FINANCIAL INDEPENDENCE OF REGIONS IN THE FEDERAL THREE-LEVEL SYSTEM AND ITS COMPLIANCE WITH THE REGIONAL TAX POTENTIAL

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Abstract

The study is motivated by the increasing financial dependence of Russian industrial regions on the federal center, at times even to the point of their being incapable of solving their social and environmental problems. The purpose of the study is to develop methodological foundations for stimulating financial interaction between economically developed regions and the federation and to search for means to increase the financial independence of the regions in federal systems. The study uses comparative analysis, averaged values, and index analysis and determines a methodology for calculating the regional tax potential, assessing the effectiveness of federal funds used by the regions, and quantifying the financial independence of the regions in the federal state. We show the interrelation between the financial independence of the regions, the regional tax potential, and the efficiency of using financial resources by the regions. We propose to move from the practice of federal transfers to the self-sufficiency of the regions and to introduce a methodology for distributing financial resources between the budgetary system levels based on the fixed tax system. The paper substantiates the need for a direct system of distributing taxes between the federal budget levels based on the criterion of a 50% threshold of credited taxes.

Keywords: federal state; region; tax potential; budget allocation; donor regions; efficiency of use; methodology; financial independence

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INTRODUCTION

Introduction to the problem

Many developed economies with large territories have a three-level budget. The federal state always faces the issue of financial distribution relations. The policy of excessive centralization of funds leads to the financial stagnation of the regions, and the distribution of all resources available at the state level results in a failure to implement federal development programs. The optimal ratio is achieved too rarely; this is a typical feature of developed economies. In the framework of distribution relations, it is necessary to consider the factors which significantly affect the qualitative and quantitative indicators of these relations, namely the financial potential of the federal regions, the efficiency of the territories' use of their own and redistributed resources, and the need for co-financing of local budget expenditures.

Study of the issue's importance

Worldwide, many resource allocation systems from the federal to the regional levels and between regions have been developed. However, not all of them showed high efficiency. For example, I. Storonyanska and L. Benovska (2017) indicate a lack of funds needed for regions to fulfill their functions and the excessive financial dependence of the peripheral regions of Ukraine on the central authorities. O. Tulai et al. (2019) conclude that the empirical data imply a close correlation between fiscal decentralization and the industrial potential of regions in Ukraine. V. Bobáková (2017) believes that own revenues in the regional budget and an adequate degree of regional financial independence condition the successful functioning of each territorial self-government in the Slovak Republic. The same features are characteristic of Russia.

The issue of the volume of resources redistributed from the federal level also is controversial. A.G. Isaev (2019) believes that a sharp increase in federal budget subsidies can lead to a significant influx of labor resources into the region. However, there are other, almost opposite, opinions. S.H.A. Kahar et al. (2019) conduct a survey and find that the amount of allocated budgetary funds does not affect the performance of regional leaders in Indonesia. I.B.P. Purbadharmaja et al. (2019) believe that budget decentralization does not necessarily lead to increased budget management

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efficiency. A.A. Bellofatto and M. Besfamille (2018) believe that in the context of partial decentralization, regional authorities rely on centralized assistance to complete projects. With full decentralization, funding is provided at the cost of infringing upon the local entities' interests. V.I. Klistorin (2019) believes that donor and recipient regions should differ in the percentage of transfers from the federal budget. Thus, it is necessary to achieve the optimal degree of financial decentralization in the federation, since an excessive accumulation of funds in the federal budget has the same negative effect as the full financial freedom of the regions.

All proposals made by various authors to solve the problem of regional financial dependence in federal states are indirect. The conclusions of the studies are applicable only locally, in certain countries, and are not universal. There is no sufficiently complete and effective methodology for assessing the potential of regional entities by the totality of all taxes. Therefore, we are unable to compare the incoming volume of taxes with the potential tax base of the state. There is also no methodology for assessing the effectiveness of the use of transfer funds by the regions. Researchers do not link the financial dependence indicator with regional tax potential, which would allow solving the problem of insufficient funds in a comprehensive manner, at the expense of both federal transfers and the reserves of regional entities.

Based on the identified issues, we formulated the purpose of the study: to develop methodological foundations for stimulating tax (financial) interaction between economically developed regions and the federation and to identify areas where the financial independence of regions in federal systems can be increased.

This study answers the following questions:

1. How should the total tax (financial) potential of a region be determined?
2. What principles should be followed when establishing distribution financial relations from the federal to the regional level?
3. What percentage of the public financial resources should be held at the regional level as fixed income?
4. How can the tax potential of the region be linked to distribution relations in the budgetary system of a federal state?
5. How should the level of financial independence of a region be calculated and linked with distribution relations in the budgetary system of a federal state?
6. How can the financial independence of a region be increased with insufficient financial resources in the federal system?

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To answer these questions, the study solves the following tasks:

1. We develop a methodology for assessing the regional tax potential.
2. We establish principles for tax distribution in the federal budget.
3. We identify criteria for the effective use of federal funds distributed to a region.
4. We develop a methodology for determining the level of financial independence of a region.
5. We link the methodologies for assessing the tax potential and the level of financial independence of a region with the principles of tax distribution in the federal budget.
6. We develop proposals to increase the financial independence of regions.

LITERATURE REVIEW

The effective use of tax or financial potential has been studied by many researchers. L.L. Igonina et al. (2019) identify the peculiar features of the regional budget potential to outline prospects for the growth of regional budget profits. M.S. Shemyakina et al. (2019) also believe that the regional tax potential should be managed to increase the efficiency of its use. We agree with the opinion of these authors, but we believe that the regions can achieve high efficiency in the use of their financial potential through the simple development of the available taxable base reserves.

In 2011–2012, the tax potential index was calculated by the Ministry of Finance of Russia based on the actual revenues of regional budgets, which did not reflect the tax capabilities of the constituent entities and did not correspond to the term “potential”. Apart from the state methodology, there is broad coverage in the literature on developments aimed to assess the regional tax potential based on various criteria and methods. A.A. Kuklin and K.S. Naslunga (2018) propose a methodology for assessing the fiscal capacity of a region based on the indicators of five groups, determining the threshold values thereof. R.M. Magomedov et al. (2019) propose a method for measuring the taxable capacity of a region. All proposed methods do not consider the scale of the regions’ activities and their industrial specificity, which creates redistribution relations towards industrially underdeveloped and politically problematic areas. Besides, they do not reflect the regional tax potential in conjunction with all their

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budgetary payments, which does not allow one to substantiate the actual amount of taxes the state can potentially receive.

Distribution relations in the budget system of federal states are no less important for growing regional prosperity. The list of the parameters and conditions affecting the efficiency of distribution relations is rather wide. E. Ryabova (2019) considers the legislative regulator of the centralization of the federation's budgetary resources. According to Ryabova, excessive centralization cannot be justified by the constitutional principle of a uniform economic zone. A.V. Bozhechkova et al. (2018) believe that the fiscal equalization of regions takes place only for the regions with an average level of tax potential. A. Molina-Parra and D. Martínez-López (2018) note that an increase in the budget deficit of the central government of Spain contributed to an increase in financial imbalances at the regional level, and the relations between the regions began to be built based on competition. I. Yahya et al. (2017) indicate that budget surplus has a significant impact on increased opportunistic behavior during budget planning in the provinces of Indonesia. The concentration in the Russian federal budget of main taxes, provided precisely by the potential of the regions, further contributes to the abandonment of the federalism principles. In Russia, the regions have no considerable volumes of fixed income. This study reflects the fact that there are major disproportions in the distribution of the Russian budget and that economically developed regions become donors for the budgetary system given the insufficient financial resources of the federal economy.

Researchers try to fill legislative gaps by proposing mechanisms for distributing funds in the budgetary system. H.R. Fazli and A. Arabmazar (2018) present a mathematical program model for the distribution of budgetary resources among the provinces of Iran to reduce inequality in the development of regions. A.N. Deryugin and I.A. Sokolov (2019) consider variants of adjusting the parameters of the formula used to distribute transfers and create an equalizing system. W. Cont et al. (2017) show that the efficiency of distribution relations for the regional budgets of Argentina depends on the quality of expenditures made by the budgets, while government transfers are almost neutral. M. Alexeev et al. (2019) also believe that the decentralization of expenditures has a positive effect on the balance of the regional budget, while the dependence on transfers increases its deficit. S. Slijepčević (2019) notes that European countries are constantly under pressure to improve the balance and efficiency of government expenditures, but funding does not reach even the pre-crisis

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level of 2009 for many local authorities in Croatia. In our opinion, this method of reducing costs in times of crisis leads only to an increase in social tension and a further increase in imbalances in regional development. Actions by the authorities based on reflation are much more effective to overcome crises.

METHODS

We selected the Chelyabinsk Oblast, Sverdlovsk Oblast, and Perm Krai as our regions of study. These regions have a considerable tax potential, much higher than the arithmetic mean values for Russia. This is confirmed by their industrial potential and reflects the availability to collect nearly all taxes. Industrial regions with severe environmental and social problems do not receive sufficient own funds to implement reproduction programs. They also do not fully use their potential due to the impossibility to switch over to self-financing. These regions were chosen as the most typical representatives of the industrial group, and the group itself was determined by the industrial specifics of Russia. The chosen regions are similar in terms of their industrial development, population, and area. All of them are donors to the state budget.

All data used for calculations in the study were obtained from the official websites of government agencies, including the Federal State Statistics Service of the Russian Federation and its territorial bodies in the three regions under study. We used the data of the federal laws of the Russian Federation, namely the Tax and Budget Codes and the laws of the regions on the regional budget performance. All these data meet the necessary criteria of reliability, complexity, relevance, and availability. Documents were chosen according to the calculation methods (Khoruzhy et al., 2022). They are provided as links under the tables according to their use procedure. The study period corresponds to the most stable economic situation in Russia, before the start of the COVID-19 pandemic and the introduction of sanctions.

Based on the set tasks, we determined three methodological aspects, namely: the methodology for assessing the regional tax potential, the principles of tax distribution in the federal budget, and the methodology for determining the level of financial independence of a region. Let us propose the principles and methods of research in the three indicated areas.

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METHODOLOGY FOR ASSESSING REGIONAL TAX POTENTIAL

In this study, the potential tax base forming the tax potential of Russian regions was calculated considering the following provisions:

1) value-added tax – the value of the products sold, produced, or imported into the territory of Russia or a region, minus the tax recoverable on export operations;

2) personal income tax and insurance premiums – the wage fund (product of the average nominal wage and the number of employed population);

3) corporate profit tax – hypothetical profit calculated based on the cost of the products sold, considering the average profitability of production and the net income received from foreign economic activity;

4) mineral production tax – the value of the extracted minerals (the profits of mining companies and their average profitability);

5) corporate property tax – the residual value of property; to calculate corporate property tax, the average annual value of property is taken as the tax base. To determine it, we need to sum up the value of the residual value of the property on the 1st day of each month of the tax period (year) and on the last day of the year;

6) customs duty – foreign trade turnover.

Each tax in the study was calculated as a product of the regional potential by the tax base and the average value of the rates. The arithmetic mean value of the tax was determined for 85 regions based on the data for Russia in general. Our methodology involves a comparative analysis of the estimated tax potential with the amounts of all taxes entering the budget (In_1 index) and with the arithmetic mean value of the tax for the country in general (In_2 index).

The tax potential of the regions was calculated considering the current distribution of taxes by budgets to identify it with the types of budget revenues in Russia. The regional budget was considered in conjunction with local budgets since the latter are included in the corresponding territorial structure. The tax base for each tax and, consequently, the tax itself, was corrected for the share of its revenues in the regional budget according to the budget financing targets.

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Methodology for the federal distribution of financial resources and their use by the regions

In Russia, the distribution of taxes by budget is presented in the Budget Code of the Russian Federation. However, there is an additional redistribution of tax flows based on the regional budget legislation or without reference to distribution methodologies at all. Thus, it is not always possible to assess the results of inter-budgetary relations. The distribution criteria in this research include the equality of all levels of the budgetary system of the federal state to fully ensure the authority of the levels and the classification of a tax to a certain level of the budget. Consequently, the budget level for corporate income tax and personal income tax is changed from the federal to the regional level.

The efficiency of a region's use of funds allocated from the federal level under the classical economic approach can be estimated as the share of grants, subventions, subsidies, and inter-budgetary transfers returned to the federal level and, accordingly, not used. However, regions actively attempt to allocate the full volume of the allocated funds to avoid a reduction of funds received in the future. Therefore, the share of the returned funds cannot be an objective criterion for the efficiency of using grants, subventions, subsidies, and inter-budgetary transfers. In this case, the principle of assessing the efficiency of using the funds can only be a factological sampling of the effectiveness of the activities provided by these funds.

Methodology for calculating the financial independence of regions

To calculate a region's financial independence coefficient, we propose the own and borrowed funds of the regions be allocated after the following preliminary grouping of the income items of the regional budget as determined by Russian legislation:

1) tax revenues:

a) fixed taxes, 100% of which come into the regional budget;

b) federal taxes entering the regional budget as determined by the tax legislation:

– taxes remaining in the amount of 100% of the revenues in the regional budget;

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– taxes transferred to local budgets as determined by the regional legislation;

2) non-tax revenues;

3) receipts (grants, subventions, subsidies, inter-budgetary transfers):

a) receipts from the federal to the regional level;

b) returns of receipts from the local to the regional level.

Calculation of the regional financial independence coefficient is based on the fundamental economic law on the optimal ratio of the own and borrowed funds for all levels of economic entities, in this case – fixed and transferred revenues of the regional budget. We propose the following formula, considering the presented classification of the income items, mln. rubles:

$$K_{fi} = \frac{T_{fr} + (N - N_l)}{(T_r - T_l) + (I_r - (I_l - I_{rr})}, \quad (1)$$

where K_{fi} – the regional financial independence coefficient,

T_{fr} – fixed tax revenues of the region,

N – non-tax revenues of the region,

N_l – non-tax revenues transferred from the regional to local budgets,

T_r – federal taxes coming into the regional budget,

T_l – federal taxes coming into the regional budget and then transferred from the regional to local budgets,

I_r – transfers from the federal to regional budgets,

I_l – transfers transferred from the regional to local budgets,

I_{rr} – the return of transfers from the local to the regional budget.

RESULTS

Based on a review of the scientific works and our own research, we confirmed our opinion that the financial status of a region in the federal system is determined by three main factors:

1. Regional tax potential.
2. The efficiency of the distribution of tax flows by the federal state to the regional level and the efficiency of using tax funds by the regions themselves.
3. Tax independence of the regions.

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We studied all three factors together to form an idea of the financial status of the regions in a particular federal system.

Regional tax potential

Let us calculate the tax potential for three industrial regions of the Russian Federation (Table 1) and its use efficiency indicators (Table 2) to assess the ratio of reserves and actual tax revenues in the federal state.

Table 1. An analysis of the tax potential of the regions in 2018

Tax name	Tax rate	Tax share in the regional budget, %		Value of the estimated tax base, mln. rub.			
		act	project	for all regions	for a specific region: Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai
Value-added tax	18	0	20	91,049,751	1,235,762	1,693,910	1,029,364
Personal income tax	13	100	100	46,054,420	901,607	1,098,966	624,984
Insurance premiums	30	0	30	46,054,419	901,607	1,098,963	624,979
Corporate income tax	20	85	100	13,744,680	177,888	258,075	158,955
Mineral production tax	5 (conditional)	60	60	8,598,936	16,432	51,920	171,591
Corporate property tax	2.2	100	100	112,642,240	1,728,812	3,443,440	1,909,747
Customs duty	5 (conditional)	0	20	43,300,330	505,299	823,443	388,911
Tax potential by the tax base, current				181,040,276	2,824,739	4,852,401	2,865,277
Tax potential by the tax base, total				361,444,776	5,467,407	8,468,717	4,908,531
Tax potential by the tax base , project				224,152,150	3,474,825	5,731,104	3,364,477

Tax name	Tax amount, mln. rub.: according to the regional budget: Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai	calculation according to the tax base: Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai	Average tax, mln. rub.
Value-added tax	–	–	–	222,437	304,904	185,286	192,811
Personal income tax	48,800	70,289	30,554	117,209	142,866	81,248	70,436
Insurance premiums	–	–	–	270,482	329,689	187,494	162,545
Corporate income tax	55,054	85,643	47,934	35,578	51,615	31,791	32,340
Mineral production tax	807	1,555	383	822	2,596	8,580	5,058
Corporate property tax	16,037	30,366	13,743	38,034	75,756	42,014	29,154

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Customs duty	–	–	–	25,265	41,172	19,446	25,471
Tax potential, current				191,643	272,833	163,633	136,988
Tax potential, total				709,827	948,598	555,859	517,815
Tax potential, project				328,606	450,064	266,437	235,115

The data on the actual receipts of taxes are taken from Table 5. The authors calculated the indicators in Table 1 (particularly tax potential by the tax base, current, total and project) based on the data from: Federal State Statistics Service of the Russian Federation (2018), Territorial body of the Federal State Statistics Service for Chelyabinsk Oblast (2018), Territorial body of the Federal State Statistics Service for Sverdlovsk Oblast (2018), Territorial body of the Federal State Statistics Service for the Perm Krai (2018).

Table 1 shows that half (49.91%) of the tax potential of Russian regions according to the tax base meets the federation's needs. The value is calculated as a ratio of the current and total potential subtracted from 100%. The indicator of meeting the federation's needs is lower for industrialized regions, but does not fall below 40% (48.33% for the Chelyabinsk Oblast, 42.70% for the Sverdlovsk Oblast, 41.63% for the Perm Krai). Considering the indicators of the current status of the regional economy, the 50% barrier does not solve the internal problems of the territories. In our opinion, a partial redistribution of the financial flows from federal taxes will change the ratio of the budget funds towards the regions in the proportion of 40:60%, and they will have free funds to perform their main social functions. The higher the level of the regional industrial development and, accordingly, its environmental and social problems, the more significant the share of the tax potential remaining at its disposal. It can maximally reach 66-67%.

When turning to similar calculations based on the tax potential expressed through tax amounts, the situation with the funds remaining at the disposal of the regions looks rather critical (73.00% in general, 71.24% for the Chelyabinsk Oblast, 70.56% for the Sverdlovsk Oblast, 73.54% for the Perm Krai) (Table 1). The main reason for the growing imbalances is that federal tax rates are traditionally higher than other rates. Taxes for industrial regions are distributed in proportion to the federal and regional flows at 3:1, and even the proposed system of redistributing part of the federal taxes to the regional level does not allow us to approach a 50:50 ratio without making fundamental changes to the distribution relations in Russia.

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Table 2. Indicators of using the tax potential of the regions

Tax name	Share of the regional tax base, %			Index					
				In_1			In_2		
	Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai	Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai	Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai
Value-added tax	1.36	1.86	1.13	–	–	–	1.15	1.58	0.96
Personal income tax	1.96	2.39	1.36	2.40	2.03	2.66	1.66	2.03	1.15
Insurance premiums	1.96	2.39	1.36	–	–	–	1.66	2.03	1.15
Corporate income tax	1.29	1.88	1.16	0.65	0.60	0.66	1.10	1.60	0.98
Mineral production tax	0.19	0.60	2.00	1.02	1.67	22.40	0.16	0.51	1.70
Corporate property tax	1.53	3.06	1.70	2.37	2.49	3.06	1.30	2.60	1.44
Customs duty	1.17	1.90	0.90	–	–	–	0.99	1.62	0.76

The authors calculated the indicators in Table 2 based on the data in Table 1.

Our calculations (Table 2) showed that the tax potential of the three considered industrial regions is significantly higher than the amounts of taxes actually received by the budget, in particular, for the personal income tax (by 2.36) and corporate property tax (by 2.64). The obtained data indicates that the regions only partially use the tax potential because of the concerns of additional plans to collect taxes.

The efficiency of allocating budget funds and their use by the regions

The efficiency of the distribution budgetary relations can primarily be assessed based on an analysis of the applicable system of shared distribution of taxes by three levels in a federal state (Table 3). We will present the project distribution (proj) alongside the actual distribution of taxes (act).

Table 3. Distribution of main taxes by the levels of the budgetary system in Russia

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Tax name according to the Tax and Budget Code of Russia	Tax share in the budget, %					
	federal		regional		local	
	act	proj	act	proj	act	proj
Corporate income tax	15	–	85	50	–	50
Value-added tax	100	80	–	20	–	–
Excise taxes: – tobacco products, cars, goods imported into the territory of Russia	100	100	–	–	–	–
– ethyl alcohol, alcohol-containing, alcoholic products with an alcohol content of over 9%	50	50	50	50	–	–
– alcoholic products up to 9%, inclusively	–	–	100	50	–	50
Mineral production tax: – hydrocarbon raw materials	100	100	–	–	–	–
– minerals	40	40	60	30	–	30
– common commercial minerals	–	–	100	50	–	50
Fee for the use of objects of aquatic biological resources	20	20	80	40	–	40
Water tax	100	40	–	30	–	30
Corporate property tax	–	–	100	80	–	20
Transport tax	–	–	100	80	–	20
Personal income tax	–	–	85	50	15	50
Special taxes	–	–	–	–	100	100
Land tax	–	–	–	–	100	100
Personal property tax	–	–	–	–	100	100
Insurance premiums	100	70	–	15	–	15
Customs duty	100	80	–	20	–	–

Table 3 was compiled based on the Tax Code of the Russian Federation (State Duma of the Federal Assembly of the Russian Federation, 1998b) and the Budget Code of the Russian Federation (State Duma of the Federal Assembly of the Russian Federation, 1998a).

The actual distribution of taxes by budgets seems to be balanced if we do not consider the rates and, accordingly, the scale of tax revenues in the context of budget distribution. The main taxes at high rates replenish the federal budget. Our distribution system allows us to match the tax level determined by law and the direction of its receipts, as well as to provide all the levels of the federal state with financial resources in proportional shares.

Assessing the efficiency of using the financial flows distributed by the federal level to the regions is complicated by two circumstances. First, there is no data on the returns of previously allocated budget funds (with rare exceptions). Second, it is impossible to assess the results of implementing the funds transferred from the federal budget, since information on the implementation of budget programs is exceedingly rare and not specified in the public domain.

Of the three regions examined, only the Chelyabinsk Oblast reflects the return of. By its example, we can understand which funds have not been spent, i.e., which

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programs have not been fully implemented. To increase the reliability of our conclusions, we assessed the actual compliance of the measures taken with their financing (Table 4), and not just the amount of the return of the unused funds.

Table 4. Examples of the actual implementation of transfers in Chelyabinsk Oblast in 2018

Type of transfer	Purpose of transfer	Amount, mln. rub.	Implementation of transfer	Amount, mln. rub.
Grants	increase in wages of the public sector employees	1,657	actually allocated grants	641
	growth of the tax potential by corporate income tax	750	growth of the balance of corporate profits and losses by 2017	10,790
Subsidies	formation of a modern urban environment	824	allocated for the national project “Housing and Urban Environment”	1,000
	target indicators for the agro-industrial complex development	584	decrease in the agricultural production by 2017	-4,944
Subventions	powers in the field of forestry relations	217	forest restoration in contaminated areas	1
	payments to individuals awarded by the “Honorary Donor of Russia” badge	264	actual payments	231

Table 4 was compiled based on the regulatory legal instrument: Law of Chelyabinsk Oblast of 08.05.2019 No. 883-ZO (Legislative Assembly of Chelyabinsk Oblast, 2019) and the data from the official website: Territorial body of the Federal State Statistics Service for Chelyabinsk Oblast (2018).

Since there is no detailed information on the implementation of budget programs, we are unable to make systemic conclusions on the effectiveness of the use of funds allocated to the regional level. However, Table 4 reflects the discrepancy between the volumes of funding and the scale of implementing the tasks of the regional budgetary policy. The social sphere does not fully receive the planned financial support or does not fully utilize the allocated resources. We trace fundamentally negative results of using the federal budget funds, for example, in the agro-industrial complex and forestry.

Financial independence of regions

Let us calculate the financial independence coefficient for the three selected regions of Russia (Table 5). This calculation allows us to demonstrate the extent to which their finances depend on the distribution relations in the federal system of

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Russia. Table 6 presents the structural and budgetary indicators of the regions, which allow us to additionally assess the degree of their financial independence.

Table 5. Calculation of the financial independence coefficient of the region

Category	Items included in the category	Value of the items, mln. rub.			Value of the category, mln. rub.		
		Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai	Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai
T_{fr}	corporate property tax	16,037.3	30,366.1	13,743.2	19,289.4	32,890.4	13,748.9
	transport tax	3,243.8	2,510.7	–			
	gambling tax	8.3	13.6	5.7			
N	difference between budget revenues and taxes, receipts	4,297.1	18,305.0	11,725.6	4,297.1	18,305.0	11,725.6
N_l	income from the sale of property, land plots	34.7	–	–	34.7	–	–
T_r	corporate income tax	55,053.9	85,642.6	47,934.1	116,844.2	173,682.0	85,318.0
	personal income tax	48,800.1	70,288.9	30,554.2			
	excise taxes	8,263.7	5,205.7	57.3			
	simplified taxation system	3,823.0	10.972.2	6.377.5			
	mineral production tax	807.4	1,555.2	382.9			
	fees for the use of wildlife and aquatic biological resources	3.2	8.9	7.3			
	state fee	92.9	8.5	4.7			
T_l	excise taxes	658.5	–	1,228.6	9,522.0	–	1,228.6
	personal income tax	8,863.5	–	–			
I_r	grants, subventions, subsidies, inter-budgetary transfers	28,075.8	24,684.3	16,765.9	28,075.8	24,684.3	16,765.9
I_l	grants, subventions, subsidies, inter-budgetary transfers (local level)	15,564.8	28,003.9	8,789.0	15,564.8	28,003.9	8,789.0
I_{rr}	return of grants, subventions, subsidies, inter-budgetary transfers	83.9	–	–	83.9	–	–
K_{fi}					0.20	0.30	0.27

The authors compiled Table 5 based on the following regulatory legal instruments: Law of Chelyabinsk Oblast of 08.05.2019 No. 883-ZO (Legislative Assembly of Chelyabinsk Oblast, 2019), Law of Sverdlovsk Oblast of 28.06.2019 No 48-OZ (Legislative Assembly of Sverdlovsk Oblast, 2019), Law of the Perm Krai of 04.06.2018 No. 401-PK (Legislative Assembly of the Perm Krai, 2019), Law of Chelyabinsk Oblast of 26.12.2017 No 636-ZO (Legislative Assembly of Chelyabinsk Oblast, 2017), Law of Sverdlovsk Oblast of 07.12.2017 No 121-OZ (Legislative Assembly of Sverdlovsk Oblast, 2017), Law of the Perm Krai of 07.12.2017 No 152-PK (Legislative Assembly of the Perm Krai, 2017).

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Table 6. Structural and budget indicators of the regions

Indicator	Value of the indicator, %		
	Chelyabinsk Oblast	Sverdlovsk Oblast	Perm Krai
Regional budget revenues, total, mln. rub.	168,590.4	249,561.7	127,558.4
Share of own tax revenues of the regional budget	11.44	13.18	10.78
Share of own non-tax revenues of the regional budget	2.53	7.33	9.19
Share of federal taxes entering and remaining in the regional budget	63.66	69.59	65.92
Share of federal taxes entering the regional budget and transferred to the local level	5.65	–	0.96
Share of grants, subventions, subsidies, inter-budgetary transfers entering and remaining in the regional budget	7.47	–	6.25
Share of grants, subventions, subsidies, and inter-budgetary transfers entering and remaining in the regional budget	9.23	9.89	6.89
Total share of own revenues	13.97	20.51	19.97
Total share of revenues coming from the federal level and remaining revenues	71.13	69.59	72.17
Total share of revenues coming from the federal level and transferred to the local level	14.88	9.89	7.85

The authors calculated the indicators in Table 6 based on the data in Table 5 regarding the regional budget revenues.

The calculations show that the regions are almost completely dependent on federal transfers. The economic law assuming the optimal ratio of own and borrowed funds in public administration and business allocates a rather narrow range of 40-60%, which should be maintained by economic entities seeking to ensure their financial independence in addition to using relatively cheap borrowed funds efficiently. The value of the financial independence coefficient of the studied industrial areas is far from the optimality criterion and does not exceed 0.3. Notably, negative centralization trends have been increasing continuously since 2007, when, for example, for Chelyabinsk Oblast, the independence coefficient could be estimated at 0.82. Currently, the situation has become worse, with the regions almost completely losing their financial independence. On average, over 70% of regional budget revenues now come from the federal level, determining their economic policy and implemented programs. The complete dependence of large industrial regions on federal transfers nullifies the budgetary federalism principle and social democratization processes.

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DISCUSSION

The research results show that it is urgent to replace the distribution system of budgetary funds from the federal to the regional level using a mechanism for fixing the regions' own incomes. This approach will not only expand the range of financial resources of the regions and the tasks solved using these funds but also strengthen the budget discipline and enhance the role of self-control for territorial entities. In this case, it is no less important to consider the tax potential of the region (Tsapulina et al., 2020). It should be calculated as a potential value based on the aggregate tax base presented on the territory of the constituent entity but not as actual tax receipts into the regional budget. The budget financing targets should certainly include a system of tax distribution between all levels of the budget. It is necessary to introduce a criterion by which a certain tax share will determine its classification in the Tax Code of the Russian Federation. A tax going into a certain budget over 50% should be determined according to the criterion of belonging to this budget. The proposed system eliminates the possibility of applying any unjustified sanctions to lower levels and ensures the complete financial independence of the regions.

Since the federal budget of Russia has accumulated the largest financial flows through main taxes (Tsindeliani et al., 2019), it is necessary to transfer a certain share of these payments while maintaining their federal classification to eliminate the mismatches in redistribution relations. We propose the following values for the redistributed shares: value-added tax 20%, insurance premiums 30%, and customs duties 20%. The proposals for the value-added tax are based on the historical experience of Russia with such ratios. Insurance premiums, in the established part, should be directed to the creation of a stimulating regional social system. The proposals for the customs duty are substantiated by the fact that the current legislation classifies it as non-tax income, but, in fact, it is an analog of tax payments.

The federal legislation of most countries does not yet include the quantitative assessment of the financial independence of their regions or the methodology thereof. In the literature, there are only a few works that focus on this issue; in recent years, only P. Horváth et al. (2018) proposed such a formula for their country. They determined the dependence of a selected sample of territorial self-governments on foreign/transfer revenues. They cannot directly affect the amount of these revenues.

Based on the results of our study, we advanced the following proposals:

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1. The regional tax potential should be linked to the federal system of distributing public funds. Regions with a high tax potential should receive the right to use part of the federal taxes transferred to the state budget in the volumes proportional to the regional tax potential.

2. The target indicators of tax revenues to the budget should be linked to the project data on the tax potential of each region but not to the actual volumes of taxes of the previous years.

3. We should move from the transfer system of distributing financial resources of the federal state to the self-sufficiency of the regions at the expense of the fixed taxes and federal taxes remaining at the disposal of the region in the volumes proportional to its tax potential. The methodology of the distribution relations between the budgets of all levels should be enshrined in law.

4. Budget legislation should provide for a direct system of tax distribution between all levels of the budget, considering the new classification features of payments in the Tax Code of Russia. It is advisable to use a 50% threshold of the credited tax amounts as a classification criterion. The tax credited to the budget over 50% is classified according to its belonging to this budget. Corporate income and personal income taxes should be moved to the category of regional taxes.

5. In the system of distribution of federal tax revenues, we should switch from 100% replenishment of the federal level with these taxes to a system of partial redistribution at the regional level: for value added tax 20%, for insurance premiums 30%, for customs duty 20%.

6. We should expand the tax authorities of the regions by unilaterally establishing the rates of fixed taxes and the entire range of regional tax breaks.

CONCLUSION

The financial independence of large industrial regions is a prerequisite to the development of a democratic society and increased federal budget revenues. Russia and several other countries have recently witnessed increased financial dependence of regions from the funds redistributed from a higher (federal) level and a decrease in their own incomes. The taxes collected by regions are not connected with the share of tax revenues remaining at their disposal. This fact downgrades the development of industrial regions and negatively affects the social and environmental conditions of the

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constituent entities of the Russian Federation. The indicator of regional financial independence is not used when planning the budget quarterly breakdown. Redistribution between the levels of the Russian budget is not supported by precise regulation, while fixed taxes of the regions do not bring them significant income. There is no methodology for calculating the financial independence of a region, and the methodologies for determining the tax potential and the efficiency of using resources distributed to regions have significant shortcomings. No relationship is established between the actual regional tax potential and its potential determined based on budget performance. It is impossible to assess the effectiveness of the use of regional budgetary funds due to the lack of information on the implementation of budget programs. Tax potential is also not considered when establishing the quarterly budgetary breakdown. Such important indicators of federal budget formation as tax potential, the efficiency of distribution and use of funds, and the financial independence of the regions are not linked and are not considered in the emerging federal budget. Thus, there are no reserves for the growth and development of the economy of industrialized regions.

The study provides a comprehensive list of recommendations for Russian legislative and executive bodies on using regional tax potential indicators, the efficiency of distribution and use of budgetary resources, and the financial independence of the regions in the federal budget. The formation mechanism is revealed for each of these indicators. Using the set of indicators will increase the financial independence of industrial regions and generate additional budget revenues to support subsidized regions.

We developed an original methodology for calculating and analyzing regional financial independence. The principles and methods of the proposed methodology can be applied to any federal state. The only limitation of the study is the organizational form of the national budget system. The results are not applicable to unitary states.

Our future research will be aimed at assessing the tax potential of all regions of the Russian Federation, considering our proposals and the development of a methodology for assessing the use of the tax potential by local budgets. We plan to develop recommendations for using indicators of tax potential, efficiency of distribution and use of budgetary funds, and the financial independence of the regions when planning the Russian federal budget.

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