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РОЛЬ НАЛОГОВОЙ СИСТЕМЫ И ЕЕ АДМИНИСТРИРОВАНИЯ В СОДЕЙСТВИИ ЭКОНОМИЧЕСКОМУ РОСТУ В АРМЕНИИ

Аннотация. Оценивая статистически значимые изменения в основных четырех видах налогов: налога на добавленную стоимость, налога на прибыль, подоходного налога и акцизного налога на соотношение налоговых поступлений к ВВП, авторы делают вывод, что, при прочих равных условиях, наибольшее изменение в соотношении может быть связано с изменениями в налоговых поступлениях от акцизного налога, налога на прибыль и подоходного налога, в то время как изменения в соотношении налоговых поступлений к ВВП, связанные с изменениями в налоговых поступлениях от налога на добавленную стоимость, не велики в сравнении с теми же изменениями в налоговых поступлениях других видов налогов. Авторы делают вывод, что 2 приоритета налогово-бюджетной политики и налогового администрирования в Армении — это сокращение доли «теневой экономики» и реализация политики, направленной на стимулирование бизнеса. Авторы приходят к выводу, что реформы налогового администрирования должны вытекать из необходимости реализации структурных реформ и приоритетов с учетом их позитивного влияния на бизнес-климат, финансовое посредничество, экономический рост, сокращение уровня бедности. Авторы предлагают внести изменения в соответствующих законодательных актах, связанных с налогом на добавленную стоимость: в частности, изменения должны быть основаны не на снижении ставки налога на добавленную стоимость, а на его дифференциации; исключить периодические и масштабные проверки, особенно для малых и средних предприятий; взымать налоги с доходов от капитала; а также увеличить доли прямых налогов в общих налоговых поступлениях и т. д.
Ключевые слова: налог на добавленную стоимость, налог на прибыль, подоходный налог, акцизы, соотношение налоговых поступлений к ВВП, налоговое администрирование.

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THE ROLE OF THE TAX SYSTEM AND ITS ADMINISTRATION IN CONTRIBUTING TO THE ECONOMIC GROWTH IN ARMENIA

Abstract. *By estimating the statistically significant changes in major four types, value added tax, corporate tax, income tax and excise tax, on the tax revenue-to-GDP ratio the authors conclude that, other thing being equal, the highest change in the ratio can be associated with the changes in income tax generated, followed by the excise tax, and corporate tax, while the contribution to changes in the ratio with respect to levying more of value-added tax is the lowest. The authors conclude that two fiscal policy and tax administration priorities of Armenia are: to curb the "shadow economy," and to adopt more business friendly policies. They conclude that tax administration reforms should stem from the necessity of the implementation of structural reforms and priorities in consideration of its positive impact on business climate, financial mediation, economic growth and poverty reduction. Authors propose to make amendments of value-added tax related legislative acts; in particular, they should be based not on the reduction of value-added tax rates, but on its differentiation, to exclude the periodic and large-scale inspections especially in the small- and medium-sized enterprises, to tax the revenues from capital transaction, increase of the proportion of direct tax revenues in the overall tax revenue and etc.*
Keywords: value added tax, corporate tax, income tax, excise tax, tax revenue-to-GDP ratio, tax administration.

Preface

The structural reforms that were implemented in Armenia in the 1990s and 2000s and have shaped the evolution of public institutions might have encouraged entrepreneurship, contributed to the satisfaction of social needs and the reinforcement of the sovereignty of the state. However, Armenia is still facing a number of vital issues such as reduction of the size of the shadow economy, effective tax administration with respect to large taxpayers' compliance, simplification of the tax code, and etc., that hinder the development of economy and need to be addressed. These issues impair the creation of competitive business environment; impede the increase of the number of SMEs, and the boosting of economic activity [1]. As a result, the shadow that emerges in various sectors and/or industries of economy the nature of the latter one differs from time to time, from one taxpayer to another and from the one industry of economy to another [2]. From this point, the "shadow" is certainly greater in large businesses than in small ones. However, it is difficult to argue that there is no "shadow" in the small- and medium-sized enterprises (SME) and once the SMEs attempt to alter the established "rules of the game", they become a real challenge for the nation.

Hence, an estimate of the tax revenue is among the first steps to identify the priorities of fiscal policy reforms [3, p. 64–66]: administration with respect to certain types of tax. Meanwhile, the interplay of the "shadow economy" with the certain types of tax could explain what actions need to be undertaken to reduce the size of the "shadow." Therefore, we analyze the ordinary regime of the tax system of Armenia by estimating the statistically significant changes in major four types[1] of tax on the tax revenue-to-GDP ratio to prioritize tax administration and fiscal policy challenges.

Literature Review

Both Armenian and foreign scholars attempted to estimate and/or assess the tax revenue [4], [5], [6, p. 264–266], [7, p.76–77]. However, these types of estimation by various authors were pursuing different goals such as the optimal distribution of the tax burden, the identifying of the tax burden in various sectors of the economy, the optimal direct taxes-to-indirect taxes ratio, the changes in the tax rates, and etc. [8], [9], [3, p. 22], [10, p.14–17]

On the other hand, ineffective tax administration entailed a "shadow" or group of "free risers," thus harming the state and state budget by deliberately adopting tax-evasion practices [11, p. 81–86]. Consequently, mindful of the issues with respect to the shadow economy [12], [13], [14] that hinder the economic development of a nation, it is required to estimate the impact of various types of tax on the GDP, and their respective values [15, p. 73–75]. And in order to change tax-to-GDP ratio and ensure an increase of the given ratio, it is necessary to improve the tax administration [16], to review the existing tax code and tax rates that would enable to reduce the level of corruption and the size of the shadow economy [17, p. 39]. Therefore, we attempt to estimate the impact of changes in 4 major types of tax on the taxes-to-GDP ratio to propose tax administration reform priorities.

Model Specifications

We define our model as the following:

Tax-to-GDP ratio = f (Tax revenue generated from the VAT, tax revenue generated from the excise tax, tax revenue generated from the corporate tax, tax revenue generated from the income tax)

By finding the evidence of multicollinearity [18, p. 54–66] (see table) and identifying violation of ordinary least-squares (OLS) assumption we decided to exclude corporate tax revenue of the state budget , and income tax revenue from the equation and estimate their impact separately.

Results of the correlation analysis

Tax	Tax/GDP	Excise tax	Income tax	Corporate tax	VAT
Tax/GDP	1	0.84	0.44	0.89	0.92
Excise tax	0.84	1	0.57	0.77	0.82
Income tax	0.44	0.57	1	0.61	0.55
Corporate tax	0.89	0.77	0.61	1	0.97
VAT	0.92	0.82	0.55	0.97	1

[1] Value added tax (VAT), corporate tax, income tax and excise tax. The choice of those types is based on their respective shares in the gross tax revenue.

Therefore, we estimated three different equations:

$$\frac{T}{GDP_t} = \beta_0 + \beta_1 ET_t + \beta_2 VAT_t + \varepsilon_t \quad ; \qquad (1)$$

$$\frac{T}{GDP_t} = \alpha_0 + \alpha_1 CT_t + \mu_t \quad ; \qquad (2)$$

$$\frac{T}{GDP_t} = \delta_0 + \delta_1 IT + \vartheta_t \quad , \qquad (3)$$

where:

T/GDP_t is the total tax revenue-to-GDP ratio in period t;

ET_t is the tax revenue generated from the excise tax in period t;

VAT_t is the tax revenue generated from the VAT in period t;

CT_t is the tax revenue generated from the corporate tax in period t;

IT_t is the tax revenue generated from the income tax in period t;

$\beta_0, \beta_1, \beta_2, \alpha_0, \alpha_1, \delta_0, \delta_1$ is model unknown parameters;

$\varepsilon_t, \mu_t, \vartheta_t$ is error terms in period t.

The estimation sample period is from the first quarter of 2000 to the second quarter of 2015. The sources of all data are various publications released by the National Statistical Service of Armenia. Since we deal with the quarterly data due seasonality, we incorporated dummy variables for each quarter (d_1, d_2, d_3, and d_4) to capture the impact of the respective quarter [19, p. 246–249], however, only the fourth quarter seemed to have statistically significant impact of the tax revenue-to-GDP ratio. Furthermore, we assumed that in every single period the increase the tax-to-GDP ratio of the previous period negatively affects the respective ratio of the period t. Hence, we included total tax revenue-to-GDP ratio lagged one period into all three equation and found strong evidence of the negative impact. Due to stationary problem, the first difference of all variables was included in regression equations. Therefore, we estimated the following three equations:

$$D\left(\frac{T}{GDP_t}\right) = \beta_0 + \beta_1 [D(ET]_t) + \beta_2 [D(VAT2]_t) + \beta_3 d_{t4} + \beta_4 D\left(\frac{T}{GDP_{t-1}}\right) + \varepsilon_t \quad ; \quad (4)$$

$$D\left(\frac{T}{GDP_t}\right) = \alpha_0 + \alpha_1 [D(CT]_t) + \alpha_2 d_{t4} + \alpha_3 D\left(\frac{T}{GDP_{t-1}}\right) + \mu_t \quad ; \qquad (5)$$

$$D\left(\frac{T}{GDP_t}\right) = \delta_0 + \delta_1 [D(IT]_t) + \delta_2 d_{t4} + \delta_3 D\left(\frac{2T}{GDP_{t-1}}\right) + \vartheta_t \quad , \qquad (6)$$

where:

$D\left(\frac{T}{GDP_t}\right), [D(ET]_t), [D(VAT]_t), [D(CT]_t), [D(IT]_t)$ are the first differences of respective variables;

$D\left(\frac{D}{GDP_{t-1}}\right)$ is the first difference of total tax revenue-to-GDP ratio lagged one period;

d_{t4} is the dummy variable that is equal to 1, when the period is the fourth quarter, and 0 otherwise;

$\beta_3, \beta_4, \alpha_2, \alpha_3, \delta_2, \delta_3$ is model unknown parameters.

We also tested the error terms on the evidence of the autocorrelation.

Estimation Results

Estimation #1

$$T/GDP_t = -1.73 + 0.000000000418 * IT + 0.0000000000516 * VAT + 7.54 * dt4 - 0.29 * T/GDP_{t-1};$$ (7)

$$(-3.39)*** \quad (6.34)*** \quad (4.89)*** \quad (6.84)*** \quad (-10.56)***.$$

Sample (adjusted): 2000:3 2015:2.
Included observations: 60.
R-squared: 0.969; adjusted R-squared: 0.967.
Note: value of t statistics in the parenthesis.
*** significant at 1%.

On average, other things being equal, total tax revenue-to-GDP ratio in the fourth quarter exceeds other periods by about 7.54 p.p., while increase in total tax revenue-to-GDP ratio by 1 p.p. in the previous period could cause reduction in the tax-to-GDP ratio in the given period by about 0.3 p.p. If the tax revenue generated from the VAT in period *t* increases by one billion Armenian drams, it would cause an increase in tax-to-GDP ratio by about 0.516 p.p. in the same period. Other things being equal, while the increase in the tax revenue generated from the excise tax by one billion Armenian drams could cause an increase in the tax-to-GDP ratio 0.418 p.p., on average, in the same period.

Estimation #2

$$T/GDP_t = -2.72 + 0.000000000381 * PT + 11.03 * dt4 - 0.23 * T/GDP_{t-1}$$ (8)

$$(-3.55)*** \quad (16.5)*** \quad (6.87)*** \quad (-5.37)***$$

Sample (adjusted): 2000:3 2015:2.
Included observations: 60.
R-squared: 0.926; adjusted R-squared: 0.922.
Note: value of t statistics in the parenthesis.
*** significant at 1%.

On average, other things being equal, total tax revenue-to-GDP ratio in the fourth quarter exceeds other periods by about 11.03 p.p., while increase in total tax revenue-to-GDP ratio by 1 p.p. in the previous period could cause reduction in the tax-to-GDP ratio in the given period by 0.23 p.p. If the tax revenue generated from the profit tax in period t increases by one billion Armenian drams it would cause an increase in tax-to-GDP ratio by about 0.318 p.p. in the same period, other things being equal.

Estimation #3

$$T/GDP_t = -2.82 + 0.00000000042 * IT + 13.08 * dt4 - 0.45 * T/GDP_{t-1}$$ (9)

$$(-2.04)** \quad (6.86)*** \quad (4.53)*** \quad (-6.34)***$$

Sample (adjusted): 2000:3 2015:2.
Included observations: 60.
R-squared: 0.762; adjusted R-squared: 0.749.
Note: value of t statistics in the parenthesis.
** significant at 5%; *** significant at 1% level.

On average, other things being equal, total tax revenue-to-GDP ratio in the fourth quarter exceeds other periods by about 13.08 p.p., while increase in total tax revenue-to-GDP ratio by 1 p.p. in the previous period could cause reduction in the tax-to-GDP ratio in the given period by 0.45 p.p. If the tax revenue generated from the income tax in period t increases by one billion Armenian drams it would cause an increase in tax-to-GDP ratio by about 0.42 p.p. in the same period, other things being equal.

Conclusions

Other thing being equal, the same increase in the tax revenues generated from all major types of tax contribute to changes in total tax revenue-to-GDP ratio differently. In general, the highest change in the ratio can be associated with the changes in income tax generated, followed by the excise tax, and corporate tax, while the contribution to changes in the ratio with respect to levying more of VAT is the lowest. The increase in the VAT generated (that has largest share in the total tax revenue (about 40% in 2015)) is mainly associated with the changes in increase in imports (paying VAT at the border while importing goods) and not the positive economic developments that have been translated into more tax revenue generated. A direct tax generated associated with the economic growth, business-friendly policy reforms, and etc. is the direct outcome of the government efforts to ensure attractive investment climate, job creation. However, the share of two types of main direct tax comprised about 39% of the total tax revenue, nearly equal to the share of VAT. This fact could state the following:

1. Armenia needs to curb the "shadow economy";

2. Adopt more business friendly policies.

Therefore, the priorities of tax administration reforms have to be on par with the issues of more efficient calculation of tax revenues, reduction of the size of the shadow economy, shaping of better business climate, creation of the new jobs and enhancement of overall societal welfare. In other words, tax administration reforms should stem from the necessity of the implementation of structural reforms and priorities in consideration of its positive impact on business climate, financial mediation, economic growth and poverty reduction.

Policy Recommendations

As policy recommendations, we highlight the followings:

1. The strategic issue of the improvement of the tax system should be the following:

– to increase of tax revenues–to-GDP ratio;

– to increase the proportion of direct tax revenues in the overall tax revenue;

– taxation of the revenues from capital transactions;

– optimization of the structure of the tax revenues;

– efficacy of import and export tariffs;

2. Among the most important leverages of the regulation of taxation are tax privileges that boost the activities of the overall economy on macro level and of certain enterprises on micro level. However, to exclude the impact of the subjective factors it is necessary to comprehensively substantiate thereof allocation. In particular, prior to giving tax privileges one should make sure that they are more efficient vis-a-vis the spendings envisaged in the state budget. At the same time, in Armenia only unpostponable programs should enjoy such privileges. Such programs should satisfy certain requirements;

3. To exclude periodic and large-scale inspections especially in the SMEs. It is obvious that such checks create additional difficulties for the SMEs plummeting the effectiveness of their work. In that regard, reducing the frequency of such checks it is necessary to substantiate thereof usefulness at the same time increasing the efficacy. For that purpose, it is necessary to adhere an approach that would target only those enterprises that are in high-risk group;

4. Among the most important directions of tax system reforms should be the amendments of VAT -related legislative acts. In particular, they should be based not on the reduction of VAT rates, but on its differentiation.

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