

ASSESSMENT OF TAX BURDEN IMPACT OF PER INDIVIDUAL TAX TYPES ON THE ARMENIAN ECONOMY

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Key words; taxes, tax burden, economic growth, profit tax, value added tax

Introduction. The most common classifications of taxes found in research works referring to the assessment of the taxes affect on the economy and its individual sectors (when discussing certain types of taxes or their impact) suggest the following types: direct and indirect taxes, corporate and personal income taxes, distortionary and non-distortionary taxes, taxes on factor and non-factor income and other classification of taxes.

In their reports Romero-Avila and Strauch discuss the negative role of direct taxes on the growth of GDP per capita [Romero-Ávila and Strauch, 2003, 26]. The authors conclude that direct taxation has a rather negative impact on the accumulation of physical capital. In the monograph presented at the Fifth Ukrainian-Russian Conference entitled "Theory and Practice of Tax Reforms", the authors note that in terms of economic efficiency consumer taxes on non-factor income have a number of advantages over taxes on factor income:

- In contrast to taxes imposed on factor income, consumer taxes are regressive.
- As the marginal propensity of consumption decreases with the growth of income, consumption taxes (the burden of which largely falls on low-income households) have a greater impact on consumption and less effect on savings.
- Consumption taxes do not reduce savings returns, so they do not tend to reduce aggregate savings, which happens in the case of taxes on factor income.

Taking into account above stated arguments the authors emphasize the importance of applying consumption taxes in countries with emerging markets.

Literature review. In research papers related to the assessment of direction and size of individual impact of each tax type on economy situations when the adverse effect of corporate tax burden on economic activity/growth rate is the largest (compared to the impact of other taxes) are very often depicted. One of the reasons for such immensity is that corporate taxes can have a significant impact on consumption, investment and employment rate. Let's consider some of the research on the impact of corporate taxes on the economy. The theorists Lee and Gordon, examining the economies and tax systems of

more than seventy countries, indicate that corporate taxes as a whole have had a rather negative impact on economic growth [Lee. Gordon, 2005, 1041].

OECD analyst Johansson also addresses the negative economic impact of corporate taxes. Johansson states that regarding the impact on economic growth the corporate tax is the most harmful one. According to the author, in view of similar impact, the corporate tax is followed by the income tax and then by consumption taxes [Johansson, 2008, 2]. Another OECD analyst, Jens Arnold, also reports that corporate taxes have the greatest negative impact on the economy, GDP per capita while consumption taxes, taxes on personal income and real estate taxes, have a relatively positive impact on economic growth [Arnold, 2008, 2]:

Naive approach. In light of the aforementioned discussion, estimation of the impact of the tax burden of specific tax types in the Republic of Armenia is of special interest. In this case, taking into account that the RA Tax Code is currently in effect in the RA and the RA tax system's functions are primarily regulated by the RA Tax Code, upon which the main legal relations for certain types of taxes are established, it would be relevant to estimate the economic impact of tax burden for specific tax forms in reference to 2016 year, when the Tax Code was approved by the RA National Assembly. In accordance with Article 6 of the RA Tax Code, taxes can be state or local. The types of state taxes are; value added tax (VAT), excise tax, profit tax, income tax, environmental tax, road tax and turnover tax. Local taxes can be 2 types; real estate tax and vehicle property tax. The following tables represent the tax revenues for the 4 main types of taxes which provide the largest budget incomes.

Table 1. VAT revenues in 2016-2020, in billion drams

Year	2016	2017	2018	2019	2020
VAT, including:	391.1	408.8	438.2	474.4	471.6
VAT from internal circulation	157.0	121.0	141.6	120.9	187.8
VAT From import	168.2	203.3	204.6	247.3	176.5
VAT on imports from EAEU	65.9	84.5	92.0	106.2	107.3

Table 2. Income tax revenues in 2016-2020, in billion drams

Year	2016	2017	2018	2019	2020
Income tax	332.8	341.2	356.6	410.3	411.2

Table 3. Profit tax revenues in 2016-2020, in billion drams

Year	2016	2017	2018	2019	2020
Profit tax, including:	127.2	110.0	170.1	181.3	148.8
Profit tax from residents	98.4	84.0	150.9	159.7	125.6
Profit tax from non- residents	28.8	26.0	19.2	21.6	23.2

As VAT has the largest share in the tax revenues of the Republic of Armenia in 2016-2020, so comparing to other types of taxes, the largest tax burden comes on VAT. As of the same period, the value added tax is followed by the income tax, the profit tax and the excise tax per their share size.

Table 4. Excise tax revenues in 2016-2020, in billion drams

Year	2016թ.	2017թ.	2018թ.	2019թ.	2020թ.
Excise tax, including:	59.7	82.3	109.0	127.5	123.6
Excise tax from the products produced in RA	24.1	37.2	61.8	68.0	62.3
Excise tax from goods imported to Armenia	25.7	31.5	37.5	43.9	40.4
Excise tax for goods imported from EAEU member countries	9.9	13.6	9.7	15.6	20.9

Taking into account the above-mentioned, the indicators of tax burden of individual types of taxes in 2016-2020 is represented in the figure below.

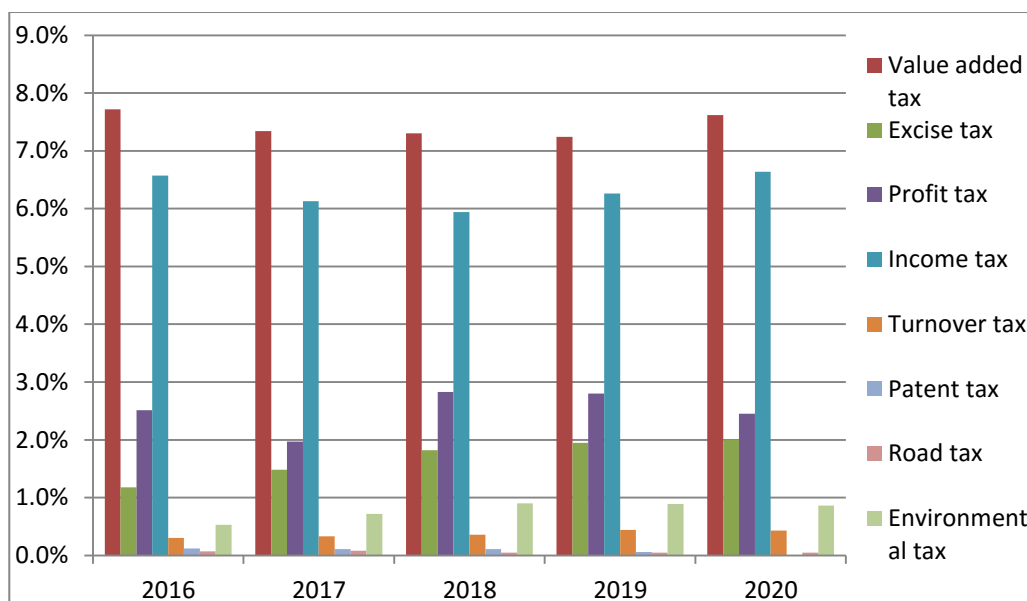


Figure 1. Tax burden of individual types of taxes, in percentage

According to data of individual tax types, in 2016-2019, there were no significant changes in the tax burden for any taxes, except for the patent tax, which was sharply reduced due to the fact that entities engaged in the activities of public catering sector, who had been considering patent taxpayers until the amendment to the Tax Code upon the law HO-338-N entered into force on 01.07.2018, became turnover taxpayers due to the change in the tax code became turnover taxpayers and moreover, since 2020 the whole patent tax system has been declared invalid.

At the same time, due to the economic downturn in 2020 as a result of both the coronavirus pandemic and the 44-day war, tax revenues on almost all types of taxes began to decline compared to the previous year, the most significant of which was the profit tax revenues the loss of which amounting to about 32.5 billion drams. As for the change of the tax burden according to different types of taxes in separate years, here we should be guided by the annual reports¹ of the State Revenue Committee of the RA.

Methodology. As we have mentioned, upon the current research we have set up a goal to find out the impact of certain types of taxes applied in the Republic of Armenia (changes in the tax burden on those types of taxes) on the Armenian economy (gross domestic product). by applying econometrical model. When considering the model, it is necessary to take into account the following main methodological peculiarities:

- Monthly data were used in quantitative calculations²;
- The sample length in the models is 60 (here we have used monthly indicators for the period of 2016-2020)³.

- Models with different characteristics were built within the frame of the same calculation method (OLS calculation method), thus creating an opportunity to observe and estimate the economic impact sizes of the below mentioned fiscal units by groups within different model modification.

- In quantitative calculations, apart from relative indicator of gross government expenditures/GDP ratio, we involve the relative indicators of tax revenues/GDP for the following fiscal units:

- 1) value added tax,
- 2) profit tax,
- 3) income tax,
- 4) excise tax,
- 5) environmental tax,
- 6) turnover tax,
- 7) other tax revenues.

In the research related to the subject «fiscal policy-economic growth» World Bank theorists H. Davoodi and H. Zoo desing the model of that relationship, based on hypothesis that GDP per capita has a functional relationship with tax rates and the share of expenditures made by various government agencies. This approach makes it possible to

¹ The source` <https://www.petekamutner.am/siPublications.aspx?ptname=AnnualReports>

² The source` <https://armstat.am/am/>

³ Quarterly GDP indicators for the period 01.2010-12.2020 were brought to the monthly level, using the ratios of the quarterly GDP growth indicator to the average economic activity indicator of that quarter. Quarterly government gross expenditures were brought to a monthly level, dividing the quarterly indicators by the number of months constituting the quarter by arithmetic mean.

observe and quantify the impact of certain taxes on the rate of economic expansion and economic activity¹.

Scientific novelty. Based on our analysis of the impact of the tax burden of certain types of taxes on the economic growth of the Republic of Armenia we discovered that out of current types of taxes applied in Armenia a negative impact on economic growth can be observed mainly in case of profit tax, VAT, as well as turnover tax, while tax burden per excise tax, environmental tax, as well as income tax mostly have a positive impact on GDP.

In this respect, the results of our models are not coincidental at all and once again, they substantiate the opinion that increasing the tax burden on low-demand-flexibility fiscal taxes (excise tax, environmental tax, real estate tax, as well as passive income tax) can have a positive impact on economic growth, while raising the tax burden in the case of high-demand flexibility taxes, is not economically feasible.

Analysis. The correlation between tax types, government spending and economic growth can be modeled as follows:

$$\Delta y_t = b_0 + \sum b_{it} * \Delta T_{it} + b_2 * \Delta X_t + \varepsilon_{it} \quad (37), \text{ where}$$

- Δy_t is the RA's GDP growth rate at the t moment,
- b_0 is the angular coefficient to be assessed,
- b_{it} is the coefficient that describes the impact of the tax burden on the i-th tax type on the economy²,
- b_2 is the coefficient that describes the impact of the RA's gross public expenditure/RA GDP ratio on the economy.
- ΔT_{it} is the index of growth rate of the tax burden per the i-th tax type at time the t moment,
- ΔX_t is the growth rate of the gross government expenditure/GDP ratio at the t moment,
- ε_{it} is the noise component which encompasses factors that are not included in the model (assumed to be i.i.d.).

The estimated coefficients of all variables in the models are statistically significant (at least p-value <0.1). The coefficients' covariance matrices are estimated using Newey-West heteroskedasticity and autocorrelation consistent estimators in the models. Table 5 represents the results of models designed with different combinations of fiscal units:

¹ We also have used this hypothesis to model the interaction of tax-economic growth. Unlike the model proposed by Davoodi and Zoo, in our model each type of tax is presented not in terms of its own tax rate, but in terms of its tax burden; tax revenue/GDP ratio for each type.

² Depending on the model specification, the increase in the tax burden on taxes is calculated using either the first difference of the gross tax revenue/GDP ratio or the first difference of the logarithmic value of the gross tax revenue/GDP ratio.

Table 5. Results of 5 models built with different combinations of tax and budget units

Variables	Model 1 (estimated coefficient sign)	Model 2 (estimated coefficient sign)	Model 3 (estimated coefficient sign)	Model 4 (estimated coefficient sign)	Model 5 (estimated coefficient sign)
C	-	-	-	-	-
Gross government expenditure/GDP	+	+	+	+	+
VAT/GDP	-	N/A	N/A	N/A	-
Profit tax/GDP	-	-	-	-	
Income tax/GDP	N/A	+	N/A	-	+
Excise tax/GDP	+	+	-	+	+
Environmental tax/ GDP	N/A	N/A	+	+	N/A
Turnover tax/ GDP	N/A	-	N/A	-	N/A
Other taxes /GDP	-	N/A	-	+	-
R-squared	0.7526	0.2887	0.2895	0.6978	0.2787
Adjusted R-squared	0.7297	0.2228	0.2238	0.6571	0.2119
S.E. of regression	55884	94756	94701	62936	95422
Log likelihood	-738	-770	-769	-744	-770
F-statistic	32.8563	4.3843	4.4024	17.1579	4.1733
Prob (F-statistic)	0.0000	0.0021	0.0019	0.0000	0.0028
Prob(Wald F- statistic)	0.0000	0.0101	0.0008	0.0000	0.0147
Included observations	60	60	60	60	60

Conclusion. Summarizing the results of the obtained models, we can infer the following:

- According to the estimates of all five models, the growth of the Gross Government Expenditures/ GDP ratio had a positive effect on economic growth, and vice versa.
- According to the estimates of the two models, in which the gross tax revenue / GDP ratio for VAT tax type was represented, the impact of the latter's growth on economic growth was assessed to be negative.
- In all four models, in which the gross profit tax revenues/GDP ratio was represented, the impact of profit tax growth on economic growth was assessed to be negative.
- In two of three models, in which the gross income tax revenue / GDP ratio was represented, the impact of the latter's growth on economic growth was assessed to be.
- In four of five models, in which gross excise tax revenues/GDP ratio was represented, the impact of excise tax growth on economic growth was assessed to be positive.
- According to the estimates of the two models, in which the Environmental Payments / GDP ratio was represented, the impact of the latter growth on economic growth was positive.

- According to the estimates of the two models, in which the gross turnover tax revenues/GDP ratio was represented, the impact of the turnover tax growth on economic growth was assessed to be negative.
- In three of the four models, in which the other tax revenues/GDP ratio was represented, the impact of the latter's growth on economic growth was assessed to be negative.

References

1. Acosta-Ormaechea S. and Yoo J., Tax composition and growth: A broad cross-country perspective, IMF working paper, WP/12/257, 2012, p. 35.
2. Arnold J. M. et al, Tax policy for economic recovery and growth, The economic journal, 2011, pp. 59-80.
3. Arnold J. M., Do Tax Structures Affect Agregate Economic Growth? Empirical evidence from a panel of OECD countries, OECD, Economics Department, Working paper No. 643, 2008, p. 28.
4. Auerbach A. J. and Smetters K., The economics of tax policy, Oxford University Press, 2017, p. 390.
5. Avi-Yonah S., Margalioth Y., Taxation in Developing Countries: Some Recent Support and Challenges to the Conventional View, The Virginia Tax Review, 2007, p.21
6. Bonucchi M. et al., Tax policy, investment decisions and economic growth, Reveu De L'OFCE, 2015, pp. 225-262.
7. Davoodi H., Zou H., Fiscal Decentralization and Economic Growth: A Cross-Country Study, Journal of Urban Economics, 1998, pp. 244-257.
8. Gale G. W. et al, Effect of income tax changes on economic growth, Economic studies at Brookings, September 2014, p. 15.
9. Gashi B., Asllani G., Boqolli L., The effect of tax structure in economic growth, International Journal of Economics and Bussines Administration, Vol.6/2, 2018, p.56-67.
10. Gechert S. and Heimberger P., Do corporate tax cuts boost economic growth?, Working paper 201, IMK Macroeconomic Policy Institute, June 2021, p. 44.
11. Johansson Å. et. al, Tax and Economic Growth, OECD, Economics Department, Working paper No. 620, 2008, p. 85.
12. Lee Y., Gordon R., Tax structure and economic growth, Journal of Public Economics, vol. 89, issue 5-6, 2005, pp. 1027-1043.
13. Maiburova A., Ivanova Y.B., Tarangul L.L., Economics of tax reforms: monograph, Publishing house "Alerta", Kyiv, 2013, p. 181.
14. McNabb K., Tax structures and economicgrowth: new evidence from the government revenue dataset, Journal of International Developpment, 2018, pp. 173-205.

15. Neog Y. and Gaur A. K., Tax structure and economic growth: a study of selected Indian states, *Journal of Economic Structures*, 2020, p. 12.
16. RA Tax Code, HO-165-N, ARPA 2016.11.04 / 79 (1259).
17. Romero-Ávila D., Strauch R., Public Finance on long-term growth in Europe: Evidence from panel data analysis, Working paper series, European Central Bank, Working Paper No. 246, July 2003, p. 50.
18. Steiner R., Taxation and economic growth in Colombia, IDB working paper series N. IDB-WP-493, Inter-American Development Bank, 2014, p. 45.
19. Stoilova D., Tax structure and economic growth: Evidence from the European Union, *South-West University*, Vol. 62, N 3, 2017, pp. 1041-1057.
20. Xing J., Does tax structure affect economic growth? Empirical evidence from OECD countries, WP 11/20 Oxford University Centre For Business Taxation, Oct. 5, 2011.
21. <https://www.petekamutner.am/>
22. <https://armstat.am/am/>

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Assessment of tax burden impact of per individual tax types on the Armenian economy

Key words; axes, tax burden, economic growth, profit tax, value added tax

In the basis of generating the needed state revenues for the efficient operation of each country is well designed tax policy. Tax system is the basis of the tax policy and it's study begins and ends with analysis of the main elements, i. e. taxes. Studies on the role and essence of taxes and their impact on the economy have been conducted since ancient times and they are still widespread. In addition to providing the needed state revenues, taxes have also another prior role due to its regulatory characteristic as they serve as a means of implementing income redistribution function the people of different social and income groups, which aims to balance the disproportion of income and wealth between these layers. Taking into account the above mentioned, we have made an attempt to assess the impact of the tax burden for each separate tax types on the economy of the Republic of Armenia.