DE GRUYTER OPEN

Scientific Annals of the "Alexandru Ioan Cuza" University of Iaşi Economic Sciences 62 (SI), 2015, 85-95 DOI 10.1515/aicue-2015-0039

AN INSIGHT REGARDING ECONOMIC GROWTH AND MONETARY POLICY IN ROMANIA

Valentina MERA[*], Monica POP SILAGHI[**]

Abstract

This study introduces some aspects regarding the link between monetary policy and economic growth, through a rule well known in the literature which is named Taylor's rule and through the concept of sacrifice ratio which encompasses the impact of the cost of disinflation on the economic growth of a country. In this paper, we rely on estimates of the growth of potential GDP of the National Bank of Romania for the period 2003-2006 while for the period 2007-2012 we rely on the estimates reported by the International Monetary Fund. Thus, we carry a deterministic exercise for computing the interest rate on the period 2003-2012 as depicted from the Taylor's rule and we compare it with the effective monetary policy interest rate used by the National Bank of Romania. In the same time, we calculate the sacrifice ratio for the period 1997-2013 so as to be able to form an opinion regarding the cost of disinflation and its comparison with the typical estimates for larger time spans and for other countries.

Keywords: economic growth, monetary policy, inflation, sacrifice ratio, Taylor's Rule for monetary policy

JEL classification: E52

1. INTRODUCTION

Economic growth is the major objective of the macroeconomic policies, relating on the rising of the living standards and on social welfare. The goal of monetary policy is to provide a stable economic framework which would ensure the prerequisite for economic growth and consequently for economic development. Therefore, the connection between monetary policy and economic growth is obvious and this explains the focus in the literature over these aspects. However, it is well known that besides monetary policy, the process of economic growth is being influenced by a complex of factors which in fact explains the challenges which have to be faced by the central authorities in each country in finding the proper policy mix.

The main objective of this paper is to review the concepts of economic growth and monetary policy accordingly to the Taylor's rule (Taylor, 1993) which relies on the potential

[*] Faculty of Economics and Business Administration, Babeş-Bolyai University, Cluj-Napoca, Romania; e-mail: *valentina.mera@econ.ubbcluj.ro*.

[**] Faculty of Economics and Business Administration, Babeş-Bolyai University, Cluj-Napoca, Romania; e-mail: *monica.pop@econ.ubbcluj.ro*.

GDP growth rate while establishing the interest rate recommended as a monetary policy interest rate. There are some studies (Bunzel and Enders, 2010) which find that the initial model proposed by Taylor in 1993 is not strictly followed by the Federal Reserve, because it adjusts the policy decisions based on the economic conditions. The Federal Reserve actions are passive when the economic framework is stable, and become more aggressive when inflation is above the target or the output gap takes negative values. Estimates of the monetary policy of European Central Bank (Maza and Sanchez-Robles, 2013), suggested that during 1999-2002 and 2007-2009 the monetary policy can be characterized by a Taylor Rule, meaning that the policy was taking into account the deviations of inflation from its target and the output gap. Huston and Spencer (2005) modelled an aggregate interest rate and they reach the conclusion that Taylor Rule can be useful to guide the monetary policy and to characterize the global environment, given the interrelations between economies in a globalized world. In emerging European countries, the evidences (Nojković and Petrović 2015) showed the central banks take into consideration the economic variables introduced by Taylor, in estimating monetary policy, as evidenced by smooth changes in their policy rates.

The rest of the paper is organized as follows: section 2 reviews the concept of economic growth and the effects of monetary policy on economic growth (on short and long term), section 3 presents the Taylor's rule and the concept of the sacrifice ratio, section 4 includes own computations of the sacrifice ratio in Romania over the period 1997-2013 and calculations of the interest rate deduced from the Taylor's rule based on estimates of potential output growth rates (and thus of GDP gap) from NBR and IMF while section 5 debates and concludes.

2. ECONOMIC GROWTH AND MONETARY POLICY

The concept of economic growth is a debated subject, because it has a great impact on the development process and on global welfare. The assertion that is an up to date topic in economics is supported by multiple recent studies (Roy, 2012; Rangazas, 2013; Chu *et al.*, 2015) that debate on this subject.

The economic and financial conjuncture nowadays may be influenced by a large number of macroeconomic decisions, whose aim is to implement the proper macroeconomic policy mix, in order to make possible the development of the economy and of the society in general. Therefore, the process of economic growth can not be described without taking into consideration the role and influences of government policies, and in particular of the monetary policy. The tools used by decision makers in all countries have some common objectives such as: avoiding major imbalances in the economy and recessions, controlling the main macroeconomic variables, macroeconomic stability and boosting the economy in order to increase the degree of development.

Economic growth can be described in terms of quantitative evolution of macroeconomic indicators. The main macroeconomic indicator that has offered throughout time an overview on the welfare of the society is the gross domestic product (GDP), which includes: „all currently produced goods and services that are sold through the market but are not resold" (Gordon, 1993).

More broadly, the economic growth, is considered as a rational and efficient use of the available resources so as to ensure the increase of the economic potential and to provide higher development standards at micro or macroeconomic level. All sort of changes that take place within the economic framework, generate a more intense need to study this

problem. Given the limited access that society has to increasingly rare resources, which oppose a wide range of humanity demands, it is required to find solutions to extend the coverage of needs with maximum efficiency. The research on economic growth becomes more and more intense and its aim is to formulate models or to implement policies that determine long-term positive effects inside the economy.

There are some major differences between the phenomena of economic growth and development, as referring to the field of action. Therefore, the economic growth is seen primarily as a purely quantitative phenomenon, as reflected by an increase in the value of quantitative indicators within a certain period of time. The economic growth underpins economic development, but it is not a sufficient condition for being able to talk about development, because this process also implies the existence of qualitative factors (Todaro and Smith, 2009, pp. 48-56) such as those related to education, health and standard of living.

The link between monetary policy and economic growth is reflected in the real process of economic development, because through its objectives to ensure stability, the monetary policy has a real impact on a large number of elements that underlies the development process. After being transmitted through various mechanisms, the effects of monetary policy become observable in the living standards.

The central authorities in each state are forced to take decisions regarding the macroeconomic policies that should be implemented, in order to achieve general economic goals. Given the large number of policies and instruments that can be used, in the implementation process may occur a lot of difficulties regarding the interactions between them or the necessity of being correlated to the political and legal framework of a certain country. For example, in Romania in the present the monetary policy is characterized by flexibility, meaning that the central bank can make adjustments to the instruments used, but not to the targets.

In order to conduct the economy on a growth path, the main objective of the economic policy is to provide a stable economic framework, by targeting variables such as: the unemployment rate, the inflation rate, the growth of natural real GDP, the balance of payments or the exchange rate (Gordon, 1993, pp. 471-476). Using the policy instruments available, the government decides which of the economic variable to target so as to achieve economic growth.

All the actions of the Central Banks are specifically aimed to avoid major macroeconomic fluctuations. The monetary policy is part of macroeconomic policies that target the aggregate demand, by controlling the money supply, the lending and the interest rates. The effects of all these variables are visible in the real economy, because of the transmission mechanisms.

In the short term, certain economic policy measures can lead to economic growth because they can stimulate aggregate demand, which leads to an increase of economic activity and output. Monetary policy cannot ensure a high rate of economic growth in the long term, because of the interaction of many other variables that can cause shocks. Because various empirical studies (Papademos, 2003), (Vinayagathasan, 2013), (Eggoh and Khan, 2014) have shown the indirect relationship between inflation rates and economic growth, the role of monetary policy in maintaining the price stability becomes important. Long term economic growth is therefore possible only if inflation is maintained low.

The long term influence of monetary policy on growth is reflected in the stable economic framework that it is providing, a framework that is mandatory for leading the economy on a growth path. Starting from this point, it is useful to establish the causality relations that exist between inflation and economic growth, in order to determine the optimal level of inflation that ensures economic growth.

3. THEORETICAL CONSIDERATIONS. TAYLOR'S RULE AND SACRIFICE RATIO

The main objective of the National Bank of Romania is to ensure price stability and, starting from 2005, it introduced the targeted inflation rate. The impact of inflation on output and economic growth is described in the literature by four hypotheses (Drukker *et al.*, 2005). The first one, which had been formulated by Sidrauski (1967) (Drukker *et al.*, 2005) states that there is no effect of inflation on economic growth, stressing the neutrality of money. According to Tobin (1965) (Drukker *et al.*, 2005), money represents a substitute for capital and therefore inflation has a long-term positive effect on economic growth, which encompasses the second hypothesis. In 1981, Stockman (Drukker *et al.*, 2005) introduces the third hypothesis which shows that money and capital are complementary, leading to negative effects on economic growth. The fourth hypothesis (Drukker *et al.*, 2005), currently accepted, establishes that inflation has a negative impact on economic growth in the long-run, but only if the critical value namely the threshold level is exceeded. In all these hypotheses incorporated in models, it is acknowledged that high rates of inflation produce frictions on financial markets and these frictions impede economic growth.

The challenge in the literature was to determine the threshold level above which inflation affects negatively the rate of economic growth. One study (Drukker *et al.*, 2005) estimated this level as 0.1916, which it is over-passed the rate of economic growth start to decrease. Another empirical study (Khan and Senhadji, 2001) based on data from 140 countries in 1960-1998 determined that the threshold level for the inflation rate may vary from country to country, depending on the stage of development. The results indicated that for industrialized countries, the threshold level is around 1-3 percent, while for the developing countries, this level is around 11-12 percent. It is widely accepted in the literature that inflation should have very low levels so as not to have a negative influence on economic growth and consequently, on the economic development of the country. Samuelson proposed a level of 5%, which later has been reduced to 3% and 2% (see Rădulescu, 1999, pp. 15-17). This was in fact in line with the view of monetarist school that a lower rate of inflation is preferred to a higher one.

Therefore, a low level of inflation is correlated with high economic growth, while high levels of inflation may cause a slowdown of economic activity or even negative economic growth. It is known hyperinflation may induce recession while moderate inflation may generate positive effects.

The conclusions from research that studied the influence of inflationary phenomenon on the real economy, when trying to stabilize inflation, shows that a low level of inflation is correlated with high economic growth, but high levels of it cause a slowdown of economic activity or even negative economic growth (Dornbusch, 1992, p. 405): "With inflation stubborn, or the inflation inertia-[…] reducing inflation involves inevitably a proactive recession."

Short-term effects that are visible with increasing inflation are apparently positive because they lead to an increase in demand, production and thus to a decrease in unemployment. But in this way, a number of firms which are not competitive are encouraged and in the long term may lead to halting the economic progress and the development of society (Ghatak and Sanchez-Fung, 2007, p. 175): "In the long run, growth band development may best be promoted by having a target rate of inflation of zero, while erring on the side of inflation rather than deflation."

Assuming that monetary policy actions have the purpose to lower the inflation rate, whose too high level is inconsistent with macroeconomic objectives, it is necessary to implement an action plan that should take into account the costs that need to be incurred. Costs involved in the transition periods towards lower values of inflation will be most of the time offset by the positive effects that low inflation generates in the future. The drop in inflation generates two major effects: rising unemployment and falling output (Mankiw, 2008, p. 366).

The link between inflation and real GDP, which measures economic growth, is analyzed through sacrifice ratio (Mankiw, 2008, p. 367), a numerical value showing what percentage of real GDP of a country should be given up in order to reduce inflation with one percentage point. Usually, the estimated sacrifice ratio in practice is around 5 so: for each percentage point by which it is desired to decrease inflation a country should drop to 5 percent of annual real gross domestic product. The sacrifice ratio is calculated as a ratio of lost GDP, or the number of percentage points of real GDP which has to be dropped so as to reduce inflation, and total disinflation, or the number of percentage points by which inflation was reduced in a certain period.

4. DATA ON THE REAL ECONOMY OF ROMANIA

4.1. Sacrifice ratio in Romania

Inflation phenomenon has a negative impact on economy in medium and long term, generating imbalances that influence the overall evolution of the economy. If we analyze this hypothesis on Romania's economy, we will be able to observe that it is fulfilled during the last two decades, based on data from National Institute of Statistics (2013), (2015a). For example, in the early '90s, when inflation was very high, the gross domestic product, considered as a measure for economic growth, registered a decrease for three consecutive years. In 1995-1996, based on the implementation of some policies whose aim was to increase the level of population savings, the inflation rate was reduced and it was correlated with 7.1% and, respectively, 3.2% GDP increase. The gross domestic product then followed a downward trend from year to year, correlated with inflation rates of 154% in 1997, which decrease in the next two years to 45.8% and 45.7%.

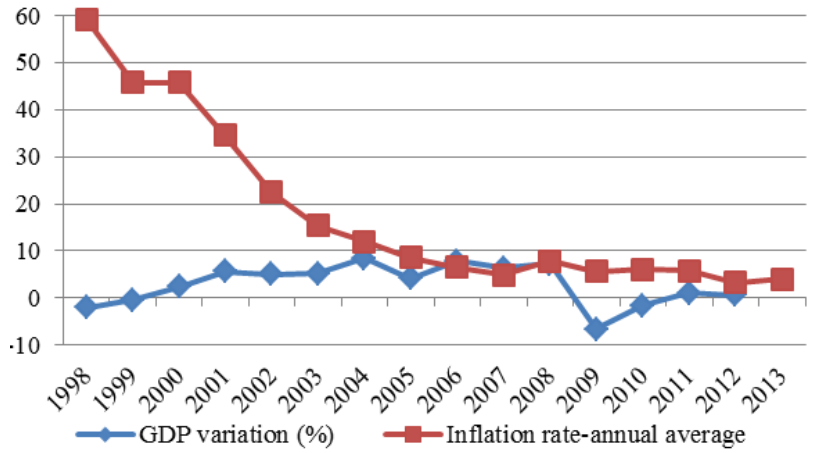
After 2000, there have been numerous attempts to stabilize the economy and to achieve a growth trend, by restructuring and implementation of new programs, more efficient, and able to conduct monetary policy so as to ensure price stability. In this context, it can be observed (See Table 1) the gradually reduction of inflation from values of over 40% to values of 5%-6%, while the rate of economic growth is positive.

Figure 1 depicts the comparative evolution of GDP and inflation over the period 1998-2013. Until 2004, as long as the inflation rate gradually reduced, the gross domestic product increased. In the coming years, due to the disinflation process that reduces its intensity, the gross domestic product keeps a relatively constant evolution until 2008. Although inflation rate did not fluctuate too much in 2009-2010, however, GDP slightly decreased due to the fact that the phenomenon of economic growth is influenced by many factors besides monetary policy and inflation.

Table no. 1 – The comparative evolution of inflation and GDP in Romania

Year	Inflation rate -annual average (%)	GDP variation (%)	Year	Inflation rate -annual average (%)	GDP variation (%)
1990	5.1	-5.6	2002	22.5	5.1
1991	170.2	-12.9	2003	15.3	5.2
1992	210.4	-8.8	2004	11.9	8.5
1993	256.1	1.5	2005	9	4.2
1994	136.7	3.9	2006	6.56	7.9
1995	32.3	7.1	2007	4.84	6.3
1996	38.8	3.2	2008	7.85	7.3
1997	154.8	-4.9	2009	5.59	-6.6
1998	59.1	-2.1	2010	6.09	-1.1
1999	45.8	-0.4	2011	5.79	2.3
2000	45.7	2.4	2012	3.33	0.6
2001	34.5	5.7	2013	3.98	-

Source: Growth rates computed based on data from National Institute of Statistics datasets (2013, p. 351 and 2015a)



Source: Graphical representation based on data from National Institute of Statistics datasets (2013, p. 351 and 2015a)

Figure no. 1 – GDP and inflation growth rates

The inflation rate reduction has certain costs which can be expressed in the loss of gross domestic product. In this regard, we computed the sacrifice ratio considering the period 1997-2013, when we can observe that inflation has a downward trend. Using the effective unemployment rate for Romania (National Institute of Statistics, 2015b) and considering that the natural rate of unemployment is 6,223% (Albu *et al.*, 2012), (Gălăţescu *et al.*, 2007), the total deviation of the unemployment rate from its natural value was around 17.309% in this period.

According to Okun's law, which states that for every 1% reduction in unemployment rate the output will drop by 2%, the value of 17.309% of cyclical unemployment will determine a 34.618% decrease in real GDP.

Total disinflation during the analyzed period is:

$$Total\ disinflation = \pi_{1997} - \pi_{2013} = 154.8\% - 3.98\% = 150.82\% \quad (1)$$

If we replace in the sacrifice ratio formula the values that we obtained for Romania during 1997-2013, we will obtain:

$$SR = Lost\ GDP/Total\ disinflation = \frac{34.618\%}{150.82\%} = 0.2295 = 22.95\% \quad (2)$$

Therefore, one can say that it has been lost 22.95 percent of the real gross domestic product for every 1% reduction in inflation.

According to other related studies that estimated the sacrifice ratio, if the disinflation process is speedy, the sacrifice ratio is lowered during those periods (Mazumder, 2014a). In estimating the sacrifice ratio, the same author finds that the speed of disinflation process is the main determinant of the sacrifice ratio on a sample of OECD countries (Mazumder, 2014b). According to these estimates, and taking into consideration that inflation in Romania during the period we analyzed was reduced from high values to single-digit values, in a long interval, we rebuild the calculations for sub-periods of that interval, taking also in consideration the year 2005, when Romania adopted the inflation targeting policy.

Considering shorter intervals of disinflation, we observed that starting from 2005 the unemployment rate was below its natural rate so there were no costs for disinflation. So the reduction in inflation was possible without an increase of unemployment, thus the output was not adversely affected. The value of 22.95 percent that we obtained for the sacrifice ratio can be explained also by the fact that, at the beginning of the disinflation episode, the inflation had high values and it was reduced in 2013 to 3.98.

A possible explanation for the reduced costs of disinflation starting from 2005 can be formulated using the role that rational expectations have in reducing inflation. Once NBR credibility and public confidence in monetary policy announcements increases (and this point concurs with the time when Romania adopted inflation targeting policy), the costs of disinflation are lower because economic agents, when fixing wages and prices, reduce their expectations about inflation.

4.2. Taylor Rule Interest Rate in Romania

Based on the formula proposed by the American economist Taylor in 1993, we will try to analyze if the National Bank of Romania followed that rule to implement monetary policy and to establish the interest rate. We used data taken from the databases of NBR and National Institute of Statistics (see Table 2), and we calculated for the period 2003-2012 which would be the interest rate proposed by Taylor's rule.

The calculation formula which is used for the data in the Table 2 is:

$$r_{dTR} = r_{dMP} + 0{,}5 \times (\pi_t - \pi_t^*) + 0{,}5 \times GAP_{GDP} \quad (3)$$

The potential GDP growth rate in Romania used in the calculations is taken from NBR estimates for 2003-2006, calculated as an annual average SVAR method (Gălăţescu *et al.*, 2007). For the period 2006-2015, the growth rate of potential GDP is around 5% per year average as reported by the International Monetary Fund in 2012 (IMF Country Report, Romania, 2012, p. 6).

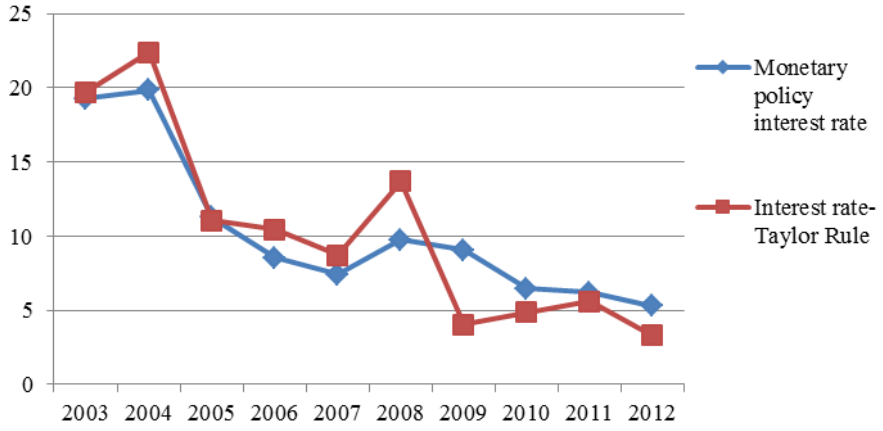
Table no. 2 – Interest rate calculation based on Taylor Rule for Romania*

Year	Monetary policy interest rate (annual average)	Annual inflation rate	Target inflation rate	Effective GDP (annual variation)	Potential GDP	GDP gap	Interest rate-Taylor Rule
2003	19.27	15.30	14.00	5.45	5.86	-0.41	19.72
2004	19.83	11.90	9.00	8.08	5.86	2.22	22.39
2005	11.27	8.60	7.50	4.33	5.86	-1.54	11.05
2006	8.56	6.60	5.00	8.03	5.86	2.17	10.44
2007	7.42	4.80	4.00	6.83	5.00	1.83	8.73
2008	9.75	7.90	3.80	8.75	5.00	3.75	13.68
2009	9.06	5.60	3.50	-7.10	5.00	-12.10	4.06
2010	6.46	6.10	3.50	-0.85	5.00	-5.85	4.84
2011	6.21	5.80	3.00	1.00	5.00	-4.00	5.61
2012	5.31	3.33	3.00	0.65	5.00	-4.35	3.30

*Note: The values from the table are calculated and expressed in percents.

Source: Rates computed based on data from National Institute of Statistics (2013, 2015a, 2015b) and National Bank of Romania (n.d.-a), (n.d.-b)

In comparison with the rate of monetary policy used by the National Bank of Romania during this period, it can be seen from the following chart that the trend for the two types of rates is similar. However, the monetary policy interest rate applied by NBR is lower in the period 2003-2008 compared to the one calculated from the Taylor's rule, wherefrom we deduce that the NBR has kept interest rates too low, practicing an expansionary monetary demand, which fueled expansion before the crisis. In the next four years, there is a change in the monetary policy interest rate that rises above the level proposed by Taylor's rule, a sign that the central bank has implemented a contractionary monetary policy.



Source: Rates computed based on data from National Institute of Statistics (2013, 2015a, 2015b) and National Bank of Romania (n.d.-a), (n.d.-b)

Figure no. 2 – Monetary policy interest rate and Taylor's Rule interest rate in Romania

5. CONCLUSIONS

The paper investigates how monetary policy instruments that are available to the policy makers may have a decisive role in influencing economic growth and development phenomena. Having as a starting point the fact that the Romanian economy experienced during the transition to a market economy a number of imbalances, highlighted by very high rates of inflation at the beginning of the period, the central monetary authority was subject to real challenges in an attempt to stabilize the economic environment.

The attempt to stabilize the economy was based on reducing inflation rates. The comparative analysis of inflation and gross domestic product as a measure of economic growth in Romania showed that high rates of inflation were correlated with decreases of GDP. Over the past twenty years inflation was reduced to single digit values while the rate of GDP growth underwent a series of fluctuations, which were not entirely due to inflationary phenomenon.

The sacrifice ratio finds its applicability in influencing the decisions that a central banks takes in conducting the monetary policy. In order to reduce inflation or to keep it within certain limits, the monetary authority will study the sacrifice ratio to determine by how much the output will be reduced. If it decides to implement measures so as to reduce inflation this would mean a contraction of the aggregate demand. In the case of Romania the costs of disinflation during 1997-2013 were around 22.95 percent reduction in GDP for every one percentage point reduction in inflation.

The fact that the National Bank of Romania took into account in monetary policy implementation of the phenomenon of economic growth is reflected in Taylor's rule we applied on Romanian economy. The calculations are based on the interest rate proposed by Taylor's rule, on data from 2003-2012. By comparing the interest rate proposed by Taylor with the monetary policy rate practiced by the National Bank of Romania during this period we have observed that the trend for the two types of rates is similar. In the context of macroeconomic imbalances in recent years, monetary policy in Romania has made sustained efforts to create favorable economic conditions for the manifestation of economic growth.

The limits of the present study rely on the fact that we carried a deterministic computation of the sacrifice ratio. The episodes of disinflation were observed based on the evolution of the inflation rates in time. These limits may be removed by further research. This would consist of implementing various methods for estimating the sacrifice ratio and for determining episodes of disinflation as changes in trend inflation, as in Ball (1994). Quarterly data would be needed to better explain the changes.

References

Albu, L. L., Caraiani, P., and Iordan, M., 2012. *Romania's labor market prospects in the context of Europe 2020* Retrieved from http://www.cnp.ro/inovatie/docs/seminar-studii-25-06-2012/Rezumat%20studiu%20Piata%20muncii.pdf

Ball, L., 1994. What determines the sacrifice ratio? *NBER Working Paper Series, 4306*(March 1993).

Bunzel, H., and Enders, W., 2010. The Taylor Rule and "Opportunistic" Monetary Policy. *Journal of Money, Credit and Banking, 42*(5), 931-949. DOI: http://dx.doi.org/10.1111/j.1538-4616.2010.00313.x

Chu, A. C., Cozzi, G., Lai, C.-C., and Liao, C.-H., 2015. Inflation, R&D and growth in an open economy. *Journal of International Economics, 96*(2), 360-374. DOI: http://dx.doi.org/10.1016/j.jinteco.2015.03.007

Dornbusch, R., 1992. *Exchange Rates and Inflation*. Cambridge, Massachusetts: Massachusetts Institute of Technology.

Drukker, D., Gomis-Porqueras, P., and Hernandez-Verme, P., 2005. Threshold Effects in the Relationship Between Inflation and Growth: A New Panel-Data Approach. http://www.uh.edu/~cmurray/TCE/papers/Drukker.pdf

Eggoh, J. C., and Khan, M., 2014. On the nonlinear relationship between inflation and economic growth. *Research in Economics, 68*(2), 133-143. DOI: http://dx.doi.org/10.1016/j.rie.2014.01.001

Gălăţescu, A. A., Rădulescu, B., and Copaciu, M., 2007. *Potential GDP Estimation for Romania* NBR Occasionl Papers, Retrieved from http://www.bnr.ro/PublicationDocuments.aspx?icid=6786

Ghatak, S., and Sanchez-Fung, J. R., 2007. *Monetary Economics in Developing Countries* (3 ed.): Palgrave Macmillan.

Gordon, R. J., 1993. *Macroeconomics* (6 ed.). New York: Harper Collins College Publishers.

Huston, J. H., and Spencer, R. W., 2005. International Monetary Policy: A Global Taylor Rule. *International Advances in Economic Research, 11*(2), 125-134. DOI: http://dx.doi.org/10.1007/s11294-005-3010-0

International Monetary Fund, 2012. Romania: Selected Issues Paper *IMF Country Report No. 12/291*. Washington, D.C.

Khan, M. S., and Senhadji, A. S., 2001. Threshold effects in the relationship between inflation and growth. *IMF Staff Papers, 48*(1), 1-21.

Mankiw, G., 2008. *Macroeconomics* (6 ed.): Worth Publishers.

Maza, A., and Sanchez-Robles, B., 2013. The European Central Bank Monetary Policy and the Taylor Rule, 1999-2009. *Revista de Economía Mundial, 32*, 179-193. http://www.sem-wes.org/sites/default/files/revistas/REM33_7_0.pdf

Mazumder, S., 2014a. The sacrifice ratio and core inflation. *Journal of Macroeconomics, 40*, 400-421. DOI: http://dx.doi.org/10.1016/j.jmacro.2014.02.002

Mazumder, S., 2014b. Determinants of the sacrifice ratio: Evidence from OECD and non-OECD countries. *Economic Modelling, 40*, 117-135. DOI: http://dx.doi.org/10.1016/j.econmod.2014.03.023

National Bank of Romania, n.d.-a. Ratele dobânzilor BNR- serii lunare. Retrieved 8 October 2015 http://www.bnr.ro/Raport-statistic-606.aspx

National Bank of Romania, n.d.-b. Ţintele de inflaţie. Retrieved 8 October 2015 http://www.bnr.ro/Tintele-de-inflatie-3325.aspx

National Institute of Statistics, 2013. *Statistical yearbook 2013: National Accounts* Retrieved from http://www.insse.ro/cms/files/Anuar%20statistic/11/11.Conturi%20nationale_en.pdf

National Institute of Statistics, 2015a. IPC - serii de date. Retrieved 7 October 2015 http://www.insse.ro/cms/ro/content/ipc-serii-de-date

National Institute of Statistics, 2015b. SOM103A - Rata somajului pe sexe, macroregiuni, regiuni de dezvoltare si judete Retrieved 7 October 2015 http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=SOM103A

Nojković , A., and Petrović , P., 2015. Monetary policy rule in inflation targeting emerging European countries: A discrete choice approach. *Journal of Policy Modeling, 37*(4), 577-595. DOI: http://dx.doi.org/10.1016/j.jpolmod.2015.03.016

Papademos, L., 2003. *The Contribution of Monetary Policy to Economic Growth*. Paper presented at the 31st Economics Conference: Fostering Economic Growth in Europe, Vienna, Austria. https://www.ecb.europa.eu/press/key/date/2003/html/sp030612_3.en.html

Rădulescu, E. T., 1999. *Inflaţia, marea provocare*. Bucureşti: Editura Enciclopedica.

Rangazas, P., 2013. Introduction: The Dual Economy Approach to Economic Growth and Development. *Eurasian Economic Review*, *3*(1), 1-7. DOI: http://dx.doi.org/10.14208/BF03353838

Roy, A. G., 2012. U.S. Foreign Indebtedness, Monetary Policy, and Economic Growth. *International Journal of Economic Perspectives*, *6*(2), 196-205.

Taylor, J. B., 1993. Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy*, *39*, 195-214. DOI: http://dx.doi.org/10.1016/0167-2231(93)90009-L

Todaro, M. P., and Smith, S. C., 2009. *Economic Development* (10 ed.). Harlow, England: Addison Wesley.

Vinayagathasan, T., 2013. Inflation and economic growth: A dynamic panel threshold analysis for Asian Economies. *Journal of Asian Economics*, *26*, 31-41. DOI: http://dx.doi.org/10.1016/j.asieco.2013.04.001