Theoretical and Empirical Basis of Optimal Tax Burden in Georgia

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Abstract—**High speed of globalization has created inevitability of ensuring objectives of sustainable development of economics and optimally determined taxes can play very important role in it, which is the main factor for formation of tax burden. This in itself is an important leverage for achieving the sustainable development and prosperity of society. Generally, state regulates economy of the country through the taxes because it is the main tool for shaping the country's revenue part of the budget. The aim of the paper is to determine the optimal tax burden for the economy of Georgia. In order to achieve above mentioned goal numerous research methods have been applied: Qualitative, quantitative, correlation/regression analysis. As a result, it has been received that optimal tax burden which is controllable, anticipatory and oriental parameter for the economy of Georgia ranges from 13.6% to 17.6%.**

Index Terms—**Empirical research, laffer curve, optimal tax burden, sustainable development.**

I. INTRODUCTION

In recent years, in Georgia, as a result of the tax reform the number of taxes were reduced from 21 to 6, as well as tax rates were reduced [1]. Despite of these facts, tax burden needs further optimization. As it is known, tax burden is calculated as for the country as a whole, it is calculated as well as for institutional units (corporation, enterprise) and for population. Sustainable development of economy and business promotion greatly depends on heaviness and lightness of tax burden. Thus, it is very important and difficult scientific and practical problem to determine the optimal size of tax burden. There still does not exists universally accepted methodology for determining optimal tax rates, which is the main issue for optimal tax burden formation.

II. ANALYSIS AND FINDINGS

In order to study the problem, I have determined the methodology which is dedicated for determination of optimal tax rates. As we know taxes have dual nature. The first part is paid by an enterprise for the value of production (services), which can be called as a compulsory tax. As for the second part of the tax it should be paid by corporation for the realization of common state goals such as ensuring country's defense, public education and health care, contribution of economic development. How should we calculate first and

second part of taxes? A research was conducted by me to determine corporate tax rate. On the basis of National Statistics Office of Georgia I have investigated 9735 enterprises. Research has shown that on the share of the first part of corporate tax is 12% of enterprise profit. According to country's tax code, corporate tax is 15 %. In my opinion, the difference between official rate of 15 % and 12% is the second part of the tax. How can we define the second part? In this way we have to study opinions of experts, politicians, governmental agencies, non-governmental organizations, a survey should be conducted to determine which problem should be considered as a main and first problem between the next ones: country's defense capacity, public order, health care, economic development. Also it's very important to take in consideration the situation which exists in the EU member states, I mean that our rates should be closer to EU average rates. In the same way should be calculated rates of other taxes, so the first part of taxes is the cost which is paid by corporations for receiving income, taxes for consumption and accumulation. The second part should be determined by questioning experts and making surveys. Tax rates should be calculated not for short-term but for long run perspectives and after 5 or 10 years it should be reviewed by taking in consideration the results of new surveys. After determining optimal tax rates it should be calculated optimal tax burden for corporation, as well as for country. Table I shows tax burden in Georgia from 2003 to 2012.

TABLE I: TAX BURDEN IN GEORGIA, 2003-2012

Indicator	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
GDP at current prices, mln.Gel	8564	9824	11621	13790	16994	19075	17986	20743	24211	26138
Tax Revenues at current prices, mln.Gel	1005	1530	1983	2647	3669	4753	4389	4867	6134	6671
Tax Burden %	11,7	15,6	17,1	19,2	21,6	24,9	24,4	23,5	25,3	25,5

Source: Calculated by the author on the base of National Statistics Office of Georgia [2]

As Table I shows tax burden in Georgia is gradually worsening since 2003 and in 2012 compared with 2003 has increased two times and more. Although, it should be mentioned that tax burden in Georgia is lowest in comparison with European Union countries [3]. As international practice shows, generally tax revenue increases in the post-election

years [4].

According to economic activities tax burden is lowest in trade and the highest is in mining industry enterprises. Generally, such trend has been established during burden analysis: Tax burden is high in good manufacturing fields and is low in service sectors.

Despite the fact that the tax burden is different by large, medium and small enterprises, as well as by economic activities of enterprises, more detailed information about lightness and heaviness of tax burden can be seen by distribution of tax burden on enterprises by decile groups.

It is investigated and analyzed each company's tax burden by the year 2011 and based on analysis of decile groups of burden I have investigated that in terms of average level of tax burden in enterprises (28,11%), 10% of enterprises who have the most light burden have 8,7 % of whole burden of enterprises, also 10% of enterprises who have the biggest burden have 53,5% of whole burden, so tax burden of largest enterprises is 6 times more than burden of smallest enterprises, whereas according to tax code enterprises irrespective of their size and type of activities are paying the same interest rate taxes. The only exceptions are individual entrepreneurs who benefit from preferential tax rates. Thus, analysis of tax burden and according to my research it is obvious that nowadays the existing tax burden in Georgia needs further optimization which is the most important factor for sustainable development of country's economy.

In order to have a clearer representation about the optimal level of tax burden on macro level we have to build Laffer curve for economy of Georgia according to the years 1996 – 2012. Laffer dynamic curve by interpretation of Balatsky is given by the following formula [5]:

$$x = a \cdot q + b \cdot q^2 \qquad (1)$$

where a and b are estimated parameters.

(1) Model allows us to obtain three indicators at the same time. They are the dynamic Laffer point q^*, the static Laffer point q^{**}, and the maximum economic growth rate x^*. Model (1) shows the correlation between pace of GDP growth and tax rate.

$x = \dfrac{x_t - x_{t-1}}{x_{t-1}}$ is the pace of GDP growth;

$q = \dfrac{T}{x}$ - is the tax burden, which is calculated as the sum of the tax revenue to GDP for the year.

In order to evaluate optimal tax burden, we have to analyze official statistical data (Table II).

TABLE II: ANALYZE OFFICIAL STATISTICAL DATA

Year	GDP - 1996 year prices	Tax revenues - 1996 year prices
1996	3868,475	386,2
1997	4275,402	727,877
1998	4408,149	663,025
1999	4534,630	736,916
2000	4617,992	753,051
2001	4839,907	833,985

2002	5104,836	887,175
2003	5669,334	890,768
2004	6001,536	964,341
2005	6577,269	975,769
2006	7194,477	1043,549
2007	8082,121	1223,581
2008	8269,145	1230,448
2009	7956,921	1209,150
2010	8454,469	1224,518
2011	9060,955	1349,158
2012	9615,026	1450,578

Source: Calculated by the author on the base of National Statistics Office of Georgia

Regression analysis in Excel is as follows:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,998816
R Square	0,997634
Adjusted	0,930809
Standard	0,055063
Observati	17

ANOVA

	df	SS	MS	F	gnificance F
Regressio	2	19,17362	9,586811	3161,945	2,57E-19
Residual	15	0,045479	0,003032		
Total	17	19,2191			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95,0%	pper 95,0%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable	16,01418	1,039874	15,40011	1,34E-10	13,79774	18,23062	13,79774	18,23062
X Variable	-58,671	6,643468	-8,83138	2,5E-07	-72,8312	-44,5108	-72,8312	-44,5108

As we can see the model satisfies the statistical estimation of the parameters set for him. Laffer curve for the economy of Georgia can be figured out as the following:

$$x = 16,014q - 58,671q^2 \qquad (2)$$

By solving Parabola, we will see that the optimal tax burden, i.e. the dynamic Laffer point, $q = 13,6\%$ and the optimal economic growth is 9,3%, the static Laffer point is equal to 17,6%. If we look at the economy's real growth data, as well as tax burden data (Table III), we can evaluate size of deviation from optimal level of this parameter for each year.

TABLE III: REAL GROWTH OF GDP (%, IN COMPARISON WITH THE PREVIOUS YEAR) AND TAX BURDEN IN GEORGIA, 1996-2012

Year	Real growth rate of economy	Tax Burden
1996	1,113	0,099
1997	1,1053	0,170
1998	1,0313	0,150
1999	1,029	0,163
2000	1,018	0,163
2001	1,048	0,172
2002	1,055	0,174
2003	1,111	0,157
2004	1,059	0,160
2005	1,096	0,148
2006	1,094	0,145
2007	1,123	0,151
2008	1,023	0,149
2009	0,962	0,152
2010	1,062	0,145
2011	1,072	0,149
2012	1,061	0,151

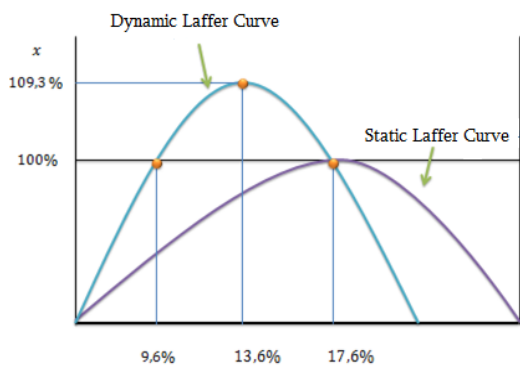Source: Calculated by the author on the base of National Statistics Office of Georgia

Fig. 1. Dynamic and static laffer curves.

Static Laffer curve points indicate state of economy where GDP maintains constant pace of growth, which is equal to one. Fiscal policy action range is within these points. Deviation beyond this interval will entail economic crisis of the country. Estimated value of static Laffer points for economy of Georgia is respectively 9.6% and 17.6%. This means that tax burden lower than 9.6% will cause country's economic downturn, as well as an increase of the tax burden above 17,6% will bring the economy of the country in recessive condition (Fig. 1).

In terms of optimality, it is rational if meaning of tax burden will be closer to 13.6 % - from the left, however, for providing the necessary budgetary expenditures, executive and legislative bodies who are compiling fiscal policy, probably, will choose parameters of tax burden from 13.6% - 17.6%. Under these conditions, in addition to higher budget revenues, the economy is growing accordingly. Thus, interval of tax burden between 13.6% - 17.6% is controllable, anticipatory and oriental parameter.

The empirical analysis comprises a state level and micro level approach [6]. It should be mentioned that tax burden on micro level (tax burden of enterprises) plays significant role in development of country's economy.

Tax burden on level of enterprises is calculated by different ways. These are: taxes paid by enterprises in proportions to intermediate consumption, share of taxes paid by enterprises in total income or taxes paid by enterprises in proportion to value added.

In order to calculate tax burden of enterprises in 2013, a special research was conducted. As we know burden of enterprise = (corporate tax + property tax +import duty + income tax + excise tax) / total income.

In 2013, 59028 enterprises are registered in informational database of National Statistics Office of Georgia. We investigated 8515 enterprise by using combined system of observation. Large enterprises – 3323, Medium enterprises – 1949, small enterprises–3243.

Selection was implemented by selecting stratified groups and selection of enterprises within the groups was managed by simple random sampling. Information was processed by computer programs: MS Access; MS excel, SPSS.

From selected 8515 enterprises, calculation of each enterprise's tax burden was done by extracting data about individual entrepreneurs, on the grounds that this type of institutional units according to Tax Code have certain benefits. According to our research, we received next figure of tax burden (Table IV).

TABLE IV: TAX BURDEN BY TYPES (SIZE) OF ENTERPRISES

Types of enterprises	Number of enterprises	Average tax burden (%)
Large	3323	24,7
Medium	1949	26,1
Small	3243	28,3
Total	8515	26,4

Source: Calculated by the author on the base of National Statistics Office of Georgia

As we see from above mentioned data, tax burden of large enterprises is lower by 2 percentage points than the total average tax burden of whole enterprises. This difference is even more noticeable between large, medium and small enterprises. In particular, tax burden of small enterprises is more by 3,6% than tax burden of large enterprises.

Analysis of tax burden by types of economic activities of enterprises has significant importance. It has following form(Table V):

TABLE V: TAX BURDEN OF ENTERPRISES BY TYPE OF ECONOMIC ACTIVITIES

Section	Economic activities of enterprises	Average tax burden %
A	Agriculture, hunting and forestry	31,4
B	Fishing	30,5
C	Mining	28,0
D	Manufacturing	25,7
E	Electricity, gas and water supply	25,5
F	Construction	27,1
G	Trade, repair of motor vehicles and household appliances	23,4
H	Hotels and Restaurants	25,1
K	Transport and communications	27,4
L	Operations with real estate and lease	30,1
M	Education	31,1
N	Health care and social services	32,4
O	Social and personal service activities	33,7
Total		26,4

Source: Calculated by the author on the base of National Statistics Office of Georgia

During analysis of tax burden such a trend has been established: In 2013, the tax burden is high in commodity producer fields and tax burden is low in service sectors.

Although the tax burden of enterprises are different in large, medium and small enterprises, as well as by types of economic activities of enterprises, we can have more detailed analysis about lightness and heaviness of tax burden by distribution of enterprises by decile groups (di). In this case, the tax burden of enterprises should be divided into 10 equal parts by the ranked columns. The first decile (d1) divides the aggregate accordingly to $\frac{1}{10} - \frac{9}{10}$. The second decile (d2) divides aggregate accordingly to $\frac{2}{10} - \frac{8}{10}$ and etc.

We calculated decile in the same way as median is calculated.

Particularly,

$$d_1 = xd_1 + i \cdot \frac{(\frac{1}{10}\sum F - Sd_1 - 1)}{fd_1}$$

$$d_9 = xd_9 + i \cdot \frac{(\frac{9}{10}\sum F - Sd_9 - 1)}{fd_9}$$

Afterwards, enterprises being in our observation area were divided into 10 parts (Table VI):

TABLE VI: DISTRIBUTION OF ENTERPRISES BY DECILE GROUPS ACCORDING TO BURDEN SIZE

Number of group	Minimum of Burden	Maximum of Burden	Number of enterprises
1	20,002	26,996	2383
2	26,996	33,988	805
3	33,988	40,980	189
4	40,980	47,973	58
5	47,973	54,966	30
6	54,966	61,959	12
7	61,959	68,952	12
8	68,952	75,945	11
9	75,945	82,937	5
10	82,937	89,930	9

Source: Calculated by the author on the base of National Statistics Office of Georgia

Number of first decile group:

$$Nd_1 = (\sum f) \cdot \frac{1}{10} = \frac{3514}{10} = 351,4$$

$$d_1 = 20,002 + 6,992 \cdot \frac{351,4 - 0}{2383} = 21,033$$

Ninth decile group number:

$$Nd_9 = (\sum f) \cdot \frac{9}{10} = 316,26$$

$$d_9 = 26996 + 6992 \cdot \frac{3162,6 - 2383}{805} = 33,7$$

By given calculations, we can conclude that according to tax burden, 10% of low burden enterprises have 21.03% of whole burden, while also 10% of high burden enterprises have 33,7% of whole burden, which is 1.6 times higher than the lowest.

III. CONCLUSION

Analysis of tax burden and according to our research, it is obvious that nowadays existing tax burden in Georgia needs further optimization which is the most important factor for sustainable development of country's economy.

In order to achieve sustainable development of economy and prosperity of society, oriental parameter of tax burden on macro level should range from 13.6% to 17.6% and tax rates should differ by size of enterprises (large, medium, small) as well as by activities of enterprises (trade, extractive industry, energy, manufacturing, etc.), whereas according to tax code of Georgia enterprises irrespective of their size and type of activities are paying the same interest rate taxes. All above mentioned factors are the basis of optimal tax burden in Georgia.

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