EFFECTS OF TAX CHANGE REGIME ON THE ECONOMIC GROWTH OF THE REPUBLIC OF NORTH MACEDONIA

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ABSTRACT

This paper tries to determine the impact of the change of tax regime in Republic of Macedonia, where from being a progressive tax rate until 2006 it became flat tax for the time period 2007 - 2017. In order to analyze such effects on economic growth of the Republic of North Macedonia for the time period 2000 – 2017, quarterly time series of real GDP growth rate, Direct tax divided into Personal Income Tax and Corporate Income Tax and a dummy variable regarding the time period of the change has been employed. One of the main justifications for changing the tax regime from progressive to flat, was that this change will reflect in the improvement of the employment, thus will reduce the unemployment rate. Moreover, the main objective is to investigate how the tax regime change has affected the economic growth in Republic of Macedonia, analyzing the two different time periods, first when was applicable progressive tax rate from 2000 – 2006, and then the second time period 2007-2017, when was applicable flat tax rate, by applying the VAR model and by creating a dummy variable indicating the period t > 2007q1. The results imply that the effect of the change of the tax regime is insignificant and inefficient for the case of the Republic of North Macedonia.

KEYWORDS
flat tax, progressive tax, growth, VAR.

JEL classification codes
C32, E62, E64.

1. INTRODUCTION

It is important to state that the structure and finance of a tax changes are very crucial for achieving economic growth. Moreover, it is true that tax rate cuts may encourage individuals to work, save, and invest, but on the other hand if the tax cuts are not financed by an immediate expenditure cuts, it is likely that they will result in increased budget deficit, causing in the long-run to reduce saving as well as the rise of interest rates. Further, also it is suggested that net impact on growth is uncertain, recent evidence suggest that it is either small or negative. Even though broaden measures can eliminate the effect of tax rate cuts on budget deficits, on the other hand they will also reduce the impact on labor supply, saving, and investment and therefore will also reduce the direct impact on output. Further, it will reallocate resources across sectors that have highest economic usage, by resulting at increased efficiency and rise of size of economy. Finally, the effects of tax changes on the size of the economy are an empirical question although most tax changes alter many features of the code simultaneously. Indeed, it is

very obvious the difficulty to isolate the effects of tax changes relative to other changes in policy and the economy.

Thus, the main aim of this paper is to determine whether the tax regime change was effective and completed the main objectives for its change.

Recently there has been going a debate among scholars emphasizing also the difficulties of interpreting the evidence, reaching strongly different conclusions and interpretations of the literature. Since evidence presented in those studies are found as relatively unconvincing of the view that tax cuts promote or not growth, in this case the problem indicates that during the absence of clearly exogenous shifts in tax policy, it becomes very difficult to estimate clear conclusions.

2. LITERATURE REVIEW

There exist several empirical analysis confirming that deficit-financed tax cuts are poorly stimulate long-term growth, while tax cuts financed by expenditure cuts are likely to have positive impact on output.

There are many studies implying that the impact of tax reform on the changing sector's allocation of resources is from a crucial importance, starting from Harberger's (1962) classic analysis of the corporate tax as well as other scholars such as Fullerton and Henderson (1987), Gravelle and Kotlikoff (1989), and Diamond and Zodrow (2008).

Moreover, findings from Rogers (1997) study indicate that a revenue-neutral shift to a flat-rate income tax, raise the long-run size of output by 1.8 - 3.8 percent, depending on assumptions about behavioral elasticity. On the contrary, Auerbach et al. (1997) find that moving to the same flat-rate income tax would reduce the size of the economy by three percent in the long run.Further, in their study Altig et al. (2001) used similar model in order to enhance a more extreme policy reform—a revenue-neutral switch to a flat income tax—but with no personal deductions or exemptions, wherein this case they found that an immediate rise of output by 4.5 percent, and by another one percent over the next coming 15 years, but hurting poor in coming generations. Moreover, their study indicated two interesting results: firstly, one-time effect tax reform can increase the size of the economy but it does not affect the long-run growth rate, thus one-time effect of tax reform on the size of the economy dominates the effect on the overall growth rate. Secondly, presence of trade-off between growth and progressivity in the model it is seen very often.

Moreover, findings of Mendoza et al. (1997); Garrison and Lee (1992) suggest no tax effects on growth in developed countries. Further, Padovano and Galli (2001) suggest that 10 percentage point reduction in marginal tax rates will rise the growth rate by 0.11 percentage points in OECD countries. On the other hand, Engen and Skinner (1992) paper findings indicate significant effects of taxes on growth in a sample of 107 countries, underlying that the tax effects are tiny and insignificant when estimated only on developed countries. Further, Piketty, Saez, and Stantcheva (2011) investigated 18 OECD countries regarding the effects of tax rates and economic growth regarding 1960- 2010 time-period. Indeed, findings indicate no evidence of a nexus between growth in real GDP per capita and reductionof marginal rate for the analyzed time period 1960-2010.

It is important to mention that changes in revenues level and changes in tax system structure, both can influence the economic activity, however not all tax changes have equivalent, or even positive, effects on long-run economic growth. Moreover, very often it is mentioned the argument that income tax cuts raise growth so that sometimes it is taken as gospel. On the contrary, theory evidence and study findings tell a completely different and complicated story. Indeed, tax cuts can raise economic growth by improving incentives to work, save and invest, but on the other hand create income effects that reduce the need to engage in productive economic activity. Further, tax cuts as a stand-alone policy thus, in the case when are not accompanied by expenditure cuts, will increase the government budget deficit. Such increase in the budget deficit will reduce savings and will raise interest rates, which on the other side will cause negative effects on investment. Therefore, it is crucial to know that the net effect of the tax cuts on

economic growth is uncertain and depends on structure of the tax cut itself as well as on timing and structure of its financing.

3. RESEARCH METHODOLOGY AND FINDINGS

In order to determine the impact of the tax change regime in the Republic of North Macedonia, Vector Autoregression (VAR) model has been used, by also applying a dummy variable indicating the period t > 2007q1. Furthermore, by employing the VAR we will check the impact of the Personal Income tax and Corporate tax how was before and after 2007, that indicates the year of the tax change regime. Moreover, we are going to measure these by creating a dummy variable indicating the period t > 2007q1, thus we will try to analyze weather this rate change was effective and significant.
The general equation is set as following:

$$lnGDPR = \beta_0 + \beta_1 lnPIT + \beta_2 lnCT + \beta_3 d + \varepsilon \tag{1}$$

where:

GDPR – rate of GDP growth
PIT – personal income tax
CT – corporate income tax
d – dummy variable
ε – error term

In order to start testing the effects of the independent variables at dependent variable in the regression model, the following table presents the results of the optimal lag length based on the following information criteria: AIC, SBIC, HQIC and FEC criterion.

Table 1. Determination of the lag structure

Lag	LR	FPE	AIC	HQIC	SBIC
0		3.3e+13	36.8168	36.8308	36.8512
1	268.3	8.4e+12	35.4322	35.4741	35.5355
2	51.466	6.8e+12	35.201	35.2708	35.3732
3	48.329	5.4e+12	34.9865	35.0842	35.2275*
4	16.847*	5.1e+12*	34.9395*	35.065*	35.2493

Source: author's calculations.

As can be seen in the table 1, the optimal lag length according to the AIC and HQIC is four lags, which imply the selection of this lag length. Moreover, the SBIC imply the lag length to be three, but since literature evidence imply AIC as better criteria for using in the model of quarterly time series, therefore, lag length on this model is set to be as four.

Next, Vector Autoregression is applied in order to determine the effect of the Personal Income tax and Corporate Income tax in the two separated tax regime: when progressive tax is applied (2000q1-2006q4) and when flat tax is applied (2007q1 – 2017q4).
Moreover, the following table represents the results of VAR, where we have estimated the effects of the tax regime change of the personal income tax and corporate income tax on the economic growth in the Republic of North Macedonia. In the specification of the model, lnGDPR (real GDP) is considered as

dependent variable and the results show that statistically significant are the changes in the first, second and third time lag of real GDP, lnPIT(personal income tax) shows positive and significant for the first, second and third lag and positive and insignificant during the fourth lag. The sign of relationship with the lnCT (corporate tax) is negative during first, second and fourth lag, however not statistically significant while with the dummy variable (d) has positive and insignificant during the first two lags and negative and insignificant during the third and fourth lag. Such results imply that the change of tax regime did not have significant results on real GDP in the Republic of North Macedonia, even taking into consideration the results for the four lags.

Table 2. Empirical results of the VAR model

Variables	Coefficient	Standard error	z - value	P>|z|
Dependent variable - lnGDPR				
L1.Δ(lnGDPR)	-.7234185	.1251484	-5.78	0.000
L2.Δ(lnGDPR)	-.6828052	.1487317	-4.59	0.000
L3.Δ(lnGDPR)	-.5853651	.1421242	-4.12	0.000
L4.Δ(lnGDPR)	.1892458	.1434211	1.32	0.187
L1.Δ(lnPIT)	.0867105	.03816	2.27	0.023
L2.Δ(lnPIT)	.0957253	.0381867	2.51	0.012
L3.Δ(lnPIT)	.0663089	.0357	1.86	0.063
L4.Δ(lnPIT)	.0263951	.0331086	0.80	0.425
L1.Δ(lnCT)	-.0041898	.0138066	-0.30	0.762
L2.Δ(lnCT)	-.0053241	.0136557	-0.39	0.697
L3.Δ(lnCT)	.0147334	.0142501	1.03	0.301
L4.Δ(lnCT)	-.0102096	.0142501	-0.80	0.425
L1.Δ(d)	.0302321	.0364649	0.83	0.407
L2.Δ(d)	.0441357	.051094	0.86	0.388
L3.Δ(d)	-.0190223	.0508208	-0.37	0.708
L4.Δ(d)	-.0565615	.0370812	-1.53	0.127

Source: author's calculations.

4. CONCLUSIONS AND RECOMMENDATIONS

This paper analyses the effect of the change regime of tax system from progressive to flat rate, where it is employed a VAR analysis in order to see the impact of the Personal Income tax and Corporate tax how was before and after 2007, when this change happened. Moreover, we are going to measure these by creating a dummy variable indicating the period $t > 2007q1$, thus will try to analyze whether this rate change was effective and significant.

The results show that the dummy variable (d) has positive and insignificant during the first two lags and negative and insignificant during the third and fourth lag. Such results imply that the change of tax regime did not have significant results on real GDP in Macedonia. Based on such results, several conclusions are mention below:
- companies that "save" from lower taxes on do not have intense activities based on the local accumulation, also based on limitations of the market (as main economic factor) but above all also because of non-economic factors group (political - legal) from dysfunctional judiciary, high corruption,

lack of institutional capacity for guaranteed capital and property, all these causing the discharge or transfer of local accumulation in foreign markets.

- "savings" from lower taxes do not open new jobs, because the labor market is not functional enough to allocate properly the potential and resources and it is facing yet a high cost work force as a result of high contributions payments (compared with Kosovo, Albania, Montenegro or Serbia).

- foreign investors do not calculate the lowest taxes also due to the 10-year exemption from them, in cased when investments can be done in free economic zones.

- tax rates are only one element of tax bares (tax incidence), while the tax base is another element, equally important to the first one, that also increased as well.

- "pre-fiscal costs" are a significant burden for companies, from the execution of transactions until various taxes.

   Moreover, under such circumstances, the policymakers in Macedonia should reconsider that in terms of insignificant economic impact, probably to be respected and considered a great need for a pronounced tendency of social equality and the need for contributing for bringing back the middle class and diminishing the high level of income inequality among rich and poor in Republic of North Macedonia. Besides this, another consideration should be taken regarding the inequality of the usage of public goods and services as well as inequality in allocation of governmental support.

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