log(cpi) + \alpha_6 \log(labor) + \varepsilon$$

All data is issued from World Bank database, world development indicators WDI, are expressed in constant local currency for GDP, government expenditures, government revenues and money stock while CPI and REER are a base 2010 index, finally labor is expressed as the number of population forming the labour force. The data covers a period of time from 1990 to 2019. We add an “L” before each variable in the equation to simplify logarithmic function.

2.2. Preliminary tests

Before proceeding to estimations, a certain number of preliminary tests must be held to assess the feasibility of the study and choose the most adequate estimation method. First, distribution normality of variables values was assessed through Jarque-Bera where p-value

exceeded 0.05 for all variables rejecting the null hypothesis of non-normality. Second, all exogenous variables are highly correlated, more than 0.70, with the endogenous one confirming the relation between them.

After the two first tests and in order to verify if variables are stationary we use the unit root test by the most commonly used Augmented Dickey Fuller ADF test. The results of this test are in the next table.

Table 1. ADF unit root test

	LGDP	LGEXP	LGREV	LM2	LREER	LCPI	LLABOR
Level (P-value)	-0.26 (0.91)	-10.71 (0.00)	-13.23* (0.00)	-12.43 (0.00)	-1.59 (0.47)	-12.36 (0.00)	-0.68 (0.83)
First difference (P-value)	-4.07* (0.00)	/	/	/	-9.32 (0.00)	/	-4.25 (0.00)
Order of Integration	I(1)	I(0)	I(0)	I(0)	I(1)	I(0)	I(1)

* Significance at 5% level.

Source: Elaborated by authors, using EViews 12.

As shown in the Table 3 variables; GEXP, GREV and M2 are integrated of order 0, stationary at level, while 3 remaining variables; GDP, REER and Labor are integrated of order 1, stationary in first difference.

Therefore, variables are integrated of different order which suggest the use an Autoregressive Distributive Lag ARDL model. This error correction model enables to estimate short term and long term effects, which suits the difference of effects between the selected variables. Unlike other models where the cointegration is assessed commonly through a Johansen test, the existence of a long term relations in ARDL is measured through Bound test after the estimation of the model, results of this test are shown in next table.

Table 2. Bound test

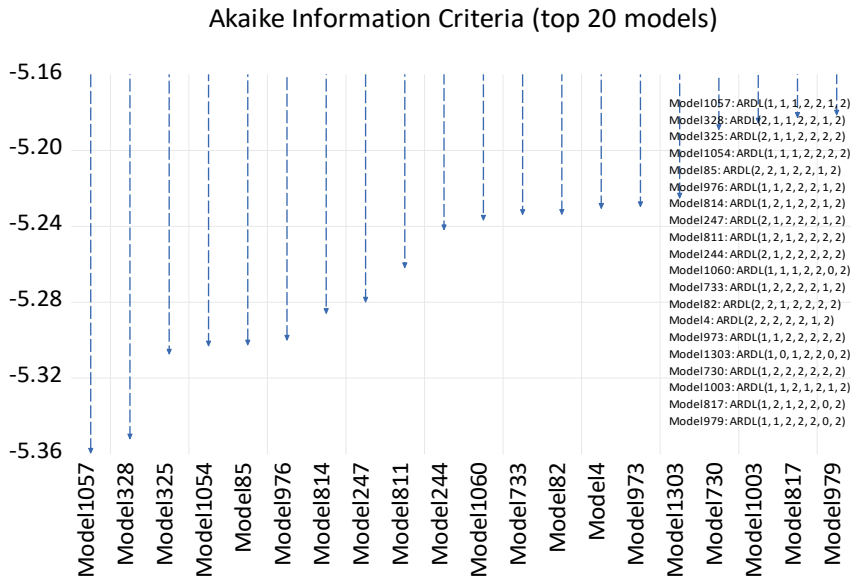
F-Statistic = 9.23		
Critical Values		
Upper Limit	Lower Limit	Significance level
2.94	1.94	10%
3.28	2.27	5%
3.61	2.55	2.5%
3.99	2.88	1%

Source: Elaborated by authors, using EViews 12.

T-Bound test demonstrate that the value of F-statistic 9.23 of the calculated model is higher than both lower and upper limit at 1% significance level confirming the existence of a long term relation between the variables and approving the use of an ARDL model.

One of the specificities of the ARDL models is that the number of lags of each variable is determined automatically.

Figure 1. Model selection



Source: Elaborated by authors, using EViews 12.

The selected model is an ARDL(1,1,1,2,2,1,2) that has been chosen between 1458 alternative models that were evaluated according to Akaike Info Criterion (AIC) by choosing the minimal of minima.

3. Results

The estimation results are significant as Adjusted R-squared is equal to 0.99 and a F-statistic probability of 0.00. The calculated model doesn't have heteroscedasticity problems as the Durbin-Watson statistic (2.23) is close to 2. We must also notice that the error correction term ECT has a negative (-1.03) and significant ($p = 0.00$) value. This term confirms the significance of the model and indicates that the return to equilibrium happens after 11 months. The short term and long term effects are in the next table.

Table 3. Estimation results

Short run elasticities			Long run elasticities (Bazgan, 2018)		
Variable	Coefficient	P-Value	Variable	Coefficient	P-Value
D(LGEXP)	0.21*	0.00	LGEXP	0.30*	0.00
D(LGREV)	0.27*	0.00	LGREV	0.45*	0.00
D(LM2)	0.12*	0.00	LM2	0.01	0.86
D(LREER)	0.21*	0.00	LREER	-0.27*	0.01
D(LCPI)	-0.63*	0.00	LCPI	-0.74*	0.00
D(LLABOR)	-0.53*	0.00	LLABOR	0.44*	0.04
ECT(-1)	-1.07*	0.00	C	5.14	0.32

Source: Elaborated by authors, using EViews 12.

All components of fiscal policy, government expenditures and revenues, have a positive effect on economic growth in both short term, respectively 0.21 and 0.27, and long term, respectively 0.30 and 0.45. The expenditures effect is similar to most studies on the subject,

especially thus based on Keynesian theories. Although, the positive effect of government revenues is atypical but similar to many studies on Romanian economy (Mutascu and Danuletiu, 2011) and (Bazgan, 2018), among others.

As about monetary policy, we can see that money supply has a positive but weak effect in short term but is inefficient in long run as the money illusion fade and expectations adjusted. Same observation can be made about exchange rate effects, as they are positive in short run (0.21) but become negative in the long run (-0.27). A typical result, is the negative impact of inflation on growth in both short term (-0.63) and long run (-0.74) confirming the negative effects of price instability on economic activity.

Finally labour has a negative effect in short run (-0.53) but become positive in the long run (+0.44). This result is due to the rigidities on labour market that make positive effects only take effects on the long run.

Conclusion

This paper aimed to assess the effect of monetary and fiscal policy instruments on economic growth on Romania that has known major economic and structural changes these last decades.

The theoretical approach showed opposite effects between different economical schools, Keynesians giving a great power to monetary and fiscal policy both in short and long term, while neo-classicals accept the short run effects but add a neutrality of monetary shocks in long run due to adaptive anticipations. New classical economists, basing on rational expectations and neo-Ricardian equivalence, make economic policies neutral. Accepting this kind of anticipations the new Keynesians prove that economic policies are still effective in the short run.

The ARDL econometrical model used in this research and applied to Romanian economy has proved that fiscal policy has a strong positive effect on growth in both short term and long term, this effect appears in its two components; expenditures and tax. In the other hand, monetary policy, measured through money supply, prove to be effective only on short term while it is neutral in the run. These effects are conform to the new Keynesian theories.

Although monetary policy can still influence growth through exchange rate that has a positive effect in short term but become negative in long term. This means that a depreciation of currency can lead to more economic growth in the long run.

We can also notice that inflation has a negative effect in both short and long run suggesting that a better control of prices would benefit economic activity and encourages central banks to use restrictive policies.

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