



Taxation Regime as a Factor of Mutually Intergrated Macroeconomic Systems' Dynamics

DENIS USHAKOV¹, VLADIMIR BANDURIN², and ALEXANDR BANDURIN³

¹ Dr., professor, International College Suan Sunandha Rajabhat University, Bangkok, Thailand , fintaliano@yandex.ru

² Dr., professor, State Research Institute of System Analysis of the Accounts Chamber of the Russian Federation, Moscow, Russia, vband@mail.ru

³ Dr., professor, Moscow City Department for Multicultural Relations, Interregional Cooperation, and Tourism, Russia, abander@mail.ru

ARTICLE INFO

Received October 27, 2016
Received in revised from December 19, 2016
Accepted February 15, 2017
Available online 15 March 2017

JEL classification:

E02; E61; G28; H21; H71

DOI: 10.14254/1800-5845/2017.13-1.12

Keywords:

world trade,
taxation regime,
taxation comfort,
globalization,
tax rate

ABSTRACT

In this article the authors, operating the criteria of rigid and comfortable national taxation regimes, attempt to evaluate the stimulating impact of country's taxation systems on the dynamics of their macroeconomic growth and country's participation in the world trade. Based on correlation of indices of tax reformations and trends of the modern countries macroeconomic development, co-authors present their conclusions on the priority importance of the so-called "taxation comfort" in the context of country's positioning in the global rankings. The major aim is to demonstrate how taxation and tax regimes specifically can (de)stimulate economic growth and also increase trade attractiveness of the states in today's highly globalized world.

INTRODUCTION

Taxation regime of a country is among the most efficient and well known instruments of state regulation and state economic stimulation. It can also become the factor of attractiveness for foreign investors, for potential business partners from abroad and also for highly qualified (today often known as "the creative class") labour force. Cross-country comparison of the current tax rates and of the so-called "taxation comfort" (which metaphorically expresses the (in)convenience of all tax payments and other related formalities) today is actively used by a wide range of international and regional organizations and unions as a feature in overall cross-country comparisons

and their consequent ranking. It is also part of various aggregates indicators and indices – global competitiveness, investment attractiveness. Additionally to that, tax rates and taxation comfort assessments are also a significant factor for a variety of forecasts, foresights and strategic plans of various levels, from micro to macro.

There exist a popular idea that today, due to intensive globalization of the world economy and wide universalization of various public-level and business practices (including, inter alia, economic and fiscal regulation), the potential of a taxation regime as a factor of economic development is overestimated since its influence on country's participation in global trade and country's capacity of compete globally is rapidly decreasing. All of the above makes the following question topical as many times before: In the 21st century is national taxation system still able to stimulate the economic growth of a country and promote its trade attractiveness abroad?

Research aim: on the basis of authors' analysis of today's most widely used indicators of taxation regimes worldwide as well as indices of the same countries' macroeconomic development we will attempt here to evaluate the impact of tax reforms on the dynamics of economic growth on the sample of the selected countries.

Taking this aim into account, we set here *the following tasks:*

- on the basis of the mentioned above correlation, the determine the potential to stimulate the macroeconomic growth in the selected countries and also to estimate their external trade attractiveness from the standpoint of national tax systems according to the international ranking “Doing Business”;
- to describe the tax regime rank in “Doing Business” as a factor stimulating national exports and imports;
- to determine whether the so-called “taxation comfort” (measured through the number of tax payment per year and also time spent on all taxation-related procedures and documents) is indeed able to stimulate country's macroeconomic growth as compared to the same stimulating impact a tax rate (in the same country) may have;
- to analyze the role of tax rate as a tool in stimulation of national external trade (that is, import and export);
- to test empirically the presence (or absence) of reverse dependence between the level of country's economic development, its participation in the world trade and the level of its “taxation comfort”.

1. LITERATURE OVERVIEW

The influence of taxation regime on the economic growth dynamics and other macroeconomic indicators of the states today is an extremely topical issue because nowadays national governments tend to reconsider both instruments and strategies related to national competitiveness increase and global repositioning in the structure of global labour distribution.

Historic features of tax policies implementation and of the related national strategies aimed at stimulation of external competitiveness of countries were well outlined by H. Pemberton (2004) while examining the most important elements of the growth policy package, focusing on the array of new taxes introduced after 1960 which sought to raise growth by increasing the government's control over the economy, encouraging the more productive use of labour, or stimulating investment via changes to the structure of taxation.

S. Acharya (2015) presented taxation as a key component of national economic policy in the context of global trend of overall economic liberalization. And F. Widmalm (2001) using pooled cross-sectional data of 23 OECD countries (1965 to 1990) came to the conclusion that tax structure affects economic growth, more specifically, the proportion of tax revenue raised by tax-

ing personal income has a negative correlation with economic growth. Moreover, she concluded that tax progressivity, measured in terms of long-run income elasticity of tax revenue, is associated with low economic growth.

The theoretical grounds for correlation between the economic growth dynamics and tax reforms on a sample of economies in transit were studied in great deal of detail by famous Russian economist E. V. Balatskii (2006). This author explained the adverse effect of tax reforms on economic growth and also offered the original classification of fiscal reforms, which includes the notions of fiscal quasi- and pseudo-traps.

Toshiki Tamai (2005) examined the relationship between wealth distribution and economic growth in an endogenous growth model with heterogeneous households and redistributive taxation. He incorporated endogenous determination of redistributive policy focusing on the relation between pre- and post-tax inequality and proved that endogenous redistributive policy affects wealth distribution and economic growth, while there exists a negative correlation between pre-tax inequality and economic growth and inverted-U relationship between post-tax inequality and economic growth in a voting equilibrium.

Valuable contribution concerning the ideal size of tax load (ideal – meaning capable of providing sustainable economic growth) on the sample of 8 leading economies was offered by Bjørn Volkerink, Jan-Egbert Sturm and Jakob de Haan (2002). These authors also grounded, *inter alia*, that capital taxes can reduce economic growth и high labor taxes have increased unemployment in Europe.

The problems of taxation policy modernization and the related public strategies concerning budget investments and/or indirect taxation (on the case study of European countries) have been studied by Gustavo A. Marrero (2010). This author came to the conclusion that optimal tax system becomes more intensive in income taxation relative to consumption taxation, and that public disbursements become less intensive in public investment.

There are, of course, much more applied research concerning the role of taxation in economic growth stimulation carried out for various countries, but first of all, on the data of the USA and the EU and aimed mostly on theoretical explanation of tax transformations and adaptation of taxation regimes to economic real conditions in various time periods. Among these many, for example, R. Hill (2008) determined the models of taxation as adapted to the requirements of economic growth stabilization and identified that “growth maximizing tax rate even if no relationship exists between growth and the size of the state”. Also noteworthy are the studies by G. W. Scully (2003) on the optimal tax rate for separate categories of taxes for economic stimulation, or for example, Cruz A. Echevarría (2015) who separately studied personal income tax rates.

Another quite successful attempt to reveal the correlation between the taxation load and the economic growth dynamics for European countries was carried out by L. Sinevičienė (2016) who determined that tax burden on capital and consumption is higher in highly developed countries; but implicit tax rate on capital is higher in the case of countries with lower GDP growth, high government sector and high government debt.

Finally, probably the most well known studies ranging the countries by the attractiveness level of their taxation systems for doing business, for international capital or investors and for participation in the world trade are traditionally carried out by the experts affiliated to the “Doing Business” project, and their annual reports have become the statistical basis for our further research.

2. RESEARCH METHODOLOGY

Here we attempt to study the correlation between the indicators of tax reforms' dynamics and the macroeconomic development trends on a sample of countries. For this matter we have used the statistics data on economic development of the selected countries, the World Bank data:

- dynamics of GDP growth, dynamics of GDP growth per capita
- dynamics of export growth (in relative and absolute numbers) and the same for imports (also relative and absolute) for the selected countries.

In our analysis of tax reforms dynamics by countries we have also used the following indicators from the "Doing Business" reports:

- International ranking of the tax system in particular country;
- Time needed for all tax formalities in a country;
- The number of tax reporting periods by countries;
- The average size of tax rate (the synthetic indicator of tax rate for private individuals and legal bodies in a country).

We managed to analyze the data on 134 countries of the world, and for this analysis we have chosen the time period of 2009-2016.

3. THE OBTAINED RESULTS

Our correlation analysis results have demonstrated that the rank of taxation system of a country in the international ranking "Doing Business" indeed has impact on GDP level per capita, and this impact is rather long-term, not changing significantly with years (see Table 1). Improvement in this rank of a country also predetermines the growth of per capita GDP (in its dynamics), however, this impact seems to be rather short-term, it tends to fade away in 2-3 years after the country's improvement on this position.

Table 1. Correlation between the taxation system rank according to "Doing Business" and countries' GDP per capita (2009-2016)

Rank	GDP per capita						
	2010	2011	2012	2013	2014	2015	2016
2009	0,55	0,55	0,56	0,56	0,55	0,56	0,56
2010		0,55	0,55	0,55	0,55	0,55	0,55
2011			0,54	0,54	0,54	0,54	0,55
2012				0,54	0,54	0,54	0,54
2013					0,55	0,55	0,55
2014						0,55	0,55
2015							0,53

*Calculated by the authors using the data from "Doing Business" and also World Bank data

Table 2. Correlations between the taxation system rankings and national exports/imports (2009-2016)

Rank	Export					
	2010	2011	2012	2013	2014	2015
2009	0,57	0,57	0,58	0,58	0,58	0,58
2010		0,56	0,57	0,57	0,57	0,57
2011			0,56	0,56	0,57	0,56
2012				0,56	0,56	0,55
2013					0,56	0,56
2014						0,54

Rank	Import						
	2010	2011	2012	2013	2014	2015	2016
2009	-0,16	-0,09	0,04	0,04	0,002	-0,03	0,16
2010		-0,06	0,06	0,06	0,004	-0,03	0,17
2011			0,05	0,06	-0,003	-0,05	0,17
2012				0,06	-0,03	-0,05	0,13
2013					-0,09	-0,1	0,07
2014						-0,1	0,04
2015							-0,06
2016							-0,09

*Calculated by the authors using the data from “Doing Business” and also World Bank data

Considering the dynamics of the international trade indicators, we can state that country’s rank of the taxation system has much more impact on its exports, rather than on its imports. This proves the widely spread assumption that tax reforms, in any country, are of top priority for strong national companies (those doing business, that is selling abroad in this case), rather than for general population and its paying capacity (which tends to spend the money, “freed” as a result of tax reforms, on consumption, that is, often on purchases of imported goods).

Thus, we can conclude that even though the primary goal of any tax reform is to improve the national welfare and make population incomes higher, it also promotes the growth of national production and its competitiveness at the world markets.

Further in our analysis we would like to consider the influence of separate components of national taxation regimes (the size of average tax rate, the number of tax payments per year and the time spent on all tax formalities) on the macroeconomic indicators of countries.

In particular, we have determined that correlation between the tax rate and the dynamics of economic development and also the level of country’s engagement in global economic processes is nearly absent, in both long and short terms.

Table 3. Correlation between the average tax rate, GDP per capita and the growth of national exports (2010-2016)

Tax rate	GDP per capita					
	2010	2011	2012	2013	2014	2015
2009	-0,16	-0,16	-0,17	-0,17	-0,17	-0,17
2010		-0,16	-0,17	-0,17	-0,17	-0,17
2011			-0,17	-0,17	-0,17	-0,18
2012				-0,17	-0,17	-0,17
2013					-0,16	-0,16
2014						-0,15

Tax rate	Export growth						
	2010	2011	2012	2013	2014	2015	2016
2009	0,11	0,2	0,08	0,05	-0,05	-0,06	-0,02
2010		0,17	0,07	0,05	-0,04	-0,01	-0,03
2011			0,08	0,04	-0,02	-0,04	-0,02
2012				0,03	-0,01	-0,07	-0,09
2013					-0,003	-0,05	-0,04
2014						-0,06	0,01

*calculated by the authors on the data from “Doing Business” and the World Bank

Table 4. Correlation between tax payments per year, GDP per capita and the growth of national exports (2010-2016)

Payment	GDP per capita					
	2010	2011	2012	2013	2014	2015
2009	-0,49	-0,49	-0,49	-0,49	-0,48	-0,48
2010		-0,49	-0,49	-0,48	-0,48	-0,48
2011			-0,5	-0,49	-0,49	-0,49
2012				-0,47	-0,47	-0,47
2013					-0,54	-0,54
2014						-0,53

Payment	Export growth						
	2010	2011	2012	2013	2014	2015	2016
2009	-0,32	-0,31	-0,32	-0,32	-0,32	-0,31	-0,3
2010		-0,31	-0,31	-0,31	-0,31	-0,31	-0,3
2011			-0,32	-0,32	-0,32	-0,31	-0,3
2012				-0,3	-0,3	-0,3	-0,29
2013					-0,36	-0,35	-0,33
2014						-0,34	-0,33

*calculated by the authors on the data from “Doing Business” and the World Bank

At the same time, despite the stably low correlation between the time needed for tax formalities and the number of tax payments per year on one hand, and the macroeconomic dynamics on the other, it is still higher than with the tax rate (see Table 3, 4, 5).

Table 5. Correlation between the time spent on tax formalities, GDP per capita and the growth of national exports (2010-2016)

Time	GDP per capita						
	2010	2011	2012	2013	2014	2015	2016
2009	-0,37	-0,37	-0,38	-0,38	-0,38	-0,38	-0,16
2010		-0,38	-0,39	-0,39	-0,39	-0,39	-0,16
2011			-0,4	-0,4	-0,4	-0,4	-0,16
2012				-0,41	-0,41	-0,42	-0,16
2013					-0,44	-0,44	-0,17
2014						-0,44	-0,17

Time	Export growth					
	2010	2011	2012	2013	2014	2015
2009	-0,17	-0,16	-0,17	-0,17	-0,17	-0,17
2010		-0,16	-0,17	-0,17	-0,17	-0,17
2011			-0,17	-0,17	-0,18	-0,17
2012				-0,17	-0,18	-0,17
2013					-0,19	-0,18
2014						-0,18

*calculated by the authors on the data from “Doing Business” and the World Bank

All of the above proves the hypothesis that in today’s conditions of the world economy’s development organizational components of taxation system (in our case, these would be the number of tax payments per year and the time spent on all taxation formalities) are significantly more stimulating for economic growth overall and trade relations in particular, rather than the tax rate. This means that the comfort of taxation regime is more important than its rigidness, which is quite logical taking into account the limited nature of tax rate instrument for improvement of conditions for tax agents. In any case there exists a certain threshold for the tax rate decrease, and this threshold value should be taken into account in formation of countries’ budget programs. For international competition between the tax rate the winners are quite evident – these are the microstates with a limited number of social programs and tiny budgets, they also usually do not have their own army (and thus, military spending either) and are actively using the migrant labour force (e.g., Singapore, Hong Kong, UAE, some microstates of the Caribbean etc.). While geographically large and thus densely populated countries cannot have the luxury of free establishing the 0% tax rate, therefore, they have to compete with each other in the field of comparative tax comfort by means of easing the tax formalities, increasing the transparence and “customer” support within tax administrations, strengthening the quality and the efficiency of taxes’ distribution etc. Of course, there are no specific limits/threshold in this so-called “tax comfort”, thus, governments of developing nations have to concentrate more and more efforts on this direction of work.

Following further the topic of stimulating role of taxation comfort, we should also mention one more regularity (see Table 6): there exists a mutual correlation between, for example, the number of tax payments per year and population welfare (manifested through GDP per capita). This means that not only the lower number of tax payments has stimulated the growth of GDP per capita in the countries of the world, but there is an opposite direction here too – in richer countries we can

observe quite logical and predictable process of tax comfort increase. At the same time we need to note that welfare growth in a country nearly never leads to lower tax rates. And also, we observe no correlation between the dynamics of export attractiveness of a country and its level of tax comfort.

Table 6. Correlation between the number of tax payments, the time spent on tax formalities, GDP per capita and national exports' growth (2010-2016)

Pay-ment	GDP per capita						Time	GDP per capita					
	2010	2011	2012	2013	2014	2015		2011	2012	2013	2014	2015	2016
2011	-0,5	-	-	-	-	-	2011	-0,4	-	-	-	-	-
2012	0,48	0,48	-	-	-	-	2012	-0,41	-0,41	-	-	-	-
2013	0,54	0,55	0,54	-	-	-	2013	-0,43	-0,44	-0,44	-	-	-
2014	0,54	0,54	0,53	0,53	-	-	2014	-0,43	-0,44	-0,44	-0,44	-	-
2015	0,52	0,52	0,51	0,51	0,51	-	2015	-0,42	-0,42	-0,42	-0,42	-0,42	-
2016	0,07	0,09	0,09	0,08	0,08	0,09	2016	-0,09	-0,09	-0,09	-0,09	-0,09	-0,08

*Same legend and source as in the previous tables.

CONCLUSIONS

The presented here statistical study determining the economic development impact factors, namely, related to taxation regimes, enables us make several conclusions so that to explain the initial hypotheses posed.

First of all, the rank of country's taxation system in the international rating "Doing Business" indeed has its long-term effect on the GDP per capita level. And this impact is much more stronger for national exports, rather than for national imports.

Secondly, correlation between the tax rate size and the dynamics of countries' economic development as well as the level of their involvement into the world economic processes is nearly absent in both long and short terms. At the same time, criteria responsible for the so-called "comfort of the national taxation regime" (traditionally measured through the time spent on various tax formalities and the number of tax payments per year) are much more meaningful factors when it comes to macroeconomic growth as compared to the tax rate as such.

Thirdly, not only the reduced number of tax payment is able to stimulate the GDP per capita growth, but also vice versa – wealthier countries clearly have higher levels of taxation comfort.

And finally, comparing the results at two stages of our research on the worldwide statistical data, namely, concerning the stimulating effects from taxation comfort indicators, from the size of tax rate and from the global rank of a national taxation regime, we can clearly observe the most significant effect of the latter indicator.

This leads us to the conclusion that the actual current situation with taxation regimes in the countries (taxation comfort + the tax rate) has significantly less influence in terms of economic development stimulation and country's engagement in the world economy and global trade, while country's favourable ranking as determined by the expert community has much more influence. Consequently, the study carried out above proves, yet another time, that the role and the value of such rankings is growing, even though they tend to display to the actual state of affairs in a particular country, but rather its image, its attractiveness for experts, potential investors etc. Therefore, expert opinions on the efficiency of national taxation systems today may indeed determine the dynamics of countries' economic development and country's further engagement in

world economic relations. These widely popular rankings shape the attitudes of potential investors and country's overall attractiveness for capital, incoming labour force, for transnational business – and thus, they also determine the macroeconomic dynamics of national economies' development, and this external influence of theirs in many cases is much more significant than all national/internal instruments of public economic regulation, such as tax rates or taxation regime/conditions.

On the one hand, this conclusion describes rather well the current stage of the global economy's development which has already become "the economy of images", the some sort of "economic simulacrum", one of the manifestations of which is actually the popularity of all these rankings. Today's global economy is based on simplified mathematical methodologies which are not only distanced from actual economic situations but are also essentially pseudo-scientific! And as a result, too much of a role and ungrounded preferences are given to such subjective qualitative criteria as "innovation potential of society" or "creativity", level of economic freedom, level of human capital development etc. Therefore, rather unmeasurable notions become not only measurable, but recalculated and correlated with each other, thus forming the basis for further modernization of international redistribution of capital or labour force. And this means that intangible notions have very many tangible, economic consequences for real business, the state and the society.

On the other hand, conclusions we have made in relation to taxation regimes can be potentially also confirmed for other popular indicators (for example, the level of external trade freedom, the innovation potential of nations, ease of new business registration, protection of private property in a country etc.). And this definitely requires further and more detailed research in the same direction and overall context.

References

- Acharya, S. (2015), „Trade Liberalization“, Hölscher, J., Tomann, H. (Eds.), *Palgrave Dictionary of Emerging Markets and Transition Economics*, Palgrave Macmillan, New York, pp. 393-412.
- Balatskii, E. (2006), "Tax reform and economic growth", *Studies on Russian Economic Development*, Volume 17, Issue 2, pp. 204-208.
- Echevarría, C. (2015)- "Income tax progressivity, growth, income inequality and welfare", *SERIEs*, Vol. 6, Issue 1, pp. 43-72.
- Hill, R. (2008). "Optimal taxation and economic growth: a comment", *Public Choice*, Vol. 134, Issue 3, pp. 419-427.
- Marrero, G. (2010). "Tax-mix, public spending composition and growth", *Journal of Economics*, February, Vol. 99, Issue 1, pp. 29-51.
- Pemberton, H. (2004), *Policy learning and British governance in the 1960s*, Palgrave Macmillan, New York.
- Scully, G. W. (2003). "Optimal Taxation, Economic Growth and Income Inequality", *Public Choice*, Vol. 115, Issue 3, pp. 299-312.
- Sinevičienė, L. (2016). "Tax Burden and Economic Development: The Case of the European Union Countries". *Entrepreneurship, Business and Economics*, Vol. 2, of the series Eurasian Studies in Business and Economics. pp. 283-298.
- Tamai, T. (2015). "Redistributive taxation, wealth distribution, and economic growth", *Journal of Economics*, Vol. 115, Issue 2, pp. 133-152.
- Volkerink, B., Sturm, J., De Haan, J. (2002), "Tax Ratios in Macroeconomics: Do Taxes Really Matter?", *Empirica*, Vol. 29, Issue 3, pp. 209-224.
- Widmalm, F. (2001), "Tax Structure and Growth: Are Some Taxes Better Than Others?!", *Public Choice*, Vol. 107, Issue 3, pp. 199-219.