



# Regional Heterogeneity of Income Tax in the Russian Federation: The Experience of the Quantitative Analysis and Regulatory Issues

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## ABSTRACT

The paper implemented a comprehensive economic and statistical analysis of heterogeneity of tax revenues in the regions of the Russian Federation, revealing the contradictory trends of reducing differentiation in tax bases while increasing unevenness in tax revenues. The study identified the basic factors and causes of differentiation of income by certain types of taxes. The prospects of regulation of regional heterogeneity based on the transformation of the order of transfer of taxes through the levels of the budget system is critically evaluated.

**Keywords:** Tax Revenues, Gross Regional Product, Regional Development

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## 1. INTRODUCTION

The variety of initial geographic, natural resource and socio-economic conditions determine the content of the various (not matched by the dynamics and target settings) regional development trajectories, which, in turn, are highly differentiated in terms of the potential for the formation of tax revenues.

The modern practice of building mechanisms for mobilizing tax revenues in the Russian Federation is implemented in a marked imbalance of socio-economic development of the regions, which will not only determine the differentiation of the initial factors in the formation of the fiscal potential, but also specify the presence of the “failures” of the tax administration, which, in turn, strengthens the stratification of areas by the criterion of generating tax revenues and requires adequate correction measures of economic policy.

## 2. LITERATURE REVIEW

The problems of uneven regional development is one of the most important areas of modern economic research. Russian scientific

literature formed a holistic conceptual approach, considering non-uniformity as an objective properties of spatial development, which, in turn, initiates a number of positive effects that are expressed in the emergence of inter-regional competition and the availability of opportunities for spatial movement of capital (Zubarevich, 2010).

Reasons for the differentiation of territorial development is very widely studied in the so-called “new economic geography,” interpreting quantitative determinants and consequences of spatial concentration of economic activity. One of the prominent representatives of this school, Paul Krugman, summing up the competitive advantages of the regions, distinguishes two groups of factors (Krugman, 1991):

- Factors of the “first order,” acting independently of human intervention: Availability of natural resources, favorable geographic position, etc.;
- Factors of the “second order” are the result of creative activity of the person and of society as a whole: The industrial potential of the region (which in most cases is determined by the capabilities of the first order), human capital, the level of

development of infrastructure and institutions, the likelihood of agglomeration effects.

The priority of factors of the first order for the Russian Federation is obvious, while the impact of the determinants of the second group, in most cases acts as limiter of the development dynamics: Investment in human capital and infrastructure are extremely small, and the investment climate remains unfavorable.

As indicated in recent studies, this situation is complemented by specific territorial distribution of production factors inherited from the period of the command economy, based on the priorities of maximizing economies of scale, which contributed to an increase in the size of enterprises, together with the imperative of uniformity of spatial development being practically expressed in deconcentration of industry and excessive specialization of areas (Treivish, 2005).

The study of the fiscal aspects of uneven regional development is insufficiently developed with respect to the regional economy. Analysis of existing literature leads to the conclusion that fiscal heterogeneity of meso-level is determined by the presence of trends in reproduction and strengthening of inter-regional disparities, in the first place, by the magnitude of the generated tax revenues, as well as the initiation of “institutional traps,” characterized by a causal interdependence between the level of socio-economic development and fiscal productivity (Zyuzina et al., 2014).

### 3. ECONOMIC AND STATISTICAL ANALYSIS OF THE HETEROGENEITY OF INDICATORS OF TAX REVENUES IN THE RUSSIAN REGIONS

Analyzing the potential ability of Russian regions to generation tax revenues, one should refer to the dynamics and statistical parameters of aggregate tax base, in particular, gross regional product per capita, which does not only indirectly characterize the base of most of the existing Russian taxes, but is a universal source of their payment. Regional aspects for the distribution of the enlarged tax base are provided in the form of the statistical characteristics of the indicator “GDP per capita” in the years 2007-2013 (Table 1).

The dynamic characteristics of the GRP show strong growth, the suspension of which took place only in 2010, and minimum values are growing at a faster pace than the maximum, which is partly

indicative of positive processes of convergence at the regional level. Despite the gradual reduction in performance variation, a certain “conservation” of regional development disparities can be observed: Generally the leaders are the regions with dominance of natural resource sector and a developed industry, as well as Moscow, hypertrophied concentrating financial and human resources throughout the country. In this case the minimum value of the variation coefficient, observed in 2009, testifies to the fact that the crisis helps to reduce the heterogeneity of placing the total tax base, while fragmentary recovery of economic growth in 2011-2013 in some regions has provoked repeated strengthening of the territorial heterogeneity of tax resources.

Examining the reasons for the differentiation of Russian regions by the tax base per capita, one should, first of all, refer to the features of regional value-added structure. The sectoral composition of GRP varies by significant diversity. In particular, regions with a low level of tax revenue have the structure of GRP, deformed toward the agriculture, public administration sector and the provision of public goods in the field of health and education. Subjects that generate tax revenues within the national average values have a relatively diversified structure of gross value added, while areas with extremely high values of GRP and tax revenues have traditionally “specialized” on mining.

Obviously, the reasons for this situation were laid much earlier before the period of construction of market relations in the Russian Federation, and, in fact, the differentiation of the fiscal impact at the meso-level is only one consequence of the specificity of distribution of productive forces in the country in the period of the command economy.

However, these negative trends became especially evident in the period of market transformation, when the intensive development of the resource sector was accompanied by de-industrialization of some regions on the basis of replacement of industries with services and trade, as well as the expansion of the shadow business activity. As a result, macro-economic inequality of regions received a new quality in the fiscal sector, consolidating the trend of territorial “bundles” for tax revenue indicators (Table 2).

The analysis of empirical data allows to establish a gradual increase of average per capita tax revenues by region from 45.82 rubles per person in 2007 to 73.73 rubles in 2013, while this trend was broken twice:

- In 2010 the gaining momentum economic crisis has led to a sharp “contraction” of the regional averages index in tax revenues from 62.09 thousand rubles to 47.5 thousand rubles

**Table 1: The dynamics of heterogeneity of per capita gross regional product indicator in 2007-2013**

Indicator	Year							Annual growth rate, %
	2007	2008	2009	2010	2011	2012	2013	
Average value, thousand rubles	157.85	196.77	238.87	225.55	261.73	262.28	320.62	112.53
Min value, thousand rubles	18.44	33.89	38.06	36.41	52.65	60.73	78.93	127.42
Max value, thousand rubles	765.20	821.26	921.82	925.41	987.43	1205.8	2211.52	119.35
Scope of variation, times	41.49	24.23	24.22	25.42	18.75	19.85	28.02	-
Variation coefficient, %	64.23	61.88	60.65	69.27	65.77	77.71	100.54	-

Source: Computed based on (Regions of Russia, 2015)

**Table 2: Dynamics of heterogeneity of tax revenues index per capita in 2007-2013**

Indicator	Year							Annual growth rate, %
	2007	2008	2009	2010	2011	2012	2013	
Average value, thousand rubles	45.82	50.08	62.09	47.48	61.79	79.88	73.76	108
Min value, thousand rubles	1.65	1.88	2.29	2.75	4.34	5.98	5.86	123
Max value, thousand rubles	635.38	616.48	849.65	531.01	687.24	972.44	1104.5	109
Standard deviation, thousand rubles	125.33	122.90	154.64	97.07	136.05	185.35	164.77	-
Variation coefficient, %	273.5	245.4	249.1	204.4	220.2	232.1	223.4	-
Asymmetry	5.15	5.08	5.08	4.51	4.88	4.81	5.82	-
Excess	26.67	26.47	26.24	20.34	24.34	23.35	34.42	-

\*Excluding the Nenets Autonomous Okrug, Source: Computed based on (Russian Finance, 2014)

per person, which was subsequently replaced with upward trend;

- In 2013, there has been a slight decrease in tax revenues from 80 to 73.7 thousand rubles per person due to a slowdown in economic growth and the respective process of reduction in the corporate income tax.

It is necessary to emphasize that the most serious fluctuations are characteristic of the regions with the highest values of tax revenues per capita, while revenues of regions - “outsiders” on this criterion showed a tendency to permanent monotonic growth: Even in the crisis year of 2009 the minimum value of the country of tax revenues increased relative to 2008 by 19.6% (in Ingushetia), while in the region-leader (Khanty-Mansi Autonomous District) - decreased by 37.5%. In general, the minimum value of tax revenues are growing at a much faster pace (average annual growth rate during the analyzed period amounted to 123%) than the maximum (average growth rate of 109%), i.e., there are processes of convergence in the fiscal sphere, another thing is that the dynamics of its development absolutely insufficient for the development of the country and the implementation of fiscal federalism relations.

Changes in dynamic performance of tax revenues are accompanied by structural changes in their type ratio: Absolute priority of the corporate income tax in 2007-2008, amounting to more than 31%, in the crisis year of 2009 was given to the tax on personal income, the share of which reached 26.5% while the share of income tax decreased to 20.1%.

The observed shift of the structural proportions of tax revenues of the consolidated budget is particularly symptomatic during the crisis in the economy, when a number of opportunistic-due taxes (primarily on the mineral extraction tax and corporate profit tax), defining “leadership” of individual regions in terms of tax collection per capita, experienced maximum “compression,” while the proportion of cyclically neutral tax (for example, the tax on personal income, excise and property taxes) increased, thereby ensuring relative stability of revenues of the budget system.

He integrated structure of tax revenues in 2008-2009 has undergone significant adjustments in terms of the role of significant decrease of the profit tax and resource tax, the upward dynamics of which before 2008 was determined by market component of world energy prices. This, in turn, contributed to the “inflation” of resources of other industries and sectors of the national economy, increasing their overall profitability and fiscal capacity. At the same time,

income tax revenues and taxes paid by small businesses through special tax regimes, were not only a stabilizing instrument for implementing the fiscal functions of taxation, but also enabled to smooth out regional disparities in tax revenues per capita in a certain way.

Post-crisis improvement in the external economic situation in 2010-2012 contributed to the stabilization of income tax at the level of 21-23% of the total tax revenues of the budget system and the restoration of the share of resource payments at a level exceeding the pre-crisis. At the same time, the negative structural dynamics of corporate income tax is an indirect indicator of the exhaustion of the potential for economic development.

Extended analysis of the inter-regional per capita tax revenue indicators of the population in 2013 indicates the presence of three extremely high “emissions:” Nenets Autonomous Okrug - 1334 thousand rubles per person (the region was subsequently excluded from calculations), the Khanty-Mansi and Yamalo-Nenets Autonomous Okrug - in 1061 and 1104 thousand rubles respectively.

Other 16 subjects of the Russian Federation, with tax revenues per capita higher than the national average (73.76 thousand rubles), significantly lag behind the regions mentioned above: In particular, in the Chukotka Autonomous District and the city of Moscow, the 4<sup>th</sup> and 5<sup>th</sup> place in our rating, the value of this indicator amounted to 183 thousand rubles and 180 thousand rubles respectively. In general, indicators of regions - “locomotives” lead to pronounced distortions in the average tax collection in the country and determine the trend of strengthening fiscal irregularities in periods of economic recovery.

This statement is confirmed by the dynamics of the variation coefficient in tax revenues index rate per capita: In 2010 its value amounted to 204.4% against 273.5% in 2007. Later on, an increase in energy prices and a gradual economic recovery is most clearly manifested in the leading regions and again ensured strengthening of the fiscal heterogeneity. This caused the coefficient of variation in 2012 up to 232.1%. The thesis of the economic slowdown in 2013 is confirmed as a reduction in the share of VAT and income tax in the structure of revenues and a decrease in the coefficient of variation of total fiscal charges to 223.4%.

The maximum contribution to the strengthening of differentiation of tax revenue figure makes the tax on extraction of mineral resources, the proceeds of which can vary from 1 rubles to 797.31 thousand rubles per person (Table 3). In second place is

**Table 3: The statistical characteristics of regional heterogeneity of individual income taxes in the budget system of Russian Federation, 2013\***

Indicator	VAT**	Excise***	Income tax	Personal income tax	Severance tax	Property tax	Other taxes
Average value, thousand rubles	12.07	4.26	14.23	14.47	23.61	5.19	2.89
Min value, thousand rubles	0.06	0.0001	0.52	2.99	0.001	0.51	0.13
Max value, thousand rubles	194.53	30.19	128.61	65.84	797.31	58.69	41.65
Standard deviation, thousand rubles	3242.16	-	247.33	22.02	-	115.08	320.38
Variation coefficient, %	221.21	155.49	152.08	79.51	478.13	129.91	156.58
Asymmetry	5.56	2.53	3.62	2.91	6.25	6.58	7.95
Excess	34.30	6.57	14.16	9.80	38.99	58.18	68.3

\*Excluding the Nenets Autonomous Okrug. \*\*Calculations were carried out without taking into account 11 regions of Russia, in which the value of incoming VAT was less than the amount of tax refund from the budget. \*\*\*Calculations were carried out without taking into account a region of Russia, where the value of the excise tax received was less than reimbursement amounts from the budget

the value-added tax, the territorial scope of its variation is more than 3 thousand times, and that is not counting 11 regions with a negative “balance” of budget tax flows due to their export orientation, initiating the excess of amounts of tax on receivables over liabilities of payable in budget. Third place on the level of heterogeneity take excises, as their main revenue concentrated in a few regions-producers of petroleum products and alcoholic beverages. Slightly behind the excise tax is the corporate income tax, the magnitude of the variation between the subjects of the Russian Federation exceeded 247 times in 2013.

The most homogeneous in terms of the spatial distribution is personal income tax, boundary values of which ranged from 3 thousand to 66 thousand rubles per person with a minimum coefficient of variation of 79.5%. Quite unexpected is a high level of regional heterogeneity of property taxes, the difference between the minimum and maximum income varies 115 times, despite the fact that in the world practice this fiscal instrument demonstrates a uniform distribution on the territory of the state.

Thus, without exception, fiscal instruments are very unevenly distributed across the country, but the reasons for this phenomenon are very diverse (Table 4).

While assessing key factors of differentiation of individual fiscal instruments, we shall highlight some of the most common determinants:

1. The uneven distribution of the tax base due to both objective reasons (for example, the presence or absence of natural resources - in the case of mineral extraction tax - MET), and the specifics of actually existing distribution of the productive forces (VAT, income tax, partly a tax on personal income);
2. The availability of opportunities of territorial ‘export’ of the tax burden through a vertically-integrated companies (VAT, income tax), as well as the mechanism for inter-territorial labor migration within the country (personal income tax);
3. Administrative purposes, related to the presence of gaps in the organization of the account of the tax base, as well as the low level of collection of certain types of taxes (e.g., property).

This situation is an important factor in improving the delimitation of tax policy at the regional level through the development of fiscal decentralization relationships that involve the expansion of the tax authority of the sub-federal level. However, the strategic goals of

**Table 4: The main reasons for the uneven distribution of tax revenues by region**

Type of tax	Reasons for differentiation
Value added tax	The different levels of development of export-oriented industries in the regions Moving the tax base within the vertically integrated companies
Excises	The uneven distribution of production of certain categories of excisable goods
Corporate income tax	The national economic specialization of the region Different level of profitability of individual economic industries Moving the tax base within the vertically integrated companies
Personal income tax	Different levels of per capita income of the population in the regions of Russia Withholding tax at the place of employment of an individual, which geographically may differ from the place of residence
Property tax	Incompleteness of processes of accounting the tax base (cadastral valuation of the land and property) Differences in the size of tax rates and the list of tax exemptions for the subjects of the Russian Federation Uneven level of collection of property taxes across the Russian Federation subjects
Severance tax	Uneven allocation of natural resources on the territory of the country

stimulating regional authorities through giving them additional powers in the tax field are in conflict with the tactical task of reducing the differentiation of socio-economic indicators. Thus, according to the calculations of Gaidar Institute, economists, the widely discussed proposals for the transfer of the “federal” part of the income tax rates to the regions can increase the revenues of the consolidated budget by 6%, to increase the number unsubsidized regions by 20%, however, lead to a concentration of 40% of total income tax in the budgets of Moscow and the Tyumen region (Drobyshevskiy et al., 2012).

The above mentioned implies the need to correct the negative impact of mentioned factors by measures of the tax and economic policy.

#### 4. REGULATION OF HETEROGENEITY IN THE REGIONAL TAX REVENUE: THE BASIC PROBLEMS AND APPROACHES TO THEIR SOLUTION

The current research has not yet developed a unified view about the tools on smoothing the tax heterogeneity. For example, the Russian Audit Chamber economists to lower tax revenues unevenness in the Russian regions suggest the introduction of a sales tax with the possibility of its full enrollment in the budgets of the Federation (Shirobokova, 2013). Without dwelling on the controversial moments of the recommendations defined by, for example, the exceptional complexity of the administration, we note only that the experience of collection of sales tax in Russia shows the concentration of 54% of revenue in the three regions: Moscow, Moscow region, and St. Petersburg (Bakalov, 2012), which suggests the lack of appropriateness of the fiscal implications of the instrument.

Under these circumstances, it is clear that the introduction of new taxes is not able to fundamentally solve the problem of differentiation of fiscal productivity of the territories, since the existing mechanism of inter-budgetary redistribution of tax payments contribute to disruption of communication between the location of the actual activities of the taxpayer and the territory of the recipient of tax revenue generated by it. For example, property taxes are credited strictly based on the location of objects of taxation, while the most significant fiscal instruments (VAT, income tax) permit movement of the tax base and obligations through a vertically-integrated companies in favor of the region with the head office localization.

An attempt to partially solve the problem of uneven tax revenue was made in 2012 by introducing a fiscal practices of the “consolidated groups of taxpayers” institute by the corporate income tax, that involves pooling the financial results of individual economic entities within the consolidated group. The share of taxable profit, attributable to a specific organization, is calculated as the arithmetic average of the share of number of employees (or labor costs) of the business entity, and the proportion of the residual value of the assets in the respective figures for the entire group of taxpayers in general. In turn, the liability for income taxes are determined based on the rate that is set in the region, which is actual location of the participant of the consolidated group.

Without dwelling on the economic and legal tools as well as the features of the functioning this novation, which is described in detail by Ryumina and Bannova (2013), we note the presence of a certain positive effect due to a more uniform distribution of the corporate income tax.

According to the analysis presented in the official documents, the development of the institute of consolidated groups of taxpayers for 2013 as a whole provided the following changes in the territorial distribution of the income tax (including the placement proportions of material and technical base and personnel) between regions (Main Directions, 2013):

- In 65 regions of the Russian Federation has been an increase in income tax in the amount of 53 billion rubles;
- Reduction of tax revenues is observed in 18 regions, and the sum of payments shortfall of 61 billion rubles.

It is symptomatic that the reduction of income tax on profits takes place mainly in the donor regions: Maximum “loss” has the consolidated budget of the city of Moscow, while the recipient entities have provided budget revenue growth from the use of this tool.

While acknowledging the positive aspects of taxpayers consolidation, we consider it necessary to expand the practice of association obligations for other taxes, permitting the territorial displacement of fiscal obligations within the holding structure (in particular, the value-added tax), as evidenced by the positive experience of some foreign countries (e.g., the UK, Germany, Norway, Cyprus).

To reduce the heterogeneity (including intra-regional) of receipts of personal income tax the mechanism of crediting of the tax to the budget at the place of the taxpayer’s residence should be transformed, as in the present conditions the most qualified labor resources tend to be in large cities, which, by providing more favorable conditions of employment, automatically accumulate the lion’s share of income tax revenues.

Practical scheme of the new order of the tax enrollment is that tax agents in the performance of their duties on the withholding and transferring the payment of tax on personal income, should group their employees depending on the area of their residence (registration) and ensure transfer of the tax through the bodies of the Federal Treasury of the respective regions, both in the budgets of the Federation, and to the local budget at the place of residence. As a result, the depressed regions, which are now actually gratuitous “suppliers” of labor resources, increase their own tax revenues at the expense of a more equitable spatial distribution of the tax burden, but also get additional incentives for the development of social sphere (Zyuzina et al., 2014).

In general, presented recommendations based on a sample of the implication of available production factors with simultaneous correction of the individual tax assessment mechanisms in the context of provision of their “anchor” to the place of the actual implementation of activities (residence or registration) of the taxpayer, not only able to increase the capacity of the tax exemptions, but also reduce their territorial unevenness.

#### 5. CONCLUSION

The uneven geographical distribution of productive forces and, therefore, taxpayers in the country, as expressed, for example, in the sectoral specialization of the region, initiates territorial-due differentiation of tax bases and revenues. Conducted regional analysis of statistics shows that the reduction of differentiation in macroeconomic indicators is accompanied by the growth of regional heterogeneity of tax revenues. In this case, there is a “combination” of differentiation trend of economic parameters and

different levels of tax administration, which leads, ultimately, to increased regional “bundles” in the level of tax revenues.

Macroeconomic aspects of the expansion of the tax base should be accompanied by tactical measures to reduce differentiation in tax revenues in the framework of the transformation of the existing order of transfer of taxes by levels of the budget system. The feasibility of these measures is defined as with the previously identified trends of hyper-concentration of the fiscal potential and the current practice of economic growth at the meso-level, demonstrating the strengthening of the uneven socio-economic development at the expense of the gravitation of factors of production to the most developed regions and within regions, in turn, to major cities. As a result, major fiscal benefits of economic growth are concentrated in the most developed territorial formations, while subsidized entities continue an unsuccessful tactic of “catching up” development.

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