FISCAL IMPACTS ON OUTPUT IN A SMALL OPEN ECONOMY: THE CASE OF ALBANIA

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Abstract

The paper is intended to study the effects of total government spending and tax revenue on the annual GDP growth rate in Albania. On this base, we can examine whether and to which extent the macroeconomic governance could rely on those fiscal instruments in terms of a small open economy. The empirical methodology is based on regression analysis which includes OLS estimation on simply specified regression model and Vector Autoregressive estimates. The results support the assumptions that government expenditure is a weak instrument for policy impacts and the government must rely on taxation to stimulate economic growth.

Keywords: tax revenues, government spending, economic growth, small open economy

JEL classification: G38; H21

1. INTRODUCTION

Fiscal policy is usually used to affect the economic performance. Thus many governments use fiscal instruments to urge forward economic stabilization and growth. Such practice is widely accepted in transition economies. However, could we expect fiscal policy to succeed always?

Despite the insights of conventional economic wisdom, in many cases the effects of the fiscal instruments for economic impacts are rather ambiguous. Thus, the effects of government spending and taxation in a large and developed economy could differ from those in a small and less developed economy.

Along with the size and the stage of development of an economy, the trade openness is next key factor for success of fiscal policy. As implied, the openness to international trade is important for assessing the international integration of a national economy and a high openness to trade is likely to contribute to business cycle synchronization and decrease the need of domestic stabilization policies (Todorov, 2014). Thus, trade openness of a small economy is expected to decrease the power of the instruments of fiscal policy. This expectation was empirically confirmed by Muir and Weber (2013).

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The former communist economies chose the way of the openness to international trade at the very beginning of their democratic transition. Their governments relied mostly on fiscal instruments to overcome the aftermath of economic crises during the transition. However, would these instruments be the most appropriate and efficient means in terms of overall economic weakness and trade openness?

Studying the impact of taxation and government spending on economic growth we can infer about how successful was fiscal policy been in stimulating economic stabilization and development in an open economy. However, the purpose of this paper is to analyze the impact of tax revenues and government spending the economic growth in Albania, which is a typical case of a small open emerging-market economy. The empirical study covers annual data from the beginning of the democratic transition to recent days.

The case of Albania is appropriate for such an analysis because it combines factors like low-income level, small size of economy, small size of government, growing trade openness alongside with the course of transition. Another curios fact is Albania was labelled as a "country without taxes" in the early 1990s, because it did not have an institionalized tax system as such. Thus the reforms in taxation coincided with establishment of tax system itself.

Next sections of the paper are literature review, empirical methodology and data, regression results, and conclusions.

2. LITERATURE REVIEW

The review of the existing evidence on the topic of interest should describe the place of the present study among recent studies on this topic. Empirical research on the topic of fiscal impacts follows the estimations on fiscal multipliers. However, Muir and Weber (2013) reminded that most of the empirical studies on fiscal multipliers are focused on advanced economies.

A good example of study on developing economies was run by experts of the World Bank (Gray *et al.*, 2007). They studied a sample which is consisted of transition economies in Eastern Europe and Central Asia. Their econometric analyses were on the whole sample as well as separately on samples of countries - with relatively more effective government and relatively less effective government. Negative effects on the growth have been found for the government expenditure in the sample of all transition countries. However, the influence of expenditure is positive and statistically significant in terms of sample of countries with relatively more effective government. Significant and negative coefficients were estimated for impact of government expenditure on the economic growth in terms of countries with relatively less effective government (Gray *et al.*, 2007).

The research on the impact of taxation on economic growth has also obtained evidence on both groups of economies – advanced and less developed. Studying the US experience since World War II, Romer and Romer found that tax changes have very large effects on output and an exogenous tax increase of one percent of GDP lowers real GDP by roughly three percent (Romer and Romer, 2007). Stoilova and Patonov (2013) studied impact of the total receipts from taxes and social contribution on the growth in terms of the EU-27 and found a statistically significant positive effect. Reviewing other studies on the same topic - Myles (2007), Romer and Romer (2007) , Arnold (2008), they also found their result is not consistent with the results of those studies.

Both papers with participation of Ilzetzki study small open emerging-market economies (Ilzetzki, 2011; Ilzetzki *et al.*, 2011). Their results suggest that revenue multipliers are more reliable proxies for the success of fiscal policy in such conditions. Since the revenue

multipliers are generally significant even having positive signs, tax stimuli are more consistent with a growth-friendly policy in the countries with new markets. The vector autoregressive estimations of Muir and Weber (2013) validated those assumptions for Bulgaria. They found a clear effect of the revenues on the output and lower and even statistically insignificant impact of the government spending. Nevertheless, the review of empirical evidence made by Muir and Weber (2013) shows most of the findings on the topic of fiscal multipliers are in accordance with conventional economic wisdom. Thus they also point out that "there is still no consensus regarding the size of fiscal multipliers, even in advanced economies". Moreover, they presume that the fiscal multipliers "tend to be smaller in more open economies and in countries with larger automatic stabilizers, but as the theoretical and empirical literature suggest they differ widely across countries". They also expect the fiscal multipliers in emerging economies to be lower. This expectation arises because the financial markets of those countries are less developed, the sovereign risk premium is higher, and fiscal stimulus having stronger impact on interest rates, partly offsetting the initial impulse.

It is important to note, there is a meaningful variety in the methodological approaches across the studies which contributes to differences in empirical results. There also are purely computational reasons for getting biased estimates (Romer and Romer, 2010, p. 767). Thus, economists adopt more sophisticated econometric approaches in order to avoid the problem of the biasness of the results.

3. EMPIRICAL METHODOLOGY AND DATA

The empirical study follows a common approach applied in most of the studies on this topic. Thus, the conventional simple specification tries to explain the economic growth by government revenues and spending. This way of explanation does not cover the framework of Barro's growth model (1990). Shortcomings of this approach were marked by Romer and Romer (2010). They expect simple regressing output growth on all legislated tax changes is likely to lead to a biased estimate of the effect of tax changes: some tax changes are correlated with the error term in the regression (Romer and Romer, 2010, p. 767). The problem of biasness they are pointing out would be stronger in terms of a broader measure of tax changes. This development is caused by the use of the change in cyclically adjusted tax revenues. However, the annual dynamics of the tax revenues in Albania do not have significant clearly expressed fluctuations with cyclical character. After 2000, the total tax revenues float close to the average value of this variable. The growth of the economy has enormous rates for the first few years of democratic transition. The causes of these rates are far from healthy economic processes. The last fact is likely to induce additional noises into the system.

Nevertheless, the use of simple specification is in line with the study of Muir and Weber (2013). The purpose of study is not inevitably to explain the economic growth by all ingredients. This limited model will stress the impact of the instruments of fiscal policy on economic growth. Thus, the estimates we will obtain are expected rather to have demonstrative character than definitive.

The regression equation (1) has the following summarized structure:

$$y_{it} = \beta_0 + \beta_1 TR_{it} + \beta_2 TS_{it} + \varepsilon_{it} \tag{1}$$

where y_{it} is an annual rate of growth of Albania's gross domestic product in nominal terms, TR_{it} is total amount of tax revenues collected per annum as a ratio to GDP, TS_{it} is total

government expenditure per annum as ratio to GDP. The parameters of the model are put into record with β_0, β_1, β_2. The symbol of ε_{it} marks error term.

In addition to the basic analysis, the variables of total tax revenues and spending are replaced by disaggregate revenue and spending items. This approach is applied by Muir and Weber (2013) to estimate the multipliers of different spending and tax items. In the present study, the total tax revenues are replaced with the revenues from value added taxes, excise tax, taxes on corporate and individual incomes. We can thus examine the consistency of each tax item with the growth. The replacement of total government expenditure with the amounts of current and investment spending will enables us to conclude about the efficiency of each type of expenditure as a policy instrument.

The technique of Ordinary Least Squares is adopted for estimating the parameters of the regression model. This is the common case pointed by Ilzetzki *et al.* (2011, p. 8). However, the small number of observations, non-normal empirical distribution of the variables, weak non-linear links, and the simple specification of the model can often cause biasness of the estimations. Therefore, a vector autoregressive method is adopted as a procedure remedying a significant part of these problems. The technique will be applied to time-series data for the basic variables. While the simple estimates give information for relationships in annual terms, the vector autoregressive estimation will give useful insights for lagged links. We thus obtain a more detailed knowledge for the real picture of relations of interest. It is important to note, it is aptly to adopt two lags of VAR estimation. This would be an optimal number of lags because the government budget is an annual financial plan and the strongest relationships would be found in current-year terms or one and two years before or after.

Descriptive statistics on main variables will be presented before the regression estimations. Correlation matrix of main variables will also be presented in a separate table. The most important indication they give is related to the phenomenon of multicollinearity. The multicollinearity is not related to any strong distortions of the regression results and reductions of the efficiency of the estimation procedure (Ramanathan, 1995, pp. 309-328).

It is important to understand whether the regression relationship between each pair of variables is confirmed by a bilateral causal relation. The test of Granger is helpful in obtaining such information.

The time series of each variable of study consists of annual data for the period form 1994 to 2013. Source of data is the database of the Ministry of Finance of Albania (Ministry of Finance of Albania, 2013).

4. REGRESSION RESULTS

The descriptive statistics on the main variables of equation *(1)* is presented in Table no. 1. The empirical distributions of all the variables are different from normal symmetric distribution. However, the test of Jarque-Bera empirically confirms the deviation from normal distribution for the variable of economic growth only. The deviations of the rest of variables are not fully clear. Nevertheless, there would be some weak non-linear links between the variables in regression equation. Everything would decrease the efficiency of the method of ordinary least squares. This reduction in efficiency would be overcome with the use of autoregressive method.

Table no. 2 presents the correlations between each pair of variables, included in regression model. The coefficient of the correlation between both the independent variables does not exceed the admissible value of 0.2, which indicates lack of multicollinearity. However, the lack of strong correlation between total amount of tax revenues and government spending arises the

question of what determinates the government spending in these conditions? This weak link would not be surprising if non-tax receipts, government loans, and international grants have been taken into account. Both variables - tax revenues and government spending are negatively correlated with economic growth. The values of coefficients disclose a curious phenomenon which is specific for developing countries. The tax revenues are closer correlated with the growth of Albanian economy than government spending. These results suggest taxation is more efficient instrument for fiscal impacts on the economic performance in Albania. They are fully in line with the evidence of Muir and Weber (2013) on Bulgaria.

Table no. 1 – Descriptive Statistics on the Variables of the Regression Model

	TR	TS	GR
Mean	19.936	30.203	12.305
Median	20.946	29.522	9.687
Maximum	24.275	35.136	49.905
Minimum	12.367	25.287	-0.059
Std. Dev.	3.849	2.549	10.693
Skewness	-0.679	0.208	2.154
Kurtosis	2.076	2.503	8.352
Jarque-Bera	2.359	0.368	41.313
Probability	0.307	0.832	0.000
Sum	418.653	634.270	258.401
Sum Sq. Dev.	296.291	129.910	2286.896
Observations	20	20	20

Source: Author's calculations

The question of what reason has caused this picture remains open. What factor has prevented government spending to exert its catalyzing influence on the economic performance of this country? Answers of these questions could be searched for when the regression relationships between the variables of interest are estimated.

Table no. 2 – Correlation Matrix of the Variables of the Regression Model

Variable	GR	TR	TS
GR	1.000	-0.536	-0.233
TR	-0.536	1.000	0.185
TS	-0.233	0.185	1.000

Source: Author's calculations

The OLS estimates are presented in Table no. 3. The separate columns present three variants of the model created under various combinations of variables. This manner of presentation enables us to estimate not only the effects of the factors under the full version of the model but the impact of each independent variable in terms of a one-factor specification.

As seen, the explanatory power of each variant of the regression is very low. The results support the expectations mentioned in the literature review. The regression results show a negative impact of the tax revenues on the annual GDP growth rate as conventional economic wisdom hints. The coefficient is statistically significant and higher than one. Its values remain relatively unchanged across the columns.

Table no. 3 – OLS Estimations of the Albanian Fiscal Multipliers for the Period 1994-2013

Variable	Model 1	Model 2	Model 3
Constant	41.727***	48.110	59.110**
	(3.530)	(1.657)	(2.213)
TR	-1.478**		-1.358**
	(-2.563)		(-2.239)
TS		-1.203	-0.658
		(-1.251)	(-0.728)
R-squared	0.267	0.080	0.290
Adj. R-squared	0.227	0.029	0.206
Durbin-Watson	1.463	1.009	1.500
F-statistic	6.569	1.564	3.464
Prob(F-statistic)	0.020	0.227	0.055
Observations	20	20	20

Note: t-test in parentheses; *** significant at 1%; ** significant at 5%; * significant at 10%
Source: Author's calculations

The one-factor model with a revenue variable in first column has a far higher explanatory power than the specification of second column whose independent variable is expenditure. The coefficient which articulates the spending multiplier has a low negative value and the hypothesis for its statistical significance is not confirmed which determines the failure of the F-test. This impact is in line with those of previous studies on the topic of interest. Negative signs of the expenditure coefficient have been estimated by the author's collective of the World Bank for the whole sample of transition countries (Gray *et al.*, 2007). The experts found the effects of expenditure less than 35 percent of GDP are insignificant and vice versa. The Albanian case is a typical example of government spending less than 35 percent of GDP.

The regression relationships are fully supported by the results of Granger causality test. Table no. 4 shows the clearest and closest causal relationship is found for the pair of tax revenues and growth. Thus the strongest causal relation is directed from the tax revenue variable towards this of economic growth. The link from government spending towards the GDP growth is more unclear because it is significant at a higher p-value.

Table no. 4 – Pairwise Granger Causality Tests on the Variables of Equation 1

Null Hypothesis:	Obs.	F-Statistic	Probability
TR does not Granger Cause GR	18	15.555	0.000
GR does not Granger Cause TR		6.235	0.013
TS does not Granger Cause GR	18	4.270	0.038
GR does not Granger Cause TS		1.242	0.321
TS does not Granger Cause TR	19	0.730	0.499
TR does not Granger Cause TS		1.410	0.277

Note: lags: 2
Source: Author's calculations;

The vector autoregressive estimations are presented in Table no. 5. The lag structure of the relationships is valuable information we could obtain from this estimation. Despite the controversial signs at different lags, the impact on current growth rates is most definitive for the tax revenues one and two years ago. Positive sign at first lag could be explained by the indication the increased tax revenues are giving for keeping current good economic

conditions and developments in the next year. The influence of the expenditure is not clearly expressed because the coefficients are insignificant at both first and second lags.

All the empirical estimations on the Albanian case proves taxation and tax revenues are more reliable instrument of fiscal policy than government spending in terms of small open emerging-market economy. However, what causes dilution of the effects of government spending in such conditions? As pointed by domestic economists, high negative values of the current account balance have been maintained for the period the present study covers (Durmishi, 2015, p. 138). Thus, when the domestic supply is weak, the government expenditure cannot stimulate domestic production because households buy import goods. The effects of this expenditure would be stronger in terms of strong domestic supply which is able to satisfy the increased demand. In this sense, this conclusion is not valid only for Albania but also for the cases of other similar countries. Therefore, the evidence of the present study is in line with the results of Muir and Weber (2013) as well as Ilzetzki (2011), Ilzetzki *et al.* (2011).

Table no. 5 – Vector Autoregressive Estimates

Variable	GR	TR	TS
GR(-1)	-0.126	-0.144***	-0.067
	[-0.902]	[-2.888]	[-0.876]
GR(-2)	0.538***	-0.075**	-0.140**
	[5.228]	[-2.035]	[-2.469]
TR(-1)	2.952***	0.341	-0.356
	[3.335]	[1.078]	[-0.732]
TR(-2)	-2.780***	0.253	-0.048
	[-3.596]	[0.915]	[-0.112]
TS(-1)	0.251	0.160	0.716***
	[0.510]	[0.909]	[2.644]
TS(-2)	-0.345	-0.025	-0.316*
	[-0.836]	[-0.167]	[-1.397]
C	1.937	7.121*	28.922
	[0.161]	[1.656]	[4.379]
R-squared	0.836	0.940	0.706
Adj. R-squared	0.747	0.907	0.546
F-statistic	9.371	28.602	4.406

Note: t-test in brackets; lags in parenthesis; observations: 18
Source: Author's calculations

As pointed, the disaggregate estimation is another important part of the entire picture. The models in Table no. 6 are specified as the revenue and spending variables were replaced by the main components of those variables. The right side of first model contains both main spending items – current and investment expenditure. Inversely, second model is of revenue items and contains the receipts from various taxes.

The first model does not meet the criterion for adequacy. The theoretical value of F-test exceeds drastically the corresponding empirical one. Moreover, the estimation on this model does not identify any statistically significant relationship. Current expenditure does not exert any influence on the growth. The government investments do not succeed to affect the annual developments of the economy. It does not mean the government must avoid spending on investments of societal interest but it must improve their effectiveness. These results are consistent with the regression coefficient in Table no. 3.

Not surprisingly, many coefficients for the tax items have negative signs. However, these results could not be accepted as reliable empirical evidence because the coefficients are not statistically significant.

Table no. 6 – OLS Disaggregate Estimations

Variable	Model 1	Model 2
Constant	42.400	13.220
	(1.275)	(1.322)
Current Expenditure	-0.805	
	(-0.593)	
Investment Expenditure	-1.904	
	(-1.114)	
Excise Tax		6.838**
		(2.343)
Value Added Tax		-0.941
		(-0.403)
Profit Tax		-0.751
		(-0.139)
Personal Income Tax		-8.169
		(-1.195)
R-squared	0.094	0.648
Adjusted R-squared	-0.012	0.554
Durbin-Watson	0.983	2.687
F-statistic	0.887	6.897
Prob(F-statistic)	0.430	0.002
Observations	20	20

Note: t-test in parentheses; *** significant at 1%; ** significant at 5%; * significant at 10%
Source: Author's calculations

The only positive sign in Table no. 6 is estimated for the excise tax. This also is the only significant coefficient which has been estimated. Possible explanation of these results is in line with encouraging more effective use of resources in the economy and society. Another possible explanation is that excise tax is a typical tax on consumption. The last ones are considered as non-distortionary and not depressing the economic growth (Kneller *et al.*, 1999). As implied, the taxation and, of course, generating tax revenues is a more appropriate and efficient instrument for policy influences than government spending in terms of the Albanian economy. Therefore, the disaggregate estimates support the results of the main analysis.

5. CONCLUSIONS

The results of the present study confirmed the insights of conventional economic wisdom and validated the existing evidence. The case of Albania proved a better suitability of taxation as a policy instrument in terms of small open economy. The negative effects of increases in tax revenues are evident on economic growth. The lack of power of the government expenditure as an instrument for policy impacts is another important empirical evidence. The most reasonable cause for these results is the overall economic weakness of this country and large current account deficits. These factors make the effects of government

spending dilute. Therefore, the government must focus its attention on taxation to achieve multiplied effects on output.

The empirical results also prompt a witness for the inability of government investment to have a significant influence on the economy. The current expenditure is also unable to affect the economic performance. However, it does not mean the government must avoid spending on investments of societal interest but it must improve their effectiveness.

It is important to note, the present results have a preliminary character. A set of reasons like simple model, small number of observations, even poor quality of data for the first years of transition does not allow to draw definitive conclusions only on the base of these results. They rather contribute to a broader discussion on the fiscal policy in small open economies.

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