MACROECONOMICS EFFECT OF FISCAL POLICY IN TRANSITION ECONOMIES: THE CASE REPUBLIC OF MACEDONIA

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Abstract
The objective of this paper is to investigate the effect of fiscal policy in small open transition economy. This paper employs, Granger- Causality test, Impulse Response Function and Forecast Error Decomposition, in order to assess the impact of fiscal policy on real GDP and prices. In this finding, all econometrics result do not show a conventional Keynesian effect of fiscal policy on real economic activity due to the counteracting effect of the monetary policy reaction. This causes a crowding out effect. Therefore, the results suggest that there is no coordination between fiscal and monetary policy. Moreover, the results from the Granger Causality test and Impulse Response Function show that the best fiscal policy for stimulating the economy appears to be one of tax-cuts. However, a change in taxation may produce a short-lived effect on real GDP; but, such action is likely to generate higher burdens in the future. In addition, the higher burdens are likely to have long-term consequences that far outweigh any short-term benefits in terms of real GDP.

Key words: *Fiscal policy; Economic growth; Transition Economies; Granger – Causality test; Structural Vector Autoregressive*

1. INTRODUCTION

The aim of this paper is to examine the impact of fiscal policy on real GDP and prices. For this purpose, I use Granger Causality test and a Structural Vector Autoregressive (SVAR-henceforth), aiming to identify the fiscal shock on real GDP and prices.

Fiscal policy and its effect have traditionally involved great interest from many researchers. However, the questions of the appropriate fiscal measures have been increasing the interest particularly during the global financial crisis.

Recently, in the literature on SVAR, some consideration has been given to the investigation of the macroeconomic effects of fiscal policy (e.g. Blanchard and Perotti, 2002; Fatás and Mihov, 2003, 2004; Mountford and Uiling, 2009; Restrepo and Rincón, 2006; Rarytska, 2003). Ever since the foundation of the Euro Area, there has been a growing interest in the reexamination of fiscal policy as an effective instrument for smoothing business cyclical fluctuations. The emergence of such a system with a single Central Bank has left the European countries with fiscal policy as their only instrument for macroeconomic stabilization (Fatás and Mihov, 2003). Other reason for reexamination of the macroeconomic effect of fiscal policy is to determine whether fiscal policy can be considered as a complementary instrument of monetary policy in achieving macroeconomic stability during the financial crisis. Regarding the countries in transition, little attention has been devoted to the macroeconomic effect of fiscal policy, even though these countries are interesting for their variety of types of economic growth.

An important argument for imposing various fiscal restrictions is based on the assumption that fiscal discretion might harm macroeconomic stability (Fatás and Mihov, 2003). While it is undeniable that fiscal policy has the potential of being destabilizing, it is also clear that fiscal policy can smooth out business cyclical fluctuations via expansionary public spending or tax cuts during periods of recession and contractionary policies during periods of expansion (Fatás and Mihov, 2003). Often both sides of the budget are changed (increasing/decreasing government spending and reducing/increasing tax) in order to promote economic growth, as is the case in the Republic of Macedonia, which is the topic of

my empirical research. Therefore, this suggests a need for ongoing analyses of the effects of fiscal policy in order to assess its impact on real GDP and prices.

Therefore, in this paper, I focus on identifying the effect that the fiscal policy has on real GDP and prices in the Republic of Macedonia. Based on the data from 1997 to 2011, my empirical research is supported by empirical testing using Granger-Causality test and a SVAR methodology. The theoretical and empirical literature concerning SVAR, both in the developed countries and the countries in transition, provides the foundation of my empirical research on the Republic of Macedonia.

The reminder paper is organized as a follows. Section II explains the reviews the literature on the effect of fiscal policy. Section III econometrics model for testing the effect of fiscal policy on real GDP and prices. Section IV conclusions.

3. REVIEW OF LITERATURE

Among economists, there is far greater disagreement as to the empirical evidence for the effect of fiscal policy than is the case with monetary policy (Bernanke and Mihov, 1998). The empirical evidence does not provide a unique answer to the issue by showing that non-Keynesian effects may take place under well-defined circumstances. However, it has shown varied and inconclusive outcomes as to the effect of fiscal policy on real economic activity.

The empirical studies are based on various methodologies. First, the effects of fiscal policy are examined using the structural macroeconometric models. Second, sets of studies have sought to identify large fiscal episodes. Recently, many econometric models are based on a SVAR methodology aiming to identify sources of real GDP fluctuation. As I employ SVAR methodology to evaluate the effect of fiscal policy on real GDP and prices, I focus on the literatures which are based on such methodology. For this purpose I review the empirical evidence gathered from both developed countries and countries in transition. The primary conventional transmission channels of fiscal policy such as: Government expenditure and revenue channels, through which fiscal policy can affect real GDP and prices, are examined. Applying the Structural Vector Autoegression (SVAR) methodology, recent researchers deliver some of the most relevant contributions to the literature. This methodology avoids the problem of subjectively choosing indicators of the fiscal stance and imposes contemporaneous relationships among the variables. By this methodology, Blanchard and Perotti (2002) analyze the effect of fiscal policy on output and they show a standard Keynesian reaction of the economy to both kinds of shocks: an increase in taxation has negative effects on output and consumption, while positive innovations in public expenditure produce positive effects on these variables. The positive output effects of increases in government consumption are also confirmed in the empirical studies undertaken by Fatás and Mihov (2002**),** which find that increases in government consumption are associated with increases in private consumption – not decreases as implied by Ricardian equivalence. Moreover, Fatás and Mihov (2003) examine 20 OECD countries using SVAR and find strong evidence in favor of a dynamic discretionary fiscal policy, claiming that large governments are associated with less volatile business cycles and thus increase the rate of economic output growth. Aggressive use of discretionary fiscal policy, on the other hand, amplifies business cyclical fluctuation and harms economic output growth. Numerous studies employing Structural Vector Autoregression (SVAR) methodology prove that fiscal policy has positive effects on economic activity. However, these studies relate only to OECD countries.

On the other hand, investigating the effect of fiscal policy shocks on real GDP and prices using SVAR methodology, Mountford and Uhling (2009**)** find that spending shocks have a crowding out effect on investment and thus negate the effect of fiscal spending on real GDP. The most immediately effective fiscal policy for stimulating the economy, they claim, would appear to be one involving tax-cuts. While they point out that such unanticipated tax-cuts work as a short-lived stimulus on the economy, they do not claim that such cuts are sensible. The resulting higher burdens may have negative long-term consequences which greatly outweigh the short-term gains in real GDP, and 'surprising' the economy in this manner may not be wise in any case. Perotti (2002) sets up a SVAR for 5 OECD countries to study the impact of fiscal policy on real GDP and prices. He finds that the effect of fiscal

policy on real GDP and its components had become very much weaker over the preceding 20 years, with the exception of the U.S. The author explains this as being a result of the increased openness of economies and possible changes of monetary policy regimes.

For countries in transition there are few studies with regards to the effect of fiscal policy on real GDP. Regarding fiscal policy in the Republic of Macedonia and other similar countries in transition, the majority of authors believe a non-Keynesian effect prevails. In many studies (Fischer and Sahay, 2000**;** Aslund, 2002), fiscal austerity is advocated for countries in transition as a means of successful macroeconomic stabilization, while fiscal spending is associated with no output growth and delayed transition. Rarytska (2003) analyze the Ukrainian economy using SVAR methodology and finds the effect of fiscal policy on output to be smaller in magnitude and persistence. In addition, she explains this result by reference to the strengthening of the fiscal policy institution in Ukraine and improved confidence in government policies as the economy experienced significant growth in the previous year. Rzonca and Cizkowicz (2005) analyze the effects of fiscal policy in new member states of the EU and existing EU countries. The results they find with regard to these countries are close to those found in developed countries. Their results show that fiscal consolidation in those countries contributes substantially to the acceleration of output growth even in the short term. They suggest that the non-Keynesian effect leads to higher growth. Restrepo and Rincón (2006) analyze Chile using VAR methodology and find the effect of public expenditure (and taxation) on output to be minor and transitory.

As seen from the review of literature, there is mixed empirical evidence relating to the effect of fiscal policy on real economic activity. To the best of my knowledge, there are few studies in transition economies that use Granger Causality test and SVAR methodology to analyze the effect of fiscal policy (expect the study in developed countries) on real economic activity. Mostly, this methodology has been used to analyze the effect of monetary policy. Even though, employing this method to assess the effect of fiscal policy is difficult, I make effort to identify the macroeconomic effect of fiscal policy in the small open transition economy.

3. ECONOMETRIC MODEL OF TESTING THE EFFECT OF FISCAL POLICY ON REAL GDP AND PRICES

In this part, I use and estimate a model to test the impact of fiscal policy on real GDP and prices in a small open transition economy.

3.1 Data in empirical research

The data sources are from Ministry of Finance, the Central bank of Macedonia, the Official State of Statistics Bureau of Macedonia, and the IMF (see Appendix 1). I use monthly data in order to maximize the observations points as it allows for separating the automatic response of the fiscal system from any discretionary fiscal adjustment (Rarytska, 2003; Rzonca and Cizkowicz, 2005; and others). Moreover, fiscal adjustments cannot take effect during these short spans of time, so using monthly data serves to identify the fiscal shocks.

The Macedonian variables in the model are: manufacturing price index (MPI-henceforth), retail price index (RPI-henceforth), real gross domestic product (real GDP), money stock (M1-henceforth)-henceforth) revenue (T-henceforth) and expenditure (G-henceforth).

The indicator that I use to evaluate the dynamic effects of fiscal policy in the Republic of Macedonia draws on the work of several researchers. Recently, different methods have been used in designing indicators for measuring the effects of fiscal policy. Most of them adhere to the ideas put forth in Blanchard (1990), Blanchard and Perotti (2002), and Fatás and Mihov (2003), which argue that one of the desirable features of a fiscal policy indicator is simplicity.

Following above mentioned authors, I disaggregate the data for government budget into two fiscal variables: expenditure minus transfers and revenue minus transfers. With this new specification of

fiscal variables, I am able to differentiate between the effects of taxation and expenditures. I define the fiscal variables within the SVAR in the same manner as Blanchard and Perotti (2002) and Mountford and Uhling (2009). Hence, total government expenditure (G) is equal to total government consumption and government investment minus transfers and total revenue (T) is equal to total tax revenue minus transfers. Netting out transfer payments from the government expenditure and revenue variables is a non-trivial decision, and I choose to follow Blanchard and Perotti and Mountford and Uhling in doing so. Let me now test for Granger-Causality. That is, whether PD, G, and T cause MPI, RPI and real GDP in Republic of Macedonia.

3.2 Granger-Causality test

A Granger- Causality test is if the lags of one variable entered into the equation of another variable would cause the later variables (Granger, 1969). Since I have one lag, I have to restrict one coefficient, which is linked to the lag of one variable in the equation of the other variables. Hence, I use a standard F-test for testing the null hypothesis (restrictions), whether or not this coefficient is equal to zero. If the null hypothesis will be rejected, I could conclude that the lags of one variable affect other variables, or I can say that one variable Granger-Causes another variable.

A Granger-Causality test on a six -dimensional SVAR (looking at the first equation of my SVAR model regarding MPI) is expressed as follows:

$$MPI_t = a + \sum_{i=1}^{1} \alpha_i MPI_{t-i} + \sum_{i=1}^{1} \beta_i RPI_{t-i} + \sum_{i=1}^{1} \theta_i GDP_{t-i} + \sum_{i=1}^{1} \eta_i PD_{t-i} + \lambda G_{t-1} + \varphi T_{t-1} + \Psi D_t + e_t \qquad (1)$$

		Dependent variables (equation)					
		MPI	RPI	PD	GDP	T	G
Independent variables (lags)	MPI		1.21 (0.30)	0.75 (0.38)	0.41 (0.65)	3.36 **(0.04)**	1.03 (0.36)
	RPI	0.01 (0.98)		0.34 (0.55)	0.17 (0.83)	1.36 (0.26)	0.62 (0.53)
	PD	3.82 **(0.01)**	3.99 (0.07)		0.14 (0.72)	1.22 (0.27)	0.16 (0.68)
	GDP	2.89 (0.06)	0.18 (0.82)	0.23 (0.58)		0.83 (0.43)	0.15 (0.85)
	T	3.71 **(0.01)**	1.06 (0.34)	0.24 (0.61)	4.66 **(0.00)**		2.95 (0.06)
	G	3.03 **(0.01)**	1.38 (0.25)	2.15 (0.25)	0.01 (0.98)	1.43 (0.24)	

Table 1: Granger-Causality test: F- Statistics with p values in the parenthesis
Note: Significance test statistics (at the 5 % level) are in bold. Authors' calculation

As such, I must restrict the parameter $\eta_1 = \lambda_1 = \psi_1 = 0$ in order to test for the possibility that PD, T and G, Granger-causes MPI. If the null hypothesis can be rejected at a significance level of 5 percent, I may conclude that PD, T and G Granger-causes MPI and so on for other variables.

As seen from the Table 1, the null hypothesis that PD does not Granger-Cause MPI, RPI, M1, and real GDP, it is rejected at a significance level of 5 percent only for MPI. Concerning G, the null hypothesis that G does not Granger-cause MPI, RPI, and real GDP, it is rejected at a 5 percent significance level for only MPI, while it is not rejected for RPI and real GDP. Therefore, PD and G only Granger cause MPI and they do not cause RPI and real GDP.

With respect to T, the null hypothesis that T does not Granger cause MPI, RPI and real GDP is rejected at a 5% percent significance level for MPI and real GDP, whereas it is not rejected for RPI. Therefore, T Granger cause MPI and real GDP, and it does not cause only RPI.

From this, I can conclude that PD and G causes only MPI, whereas they do not cause RPI, and real GDP, and neither do any of these variables cause primary deficit or G. With respect to R, the result display that R causes MPI and real GDP, while it does not cause RPI. However, the Granger-Causality test does not show the spread over the time or its dynamic nature. Therefore, I continue the research with dynamic effects and forecasts error variance decomposition of fiscal policy. Employing impulse response functions and forecast error decomposition, I examine the dynamic effect of fiscal policy on real GDP and prices.

3.3 Testing the effect of budget revenue and expenditure on real GDP and prices

I perform diagnostic tests for six-dimensional VAR, such as: test for selection VAR-order, matrix of VAR residual correlation, JB-test for normality distribution, LB-test for residual autocorrelation, LM Lagrange test for residual autocorrelation, and ARCH- test for autoregressive conditional heteroscedasticity.

According to the AIC and HQ tests, VAR (1) is the optimal ordering of the model, whereas VAR (2) is optimal according to the SQ test. Since two criteria reveal VAR-1 to be the model that best fits the data, I decide further to use SVAR with one lags. Furthermore, the most relevant criterion in developing and countries in transition with many structural problems is the HQ criterion, so this criterion has a VAR of order 1. Results from the testing have also demonstrated that VAR order 1 is an effective model for prediction. The result of the JB-test for normality distribution of residuals shows that the H_0 hypothesis of normality distribution has been rejected for all series at a significance level of 5%. Concerning the LB-test for non-significant residual autocorrelation, there are no statistically significant autocorrelated residuals and no visible patterns. The ARCH-test strongly rejects the assumption of heteroscedacity of VARs residuals.

Finally, I can conclude that despite an unstable SVAR (including SVAR lag), the diagnostic test is satisfactory and consistent with the assumption of the white noise process showing constant variance over time.

3.3.1 The effect of budget expenditure and revenue disturbance on real GDP and prices

I follow Fatás and Mihov (2003) and Mountford and Uhling (2009) in using Choleski decomposition, whereby the model is just identified and the number of coefficients of the matrix B_0 are 15 (lower triangular), which can be estimated in the RE-VAR, with unity on the main diagonal. Thereby, the covariance of the matrix will be a diagonal matrix.

I must take into the account the ordering of the variables, by which one variable instantly affects other variables. Contrary to the work in Blanchard and Watson (1986) that both fiscal and monetary indices respond instantly to shocks in output and prices, I conclude that only fiscal variables would respond instantly to prices, money stock and real GDP. I assume that real GDP and prices cannot respond instantly to the fiscal variables, and also that fiscal variables depend on the current state of the

economy or movement of real GDP and prices. Moreover, I assume that revenue responds instantly to shocks in real GDP. This assumption is also shared by Blanchard and Perotti (2002), who find that the results hold no matter which variable is assumed to be first: revenue or expenditure. In addition, I also examine revenue and expenditures using a different ordering, but the test yielded the same results.

Fatás and Mihov (2003) place restrictions in their equation of output, and therefore output does not respond instantly to revenue and expenditure, whereas these two variables do respond instantly to output. Mountford and Uhling (2009) identified fiscal policy shocks whereby fiscal variables are orthogonal to both output as well as monetary policy shocks. Thus, I consider this orthogonal ordering to be a reasonable assumption and consistent with a number of theoretical views.

Using triangular decomposition with the following Wold Causality: $MPI \rightarrow RPI \rightarrow M1 \rightarrow realGDP \rightarrow T \rightarrow G$, I can construct impulse response functions of fiscal disturbances. Such ordering of the variables in the model is completely valid, both according to empirical evidence and theoretical points of view as well as the behavior of the government of the Republic of Macedonia.

As seen from the matrix, fiscal variables are orthogonal to both real GDP and money stock. That is, revenue responds instantly to shocks in real GDP, M1, and prices, whereas only expenditure responds instantly to revenue shock. As in the previous model, the error bands (interval of confidence) corresponding to 95 percent probability intervals are computed by a Monte-Carlo simulation, following the methodology suggested by Sims and ZHA (1999).

I also use Bernanke–Sims decomposition and the result obtained by such decomposition is rather similar to the result obtained by the Choleski decomposition. Next, I examine the dynamic effect of fiscal shocks in order to evaluate the dynamic response of real GDP and prices to these shocks separately.

The recursive approach (Choleski triangular decomposition) will be as follows:

$$x_t = \begin{bmatrix} MPI \\ RPI \\ M1 \\ realGDP \\ T \\ G \end{bmatrix} \qquad B_0 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ b_{21} & 1 & 0 & 0 & 0 & 0 \\ b_{31} & b_{32} & 1 & 0 & 0 & 0 \\ b_{41} & b_{42} & b_{43} & 1 & 0 & 0 \\ b_{51} & b_{52} & b_{53} & b_{54} & 1 & 0 \\ b_{61} & b_{62} & b_{63} & b_{64} & b_{65} & 1 \end{bmatrix} \qquad (2)$$

- **Fiscal expenditure as an indicator of the dynamic effect of fiscal policy and interpretation of result (RE-VAR): Expenditure**

The response function to a fiscal shock of expenditure is shown in Figure 1. The vertical axis reflects the response of real GDP, RPI, MPI, M1 and T to shocks in government expenditure (G), whereas the horizontal axis depicts monthly periods. Figure 1 show that an expansionary fiscal shock of a one percent (government expenditure) does not have a significant effect on real GDP.

The change in government expenditure may have weak effects for only two months, but it is insignificant after this period. The fiscal policy does not have a significant effect on real GDP and prices due to the counteracting effect of monetary policy reaction. Monetary policy reacts immediately and continues to counteract the effect of fiscal policy until they disappear. It causes a crowding out effect. In other words, the fiscal expansion is accompanied by a tightening of monetary policy.

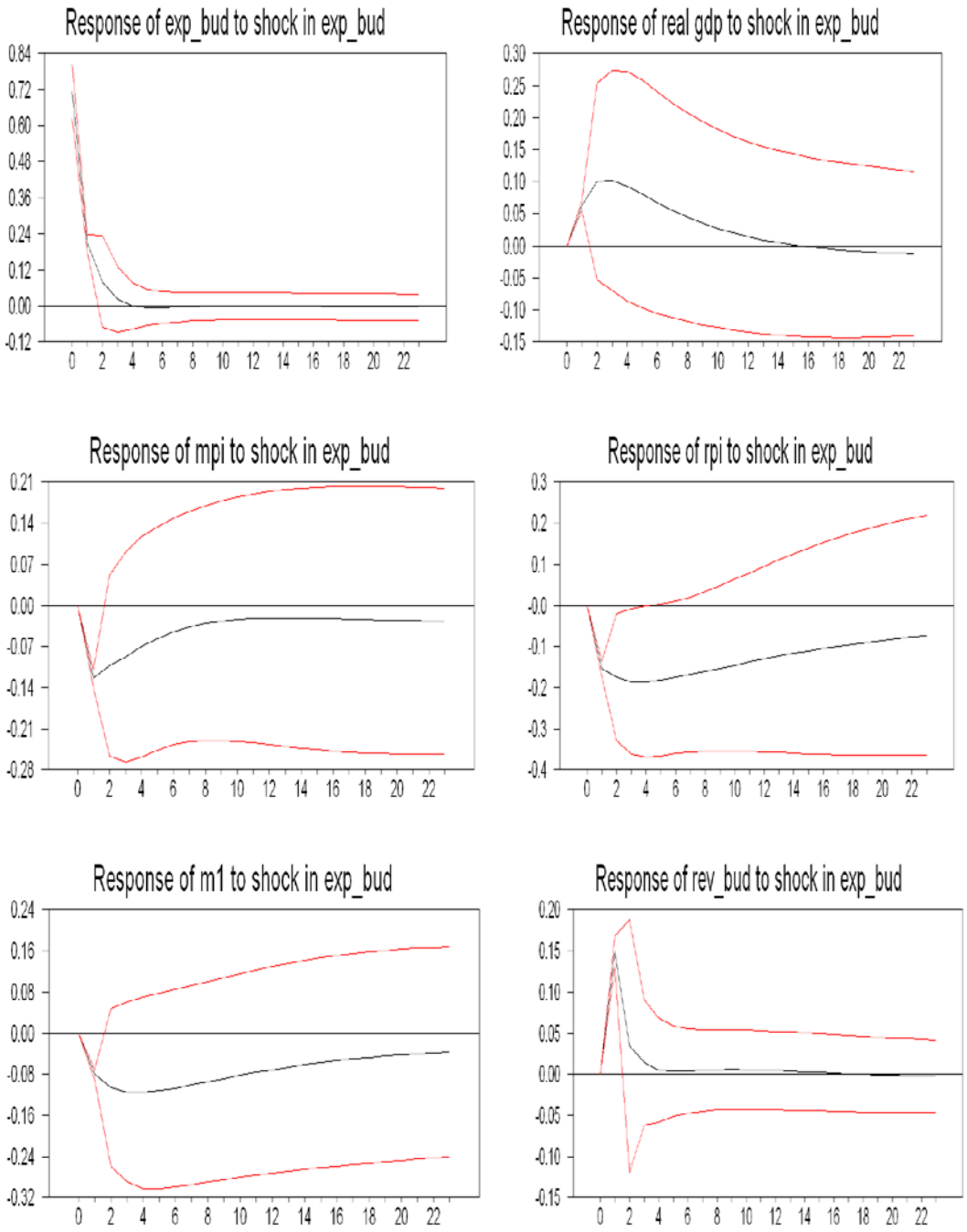


Figure 1: Dynamic effect of government expenditure on GDP and prices (RE-VAR): Expenditure

Source: Author's calculations

The result is consistent with the monetary policy reactions in the Republic of Macedonia, which sterilize excess liquidity in the banking system caused by expansionary fiscal policy in order to maintain a stable exchange rate.

In addition, the results indicate that money stock is endogenous to the movement of all variables in the system – particularly regarding the prices level. In Figure 1, monetary policy responds in the first month, whereby government expenditure returns back to its baseline no more than two months after the shock.

The result is consistent with the findings concerning both developed countries (Mountford and Uhling, 2009 and Perotti, 2002) and countries in transition (Fischer and Sahay, 2000; and Aslund, 2002). Even if this finding is similar to other research on developed countries, it remains difficult to make comparisons. Mountford and Uhling (2009) suggest the existence of a crowding out effect of government expenditure shocks due to interest rate increases. On the other hand, some studies of both developed and transitional countries show persistent effects on real GDP due to changes in government expenditure (Fatás and Mihov, 2003; Rarytska, 2003; and others).

Concerning the response from revenue to expenditure shocks, this may be due to the reaction of real GDP. It can be assumed to be correlated with the tax base, so that revenue tends to increase whenever real GDP increases.With respect to price level, both MPI and RPI show rapid and brief declines of around 0.17 percent, with MPI decreasing during the first month and RPI during the second. This result indicates that after two months prices become insignificant and return back to their equilibrium via endogenous money stock adjustment. However, the result is a little puzzling, since both MPI and RPI show decline. A negative relationship between prices and fiscal shocks is demonstrated – both here and in other studies (Canova and Pappa, 2003**;** Edelberg, Eichenbaum, and Fischer, 1999**;** and Mountford and Uhling 2009).

The model RE-VAR using government expenditure demonstrates that an expansionary fiscal policy seems to be an ineffective instrument of macroeconomic policy due to the counteracting effect of monetary policy reaction. I addition the results suggests that there is no coordination between monetary and fiscal policy.

- **Fiscal revenue as an indicator of the dynamic effect of fiscal policy and interpretation of result (RE-VAR): Revenue**

In continuing, I examine the response of real GDP, MPI, RPI, M1 and G to shocks in government revenue (T). The responses of the variables to this shock are displayed below in Figure 2. A contractionary fiscal policy measured by a one percent increase in taxation induces an immediate decrease in real GDP. The maximum decrease reaches 0.95 percent after six months and thereafter became insignificant after twelve months. This result is expected due to a tax hike causing a decrease in real GDP. An increase in taxation produces a decline in disposable income, which leads to lower levels of investment, which causes a decrease in real GDP.

With respect to the price levels, MPI and RPI exhibit rapid and brief increases. The maximum increase of MPI is 0.15 percent in the first month due to the increased taxation, and it dies out after two months. The maximum increase of RPI is 0.10 percent, which becomes insignificant after one month.

The expenditure level and money stock do not show any significance. As seen in Figure 2, all variables will eventually return back to their baseline trends, excepting real GDP, which has transitory effects for 12 months.

The same result has been found by several other authors, including Fatás and Mihov (2003); Blanchard and Perotti (2002); and Mountford and Uhling (2009). Among other things, their findings indicate that an increase in taxation produces a higher magnitude of the effect of fiscal policy on output and prices. Over time, the response of output decreases to shocks in taxation, whereas the response of prices increases to shock in taxation. My results generally follow the same general pattern as those of the aforementioned authors.

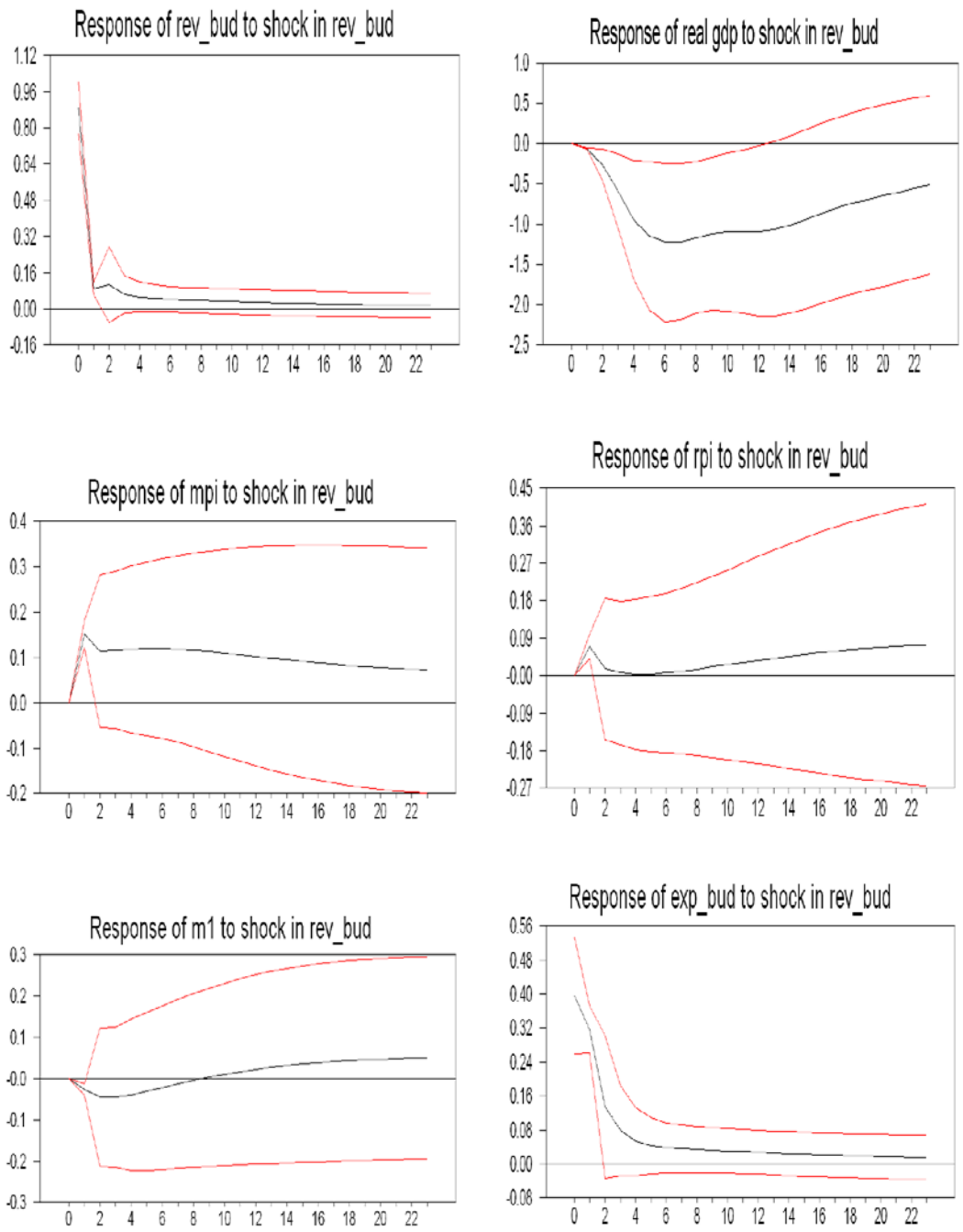


Figure 2: Dynamic effect of government revenue on real GDP and prices (RE-VAR): Revenue

Source: Author's calculations

However, the difference between their results and mine is that they find larger and more persistent effects on output from changes in tax revenue, with the exception of Mountford and Uhling (2009). Mountford and Uhling find short-term effects on output due to the exogenous changes resulting from the changes in taxation.

My results also show a transitory effect on real GDP via exogenous changes caused by taxation. According to Mountford and Uhling (2009), the best fiscal policy for stimulating the economy appears

to be one of tax-cuts. In addition, they point out that while such policy works as a short-lived stimulus to the economy, it is not necessarily sensible. The resulting higher burdens may have long-term consequences which far outweigh the benefits gained from short-term increases in real GDP

3.3.2 Forecast error variance decomposition of primary fiscal deficit, budget revenue and expenditure disturbance on real GDP and prices.

I continue by examining the decomposition of the forecast error variance in order to evaluate the contribution of fiscal policy shocks to fluctuations in the real GDP, MPI and RPI. Table 2 shows the contribution of fiscal disturbances to fluctuations in the real GDP, MPI and RPI, in the median value and 95% probability intervals of h-steps ahead forecast error variance decomposition. The numbers in the second column report various horizons. The numbers in the third columns show the contribution of the PD disturbance to the fluctuation of the MPI, RPI and real GDP. The fourth and fifth column represents the contribution of G and T disturbance to the MPI, RPI and real GDP.

Primary fiscal deficit innovation accounts for one percent of the forecast error decomposition of fluctuations of MPI and RPI, whereas it accounts for two percent of the forecast error decomposition of fluctuations in real GDP.

With respect to the contribution of fiscal disturbance to the fluctuation of real GDP and prices, expenditure innovation is insignificant to the fluctuation of MPI, RPI and real GDP. It accounts for one percent of the behavior of MPI and real GDP and two percent of the behavior of RPI. At the same time, tax shock is also measured, whereby tax innovations account for 9 percent of the forecasts error decomposition of fluctuation of MPI and 7 percent of RPI. Shocks in taxation do not contribute significantly to fluctuation in prices.

Forecast error in	Forecast horizon *h*(months)	Innovation in PD	Innovation in G and T	
		PD-VAR	T-VAR	G-VAR
MPI	1	0.01	0.01	0.02
	12	0.01	0.08	0.01
	24	0.01	0.08	0.01
	48	0.01	0.09	0.01
RPI	1	0.01	0.01	0.01
	12	0.03	0.02	0.04
	24	0.02	0.05	0.02
	48	0.01	0.07	0.02
GDP	1	0.00	0.01	0.01
	12	0.01	0.08	0.01
	24	0.02	0.12	0.01
	48	0.02	0.12	0.01

Table 2: Forecast error variance decomposition, h periods ahead, accounted for by innovations in PD, T, and G

Source: Author's calculations

However, the contribution of shocks in revenue is to some extent a source of real GDP fluctuation, since they account for 12 percent of the forecasts error variance decomposition of GDP. Therefore, in

terms of increasing taxation in the Republic of Macedonia, fiscal policy can be source of real GDP fluctuation, but not for affecting the prices level.

Finally, I can conclude by saying that throughout the 48 horizons, tax cut is a more effective tool for generating fluctuation in real GDP than G and PD are.

4. CONCLUSIONS

This paper investigates the effect of fiscal policy on real GDP and prices in the small open transition economy from 1997 to 2011. For this purpose, government expenditure and revenue are examined. Based on the available theoretical and empirical evidence, I employ Granger Causality test and SVAR methodology in order to assess the impact of fiscal policy on real GDP and prices.

For countries in transition with short spans of data (which are sometimes of questionable quality), empirical results are to be indicative rather than definitive. With that caveat in mind, my main findings and their implications are as follows:

In this finding, all econometrics results show that conventional Keynesian effects of fiscal policy do not have a significant effect on real GDP and prices. The result from Granger Causality test show that primary fiscal deficit and government expenditure causes only MPI, whereas they do not cause RPI, and real GDP, and neither do any of these variables cause primary deficit or G. Concerning the public revenue, the result display that tax causes MPI and real GDP, while it does not cause RPI. With respect to the SVAR method the result show that government expenditure may have had a weak effect on real GDP, but only for four months, after which it died out. Therefore, fiscal action has only insignificant effects on real GDP. Fiscal policy does not have an effect on real GDP, as monetary policy reacts immediately and continues to counteract the effects of fiscal policy as long as they persist. This causes a crowding out effect. In addition, the results suggest that there is no coordination between fiscal and fiscal policy. Concerning the public revenue, my results show that tax cuts have a short-lived effect on real GDP; however, they do not show any persistent effect on real GDP. This result is expected due to a tax hike decrease in real GDP. An increase in taxation produces a decline in disposable income, which leads to lower levels of investment, which in turn causes a decrease in real GDP. In addition, a change in taxation may produce a short-lived effect on real GDP; however, such action is likely to generate higher burdens in the future. The higher burdens are likely to have long-term consequences that far outweigh any short-term benefits in terms of real GDP.

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Appendix 1

All data come from the CENTRAL BANK, the, and the Macedonian Bureau of Statistics.

"GDP": gross domestic product, provided by the Macedonian Bureau of Statistics.

"MPI": manufacturing prices index, provided by the Macedonian Bureau of Statistics.

"RPI" : retail prices index, provided by the Macedonian Bureau of Statistics.

"PD": government primary deficit (-) or surplus (+);

"G": government current expenditures minus transfers, provided by the Macedonian Ministry of Finance.

"T": government revenue minus transfers, provided by the Macedonian Ministry of Finance.

Transfers = social funds and other transfers

Revenue = value-added taxes + direct taxes on business + indirect taxes + social funds;

Expenditure = government consumption and investment;

Primary budget deficit = revenue – expenditure – transfers – interest paid + interest paid

"M1": money stock consists of the base money and balances held in chequing accounts (personal and current accounts), provided by the National Bank of the Republic of Macedonia (CENTRAL BANK);