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Financial Balances of Territories as a Tool for Modeling the Effectiveness of Spatial Development

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Abstract. The spatial development of the Russian Federation has been actively discussed virtually since the formation of modern statehood. The institutionalization of the problem of single-industry towns in 2014 and the adoption of the Spatial Development Strategy of the Russian Federation in 2019 gave a new impetus to such discussions. However, despite a significant amount of research, the issues concerning the effectiveness of spatial development decisions at the level of macro-regions, urban agglomerations and single-industry towns have not been sufficiently worked out; this fact determines the relevance of the work. The aim of our study is to substantiate the tools for assessing the effectiveness of spatial development for various territorial entities. The novelty of the research lies in the methodological substantiation of the use of the System of National Accounts (SNA) for the formation of financial balances of territories at various levels, which in the future can become a single tool for modeling the effectiveness of spatial development. It is proved that the most accurate tool to determine the relationships between regions and

evaluate the effectiveness of decisions for macroregions can be the creation of interregional input-output tables, for urban agglomerations – the development of individual and combined financial balances of municipalities, for single-industry towns – the development of tables for the formation, redistribution and use of financial resources, with the allocation of channels for the outflow/inflow of flows. The article, providing an example of the practical application of the proposed approaches, presents the financial balances of several single-industry towns of the Sverdlovsk Oblast for 2020 in the context of institutional sectors of the economy ("Corporations", "Public Administration", "Households"). According to the analysis of the data obtained, we see that the construction of financial balances made it possible to clearly identify the existing imbalances in the economic development of the territories: the Ural Mining and Metallurgical Company (UGMK) has a great influence on financial flows in Urban Okrug Verkhnyaya Pyshma; financial resources are being actively withdrawn from the Kamensk-Uralsky Urban Okrug by corporations and the population; financial balances in Severourasky Urban Okrug show a classic picture of a single-industry town with crisis phenomena. The findings of the study can be used to develop a full-fledged system for modeling the effects of spatial development of various territories of the Russian Federation.

Introduction

In the context of shrinking sources of income for the Russian economy, caused by the imposition of various restrictive measures on Russian exports and imports, the question of finding internal sources of the country's development is becoming more and more acute. This phenomenon can be discussed from different points of view, for example, from the sectoral point of view, as a replacement of foreign goods and services with national ones (import substitution), or, from the financial point of view, increasing the independence of the Russian financial system from the influence of reserve world currencies, transition to settlements in national currencies. One of the "slices" of the Russian economy efficiency growth, based on internal development reserves, forms the deepening of inter-territorial integration, territorial connectivity, the search for new "points of growth" in socio-economic development of individual municipalities.

In view of the above, the interest of public authorities at the federal and regional levels of government arose related to the identification of opportunities for improving the efficiency of development of various spatial formations. The result was the adoption of the document "RF Spatial Development Strategy until 2025", which was approved by RF Government Resolution 207-r, dated February 13, 2019. According to the document, the objects of management at the state level are: 1) 12 macroregions of the Russian

Federation; 2) 20 promising major centers of economic growth; 3) promising centers of economic growth of the constituent entities of the Russian Federation, where gradation is made both by contribution to economic growth and by population size; 4) promising mineral and agro-industrial centers, "municipalities" of one or another specialization are identified; 5) 20 promising centers where conditions for the formation of world-class scientific and educational centers have developed; 6) geostrategic territories of the Russian Federation.

Thus, the Spatial Development Strategy uses different-level territorial entities classified according to various characteristics as the object of management. Some territories (regions and municipalities) are mentioned repeatedly, as part of certain management objects. We believe that this approach is conditioned by the search for optimal parameters of spatial development management by public authorities, due to which the Strategy lists various grounds for the classification of territories. Since this document is designed for the period until 2025, in our opinion, the current version is the primary one for the elaboration of further strategy of spatial development of the Russian Federation.

This version is supported by the structure and content of target indicators of Russia's spatial development (Annex 5 of the Strategy). There are only five indicators, which do not even cover the selected subjects of management. The most verifiable indicator — the average annual GRP growth rate of the RF constitute entities, where promising large centers of economic growth are located — assumes an acceleration of growth from 101% in 2017 to 103.7 in the target scenario and 102.6% in the inertial scenario in 2025. The second indicator, characterizing priority geostrategic territories (except for the Arctic), already has relative values to the Russian average. The last three indicators by themselves do not reflect the results of Russia's spatial development (differentiation of the human development index, growth of

transport mobility, export of services from transit transportation), have rather vague criteria of fulfillment, the value of 100% in 2017 is taken as the baseline.

At the same time, the spatial development strategy should be based both on clear production and settlement benchmarks of the country's development and clear and verifiable indicators of the effectiveness of the financial and organizational resources used. In this regard, the issues of efficiency of the prepared and adopted management decisions on financial and economic mechanisms of territorial development are not sufficiently elaborated within the framework of the existing approaches at the state level. The available development indicators (GDP, wage level, etc.) do not fully reflect the management impacts within the framework of these financial and economic mechanisms. We can argue that for territorial entities of different levels (macroregions, urban agglomerations and individual municipalities) it is necessary to apply different approaches to assessing the effects of management impacts due to the differences in the initial objectives, so the main objective of our study is to substantiate the tools for assessing the effectiveness of spatial development for different territorial entities using a unified methodological framework.

Existing approaches to assessing the effectiveness of spatial development

Many researchers are engaged in studying the spatial development of territories. At the same time, the works devoted to assessing the effectiveness of development of large territorial systems (macroregions and urban agglomerations) are largely aimed at measuring the local effects of certain decisions.

Due to the rapid development of the economy of the People's Republic of China in recent decades and, consequently, the radical change in the centers of spatial development in recent years, studies on this topic are widely presented in the scientific literature. For example, the Multi-Regional Input-Output Table (MRIOT) has been widely used to

study the interrelationships among provinces in China, from which the work (Wang et al., 2021), using network analysis tools, draws conclusions about the predominant increase in goods exchange within provinces rather than between them. Applying regional input-output tables, other Chinese scholars (Lu et al., 2023) analyzed the dynamic changes in the spatial structure of employment and concluded the increased role of agglomerations, hierarchies and networks in the employment distribution.

The largest body of scientific research is devoted to the issues of urbanization and development of large agglomerations. For example, the work (Yang et al., 2023) examines the spatial and temporal structure of the network of economic ties of cities in the economic belt of the Northern Slope of the Tian Shan Mountains (PRC), showing the widening gap between large and small settlements. The impact of large infrastructure projects (using the example of The One Belt and One Road Initiative) on the development of the Guanzhong urban agglomeration is investigated in the research (Zheng, Cao, 2021). The construction of population mobility patterns across China has allowed scholars (You et al., 2023) to identify different types of urban agglomerations not previously known. The problem of inefficient urbanization in some parts of China related to the construction of new cities is discussed in (Han et al., 2021); it is argued that the placement of new settlements is often made without taking into account population density and distance to central areas, which increases the risks of inefficient use of financial resources. We can also highlight a number of studies on the relationship between the development of urbanized areas and ecology (Li et al., 2021; Cui et al., 2021; Tian et al., 2021), geographical location (Ploeckl, 2021; Gibson et al., 2023), the quality of development of certain areas (Li, Lu, 2021; Fang, Yu, 2017), etc.

Analyzing the experience of assessing the development of single-industry towns, we can note

a number of publications by Russian scientists. The work (Rubtsov, Litvinenko, 2020) reviews the experience of supporting the socio-economic development of single-industry towns in the Russian Federation, suggest ways to improve organizational measures and specify the target indicators of development. Based on the accumulated experience, the scientists propose to transfer the management system of single-industry town development to the level of federal districts, while forming territorial clusters. Similar ideas of socio-economic development of single-industry towns are developed in the work (Ivanova et al., 2017), where the principles of creating municipal industrial clusters, which are the basis for the advanced development of the single-industry town's economy, are studied. A conceptual model for the development of single-industry towns belonging to mining municipalities is proposed in the work (Artukhova et al., 2018). Using the example of the single-industry town of Leninsk-Kuznetsky, located in the Kemerovo Oblast, the authors highlight the significant dependence of socio-economic development of the territory on the town-forming enterprise: the role of other enterprises is small to influence the economy of the town.

In foreign literature, the problems of single-industry town development are actively studied by researchers from the People's Republic of China. For instance, the work (Fan et al., 2023) carries out the modeling of socio-economic development depending on a set of factors on the example of 8 resource-type single-industry towns in Sichuan province. As a result, it was shown that the greatest influence on the development of Chinese single-industry towns is the availability of natural resources, the second place is occupied by social conditions, then the environment and finance. The article (Yang Y. et al., 2023) analyzes the international index of well-being in single-industry towns engaged in coal mining in China, highlights the stages of life type of this index:

growth, regeneration, maturation, recession. Also, the world literature studies certain aspects of the development of single-industry towns: historical aspects of mining development and contemporary change of mining settlements in Africa (Rubbers, 2019), architecture and settlement planning of mining towns in Sweden and Quebec (Avango et al., 2022) and other (He, Song, 2023).

As we can see from the review of scientific publications, Russian research on the efficiency of financial and economic mechanisms of development of macroregions, agglomerations and single-industry towns is mainly focused on the theoretical justification of the management structure of such objects, while the issues of efficiency themselves are discussed to a lesser extent. Foreign researchers rely more on ex post facto assessment of development effects based on historical data, modeling the relationship between various indicators and indicators. Therefore, given the lack of a generally accepted system for assessing the effectiveness of decisions on the spatial development of different types of territories, we hypothesize the need and possibility of developing modeling tools for different territorial objects on a common methodological basis, which will allow forming a unified system for assessing the effects of spatial development in the future.

Methodological approaches to assessing the effectiveness of spatial development on the basis of the System of National Accounts

As we have already noted, currently, in the Russian Federation, despite the growing interest in spatial development, the working out of methodological tools to assess the effectiveness (or evaluating the results of any management decisions) is in its infancy. This applies not only to macroregions, but also to practically all the studied territorial entities of spatial development (large agglomerations, single-industry towns). The indicators used to assess the socio-economic development of territories (average wages, turnover of organizations, creation of new jobs, etc.) are quite aggregated, their dynamics is influenced by a large number of factors, often not related to the adoption of specific decisions on spatial development. Therefore, in our opinion, the need to create a system for assessing and modeling the effectiveness of decisions on spatial development of territories at various levels is obvious. The financial balances of territories developed on the basis of the System of National Accounts (SNA) could become such an assessment system. On the one hand, the construction of such balances will ensure comparability with the indicators used at the national level (GDP, tax payments, population income), and on the other hand – a unified system for assessing the impact of decisions on the financial flows of territories at different levels (macroregions, agglomerations, individual municipalities), taking into account the specifics of each territorial entity.

For large spatial areas, which in Russia include a set of regions united on one or another basis (federal districts, macroregions), the construction of financial balances should be based on the zoning objectives:

— if the "slicing" of federal districts in its time pursued more political goals to increase the controllability of territories, the main criteria for the formation of macroregions are territorial connectivity and the potential for joint development; from this point of view, the study of financial balances of macroregions should be based on the measurement of the effects of such interaction;

— for these purposes it is necessary to form a tool for assessing (modeling) the effectiveness of interregional interaction, usually in the form of implementation of joint infrastructure projects;

— the complexity of building such a tool lies in isolating the contribution of decisions taken on the implementation of joint projects to the added value of territories, since the regional economies are diverse and the dynamics of economic and social development is influenced by a large number of factors;

— the use of traditional indicators of regional economic development (GRP, population income, investments, etc.) in this case cannot "highlight" the effect of interregional interaction with a sufficient degree of reliability;

— the closest systems for assessing financial and economic mechanisms of interaction in macro-regions are the Russian SIRENA project and the Social Accounting Matrix (SAM); the first project has been developed by the IEIE SB RAS since the early 1980s (Suspitsyn, 2017; Suspitsyn, 2021) on the basis of optimization intersectoral interregional models of a high degree of aggregation using material balances between regions; the second is a modification of the intraregional balance of formation, redistribution, and use of the financial flows with some possibilities to calculate models of financial resources movement;

— due to a high degree of aggregation and existing problems with data sources, these systems can only serve as a basis for the development of tools for modeling the effects of spatial development of macroregions, combining the positive aspects of both systems.

In our opinion, the creation of interregional input-output tables may be the most accurate tool for determining the interrelationships between regions and assessing the effectiveness of decisions taken. All-Russian tables are an integral part of the SNA and contain detailed characteristics of production and use of goods and services, as well as income generated in the process of production. The construction of interregional tables should be based on the relationship between the movement of goods and services between the regions of macro-regions (in value terms) and their application in inter-territorial exchange. For this purpose, it is most logical to form a table of the use of goods and services of each region with the allocation of flows between the territories of the macroregion.

Unlike the assessment of the macroregion, the assessment of the effectiveness of financial and economic mechanisms of urban agglomeration development should be based on the study of agglomeration as a single object, i.e. a set of municipalities of the "core" and "periphery". In our opinion, such an approach to the construction of financial balances should take into account a number of features of economic development of agglomerations:

— it is necessary to clearly define the set of territories included in the object of the study, since different approaches may determine the hetero-geneous composition of municipalities belonging to one or another agglomeration; in our opinion, in terms of financial connectivity of agglomerations, close attention should be paid to the ratio of the working-age population of peripheral municipalities to those employed in the economy of a large city, which may signal the formation of a common labor market with the agglomeration core;

— at the same time, based on the existing concepts of agglomerations based on "attraction" of various resources by the "core" (which is gene-rally true), situations of self-sufficient development of peripheral municipalities with no less economic development potential are possible; however, this should not be perceived as a lack of agglomeration effect in such municipalities, perhaps, on the contrary, the development potential is due to it; much depends on the administrative-territorial "slicing" of municipalities, which are not less than the "core"; and, on the contrary, the potential of agglomeration is due to the "core".

— financial balances of peripheral munici-palities in most cases will be unbalanced, which is not an anomaly, since the influence of the agglome-ration center is felt; if we imagine the agglomeration "core" itself as the aggregate of the center and surrounding districts, we can observe the same effect of pulling resources to the central part of the city;

— construction of financial balances of agglomeration territories should be based on the same principles and methods as those of any other

municipalities, but the complexity of balance sheet construction lies in the formation of general accounts, since the financial flows especially of the "core" and peripheral areas in particular are influenced by other factors not related to agglomeration effects;

— as a rule, an agglomeration center is a point of attraction not only for nearby municipalities, but also for the vast territory around it; however, adjacent territories may also be a point of attraction of resources for settlements more distant from the agglomeration center, and such flows are very difficult to identify when compiling balances of financial resources flows;

— we should pay attention to the problem of allocation of financial flows between territories in the public administration sector: on the one hand, the existing system of paying taxes at the place of registration of enterprises leads to distortion of the real contribution of peripheral municipalities to the added value of agglomeration; on the other hand, the use of public administration services by economic agents in the central part of agglomeration increases the dependence of periphery on the center.

Thus, the task of assessing agglomeration effects for a set of municipalities based on the construction of financial balances is solved from two sides. First, the development of tables of formation, distribution and utilization of the added value of municipal entities will allow identifying the sources of economic development of territories (large businesses, small businesses, government agencies, etc.), which will make it possible to focus on the study of the effectiveness of decisions made within the municipality. Second, the determination of net lending/borrowing balances by institutional sectors will allow highlighting the degree of interconnection between the core and periphery territories. Such interrelations are most significantly manifested in household balances, which reflect the income and expenditures of the population of the territories. The current registration of flows of income sources

and the structure of household consumption does not allow to identify transmunicipal flows of labor and capital, so the formation of general tables by institutional sectors, where it is possible to clearly identify both the movement of labor and the territorial linkage of household expenditures, is of particular importance.

In the formation of financial balances of agglomerations, in our opinion, due to the increase in the accuracy of measurements of resource movement, alternative sources of information should be used to determine the directions of resource movement. For example, it can be balances of labor resources (working-age and employed population in the territories of municipalities), monitoring of daily migration on the databases of cellular operators, etc. It is also necessary to build a balance of public services provided to households (health care, education, law enforcement, etc.), which would significantly increase the visibility and accuracy of the data used on financial flows between municipalities.

As a result, the development of an individual and combined financial balances of municipalities included in agglomerations will form a fairly detailed scheme of financial flows both within the territories and by individual institutional sectors. All this will make it possible to start developing tools for modeling the effects of spatial development to improve the efficiency of decision-making and search for "points of growth" in the joint socio-economic development of agglomerations.

If the main feature of agglomerations is a strong interdependence between adjacent municipalities, the specifics of economic and financial development of single-industry towns are characterized by the following features:

— availability of the only source of formation of added value of a town (town-forming enterprise), the income of which is transformed into the income of other economic agents, i.e. the population, the budget of the municipality and service industries;

— transformation of value added of a town-forming enterprise into the income of other economic agents depends on many factors, including the structure of production of a single-industry town (presence of redistribution and service companies), degree of attracting external labor, embeddedness of town-forming production in vertically integrated companies, applied tax regimes, etc.; accordingly, even with similar parameters of financial indicators (turnover of a town-forming enterprise, average wages of personnel, share of those employed at the main production facilities, share of employed at the main production facilities) the real situation in the economy of single-industry towns may differ significantly.

— in most single-industry towns there are no alternative incoming financial flows (i.e. except for a town-forming enterprise), forming the added value, as the municipality's economic isolation (due to remoteness from other economic centers, as well as the initial specialization of a single-industry town) reduces the competitiveness of enterprises; at the same time, the financial flows of public administration are not always taken into account, in some cases having significant importance in the economy of single-industry towns;

— financing of public institutions from the budget can be considered as a basis for the formation of added value of the territory (if the basis of specialization of a single-industry town is the provision of services to the state, for example, ensuring military security) or an additional source of attracting financing for the territory (i.e. if there is a sufficiently large number of jobs in sectors financed by budgets of all levels);

— imbalances in the labor market and income/expenses of the population can also be a feature of single-industry towns, since the limited number of highly profitable places of labor application and underdevelopment of service industries in the territories form a negative cash flow; it can be manifested both in the use of migrant workers in the production activities of enterprises (especially in the northern regions) and outflow of the population who do not want to link their fate with a single-industry town (depressed territories);

— level of socio-economic development and well-being largely depends on the phase of formation of a town-forming enterprise (conditionally: growth, stabilization, fading); as a rule, a high risk of adverse effects in the socio-economic development of single-industry towns occurs at the stage of fading of the town-forming enterprise's activity, caused either by the exhaustion of resource reserves of deposits, or a decrease in the competitiveness of manufactured products.

The identified specific features determine the formation, redistribution and use of financial resources in such territories. Given the authors' early research in the theory of building the SNA analog at the territorial level and the methodology of formation of institutional sector accounts (Zakharchuk, Pasynkov, 2016; Zakharchuk, Pasynkov, 2017; Zakharchuk, 2022), the construction of financial balances of single-industry towns is a practically solvable task, since they are based on Rosstat data. Thus, the interaction with other territories of a single-industry town is minimal, the construction of balances by sectors and finding the net outflow/inflow of financial resources reveals the picture of financial flows. As in the situation with the northern territories, the isolation of single-industry towns implies that the calculations for institutional sectors show "clean" balances in contrast to agglomerations. At the same time, any major movement of financial resources in any of the sectors, due to the rather simple economic structure, is clearly reflected in the financial balances of the territory. Placement of new production facilities, changes in the dynamics of investments, significant transformation of economic activity in service and trade sectors, increase in budget expenditures, dynamics of the structure of incomes and expenditures of the population, etc. are sufficiently reflected in the accounts of institutional sectors.

Thus, the construction of financial balances of single-industry towns can be considered as a primary experience in identifying problems of statistical, methodological and practical nature in the course of developing tables of formation, distribution and use of value added of municipalities in Russia. Also, the opportunities for the development of tools to influence the socio-economic development of territories are most effectively considered on the cities of this type. Using few connections between economic agents and a fairly simple economic structure, it is possible to determine quite clearly the effectiveness of financial and economic mechanisms adopted in recent years for the development of single-industry towns on the basis of changes in the balances of institutional sectors, primarily public administration and households. Having studied such interrelations and dependencies, we can start to determine the directions and mechanisms for the formation of "points of growth" of certain types of economic activities of territories, allowing the effective use of the available resources to be used effectively.

Results

To test the proposed approach to the formation of financial balances within the SNA and to improve the clarity of application of the balance principle of their compilation, we selected three single-industry towns located in the Sverdlovsk Oblast as the object: Verkhnyaya Pyshma, Kamensk-Uralsky and Severouralsky urban okrugs. These municipalities are included in the official list of single-industry towns established by the Government of the Russian Federation (RF Government Resolution 1398-r, dated July 29, 2014). The Table presents the main characteristics of the territories. It shows that Verkhnyaya Pyshma is actually a satellite city of Yekaterinburg, forming a large agglomeration with other suburbs. Moreover, a characteristic feature of the relationship with the capital of the Sverdlovsk Oblast is a significant gap between the working-age population of the Urban Okrug

(43,370 people) and those employed in the urban economy (28,258 people), which may be a sign of daily labor migration. Kamensk-Uralsky is located about 100 kilometers from Yekaterinburg, which, given the lack of high-speed infrastructure, can be considered as a sufficient reason for its inclusion in the list of single-industry towns by distance. At the same time, Kamensk-Uralsky is a rather large settlement in the Middle Urals (the third largest in terms of population after Yekaterinburg and Nizhny Tagil) and acts as a "point of attraction" for settlements in the south-east of the Sverdlovsk Oblast. It is worth noting that the number of working-age and employed population of the city practically coincides, but the distribution of the employed is not homogeneous. The largest number of employed (11.7% of the working-age population) is accounted for by the Sinarsky Pipe Plant, other enterprises have a smaller share in employment. Despite the fact that the major enterprises included in the list of town-forming enterprises belong to the metallurgical profile, they produce a fairly wide range of products, from aluminum to pipes for the oil and gas industry. Severouralsk is the only town on this list that can claim the status of a single-industry town without any conditionality. The town-forming enterprise AOA "Sevuralboksitruda", engaged in bauxite mining, employs about one third of the total number of people, and the town is quite distant from the main labor markets. The population of the Urban Okrug (about 40 thousand people) is gradually decreasing, which indicates its unfavorable socio-economic situation.

Consequently, the municipalities selected for analysis are quite diverse both in terms of economic development and opportunities for the use of resources of large agglomerations, which allows us to assess the impact of various factors on the formation, distribution and use of value added. To compile the financial balances of these territories, we used the data of Rosstat, the Ministry of Finance of the Russian Federation, the Federal Tax Service

Main characteristics of Verkhnyaya Pyshma, Kamensk-Uralsky, Severouralsky urban okrugs classified as single-industry towns in the Sverdlovsk Oblast, 2020

Characteristic	Verkhnyaya Pyshma Urban Okrug	Kamensk-Uralsky Urban Okrug	Severouralsk Urban Okrug
Category	Category 2	Category 2	Category 1
Location	14 kilometers north of Yekaterinburg	100 km southeast of Yekaterinburg	Distance to Yekaterinburg is 450 km
Administrative Okrug	West	South	North
Population, people	85,149	169,131	40,016
Number of employed population of the municipality, people	28,258	88,600	18,808
Number of working-age population, people	43,370	89,600	20,249
Town-forming enterprise	OAO "Uralelektromed", a leading non-ferrous metallurgy enterprise within the Ural Mining and Metallurgical Company	1. UAZ-SUAL branch of OAO "Siberian-Urals Aluminum Company". 2. PAO "Sinarsky Pipe Plant". 3. OAO "Kamensk-Uralsky Metallurgical Plant". 4. OAO Kamensk-Urals Plant for Processing Non-Ferrous Metals"	OAO "Sevuralboksitruda"
Main products manufactured	Cathodes, copper rod, copper powder and copper products	1. UAZ-SUAL Branch of OAO "SUAL" – aluminum 2. PAO "Sinarsky Pipe Plant" – wide range of oil pipes 3. OAO "KUMZ" – semi-finished products made of aluminum and aluminum alloys. 4. OAO "KUZOCM" – metal products from copper, nickel, zinc and alloys based on them	Bauxite mining
Share of people employed at an enterprise in the average number of employees of municipal organizations, %	20.3	1. At branch "UAZ-SUAL" – 4.31. 2. At PAO "Sinarsky Pipe Plant" – 11.7. 3. At OAO "KUMZ" – 7.3. 4. At OAO "KUZOCM" – 1.8.	33.5

Source: own compilation.

Balances of financial resources of Verkhnyaya Pyshma, Kamensk-Uralsky, Severouralsky
urban okrugs of the Sverdlovsk Oblast for 2020, thousand rubles

VERKHNYAYA PYSHMA URBAN OKRUG

Corporation sector	Resources		Usage	
	Gross value added (calculated)	46 564 396,84	Remuneration of labor	16 240 808,84
			Other net production taxes	840 042,00
	Taxes on production and imports, excise taxes	78 573,00	Income tax	3 078 380,00
			Investments	9 983 465,00
			Dividends and capital withdrawals	28 979 350,50
			Net borrowing	-12 557 649,50

Household sector	Resources		Usage	
	Taxable income	16 498 848,00	Final consumption	12 794 393,00
	Income of entrepreneurs (small business and rent)	28 979 350,50	Tax payments	3 526 064,20
	Social benefits	6 971 973,79	Gross accumulation	5 405 239,00
	Net lending	30 724 476,09		

Public Administration sector	Resources		Usage	
	Taxes on production and imports, excise taxes	78 573,00	Cash and in-kind benefits	216 081,00
	Other net production taxes	840 042,00	Public sector wages	4 312 168,00
	Income tax	3 078 380	Public sector final consumption	4 899 277,35
	Current taxes on DX	504 922,00		
	PIT	3021142,199	Investments	1 836 586,00
			Net borrowing	- 3 741 053,15

Balance of financial resources	Net borrowing of the Corporate sector	-12 557 649,50	
	Net borrowing of the Administration sector	- 3 741 053,15	14 425 773,44
	Net borrowing of the Household sector	30 724 476,09	

KAMENSK-URALSKY URBAN OKRUG

Corporation sector	Resources		Usage	
	Gross value added (calculated)	71 465 852,36	Remuneration of labor	24 842 275,39
			Other net production taxes	580 093,00
	Taxes on production and imports, excise taxes		Income tax	1 861 488,00
			Investments	6 274 345,00
			Dividends and capital withdrawals	11 365 821,90
	Net lending	26 541 829,07		

Household sector	Resources		Usage	
	Taxable income	25 992 622,00	Final consumption	25 187 379,00
	Income of entrepreneurs (small business and rent)	11 365 821,90	Tax payments	4 704 118,24
	Social benefits	16 548 552,15	Gross accumulation	1 019 907,00
	Net lending	22 995 591,81		

Public Administration sector	Resources		Usage	
	Taxes on production and imports, excise taxes		Cash and in-kind benefits	760 463,00
	Other net production taxes	580 093,00	Public sector wages	4 603 396,00
	Income tax	1 861 488,00	Public sector final consumption	4 624 680,88
	Current taxes on DX	604 971,00		
	PIT	4 099 147,24	Investments	760 463,00
			Net borrowing	-4 191 909,64

Balance of financial resources	Net borrowing of the Corporate sector	26 541 829,07	
	Net borrowing of the Administration sector	-4 191 909,64	45 345 511,24
	Net borrowing of the Household sector	22 995 591,81	

SEVEROURALSK URBAN OKRUG

Corporation sector	Resources		Usage	
	Gross value added (calculated)	13 124 050,03	Remuneration of labor	4 475 583,56
			Other net production taxes	229 995,00
	Taxes on production and imports, excise taxes	3,00	Income tax	70 392,00
			Investments	1 387 541,00
			Dividends and capital withdrawals	1 094 451,90
	Net lending	5 866 086,57		

Household sector	Resources		Usage	
	Taxable income	5 841 250,00	Final consumption	3 826 960,00
	Income of entrepreneurs (small business and rent)	1 094 451,90	Tax payments	882 184,46
	Social benefits	4 738 827,49	Gross accumulation	8 175,00
	Net lending	6 957 209,93		

Public Administration sector	Resources		Usage	
	Taxes on production and imports, excise taxes	3,00	Cash and in-kind benefits	174 981,00
	Other net production taxes	229 995,00	Public sector wages	1 529 530,00
	Income tax	70 392,00	Public sector final consumption	1 127 453,74
	Current taxes on DX	80 132,00		
	PIT	802 052,46	Investments	174 981,00
			Net borrowing	-1 727 719,28

Balance of financial resources	Net borrowing of the Corporate sector	5 866 086,57	
	Net borrowing of the Administration sector	-1 727 719,28	11 095 577,22
	Net borrowing of the Household sector	6 957 209,93	

Source: own compilation.

for 2020, as well as own calculation methods. In aggregate form, without breakdown by individual indicators, let us highlight the main features of balance sheet formation for each territory *(Fig.)*.

Verkhnyaya Pyshma Urban Okrug. The main feature of the municipal district's accounts is the net borrowing of the Corporation sector. This often happens when implementing large investment projects, when the municipality's own value added is insufficient for the project implementation. However, the corporate sector investment indicator is, although at a rather high level, not an anomaly. The largest item of corporations' "expenditures" was the line "Dividends and capital withdrawals" balanced with households' incomes. We should note that when constructing the "Households" account, several official sources of information on income were used and the data differed greatly. As a result, we have found out that a significant part of household income is closed in the data of primary statistics, it concerned dividend payments to foreign shareholders. This feature of Verkhnyaya Pyshma is explained by the registration of the parent holding of the Ural Mining and Metallurgical Company on the territory of the municipality, which accumulates profit from the holding's enterprises, and dividend payments are shown at the place of registration. Accordingly, this situation was reflected in the accounts of the household sector – while residents' income amounted to 52,450 million rubles, only 21,725 million rubles was spent, i.e. the outflow amounted to more than half of the income received. However, if we remove the amount of capital withdrawal (28,979 million rubles), then the balances for households are practically equal, while for corporations there will be an excess of value added (+16,422 million rubles) due to the insufficiency of value added (-12,558 million rubles).

It is also worth noting the good results of public sector tax payments, which are comparable to the amount for Kamensk-Uralsky Orban Okrug (where the population is twice as large), but they were not enough to finance the needs of the state on the territory of the urban okrug due to a significant number of institutions financed from the federal budget. Thus, the financial balances of Verkhnyaya Pyshma are very strongly influenced by the activities of UMMC Holding, at the same time, we can see that formally received revenues in the territory of the urban okrug are not actually used in the urban economic turnover.

Kamensk-Uralsky Urban Okrug. The generated accounts for the municipality show quite clearly that the corporate sector is actively withdrawing financial resources from the city economy. Compared to Verkhnyaya Pyshma, all indicators both in terms of tax burden, investments, and even capital withdrawals are much lower, which signals the withdrawal of value added outside the territory of the municipal entity through holding structures. As a result, more than one third of value added was withdrawn by the Corporation sector (i.e. 26.5 billion rubles out of 71.5 billion rubles). Households are also actively involved in this process; with 53,907 million rubles of income received, only 30,911 million rubles was spent on the town's territory, and even if capital withdrawals (11,366 million rubles) are removed, the imbalance in income and expenditures will not disappear. Verkhnyaya Pyshma, however, bearing in mind the twofold superiority in population size, we can speak about a much lower "subsidization" of the municipality, and a vivid indicator here is the lower volume of public administration investments. In general, the financial balances of the Kamensk-Uralsky Urban Okrug can be characterized as rather good, with a strong bias toward outflow of financial resources. In order to understand whether this is an isolated case of the year under consideration, associated with the epidemic, or a stable trend, it is necessary to build the balances in dynamics.

Severouralsky Urban Okrug. Based on the constructed balances, we can see that the situation in the urban okrug is the worst among the territories under consideration. First, the withdrawal of value added by the corporate sector accounts for approximately 45% of the total amount (5,866 million rubles out of 13,124 million rubles). Second, public administration revenues from taxes collected in Severouralsk do not cover even half of the sector's expenditures (in the previous municipalities, the lack of resources is about 35%). Also, a benchmark of low budget potential is investment costs, which amount to only 2.7%. Third, if we remove income from entrepreneurial activity from household resources, only 45% is spent in the urban district (Verkhnyaya Pyshma – 93%, Kamensk-Uralsky – 73%). The share of social payments in total household income is also a record high (more than 40%), which indicates a decline in the number of working-age population in the urban okrug. Thus, we can see the strongest relative outflow of financial resources by sectors, which is a rather alarming sign in the socio-economic development of this territory.

Conclusions

Assessment of the effectiveness of spatial development of the Russian Federation is a rather extensive topic for research, including production, settlement, demographic, natural-resource, economic and other aspects. At the same time, in the conditions of formation of management policy of impact on certain processes of spatial development, the assessment and modeling of effects from the use of various resources to achieve the set goals should be based on the comparison of costs and the result obtained, expressed in a single measurement system. The proposed approach to the formation of financial balances of territories on the basis of the System of National Accounts has all the possibilities to display both incoming flows of financial resources (management impact in financial terms) and the result obtained (changes in the movement of financial flows in the management object). The considered specificity of different territories and their associations leads to the understanding that for each management object it is necessary to take into account exactly those financial flows, which are targeted by the management impact itself. If for macroregions the key direction of efficiency is declared to be the strengthening of interregional cooperation, then the modeling of effects should be based on the study of interrelations between the constitute entities of the Russian Federation. Input-output tables are most suitable for this purpose. If we talk about urban agglomerations, the strengthening of interaction between the municipalities included in them implies the assessment of effects for all territories of the "core" and "periphery", expressed in some economic indicators (value added, average wages, revenues and expenditures of municipal budgets, etc.), characterizing the success of spatial development. For these purposes, we have proposed to form individual and consolidated financial balances of territories, providing for the possibility of modeling inter-municipal flows. Single-industry towns characterized by crisis phenomena in most spheres, from the point of view of financial balances can be considered as an isolated territory with the construction of dynamic series of formation, distribution and use of value added in the municipality, as well as the allocation of external flows. Any impact in the financial dimension on the economic development of a single-industry town due to simple economic interrelationships is displayed in financial balances with a small lag, allowing us to develop a tool for modeling the efficiency of spatial development.

Since the scientific novelty of our study is the methodological justification of tools for assessing the effectiveness of spatial development with the possibility of developing a single modeling tool,

the arguments and conclusions described above characterize the general design of using the methodology of the System of National Accounts in the formation of financial balances of territories. To demonstrate the possibilities of the presented methodology, we offer practical calculations of financial balances of a number of single-industry towns in the Sverdlovsk Oblast, performed in aggregate form for 2020. The above calculations show the structure of formation, distribution and use of value added of single-industry towns, as well as the scale and directions of capital outflow/inflow, which made it possible to highlight the existing imbalances in the economic development of territories. To work out an applied tool for modeling the effectiveness of decisions made, it is necessary to disaggregate the balances and construct them for a certain period of time, which will help to assess the effects of financial investments in certain activities and serve as a basis for future research.

In general, further expansion and adaptation of financial balances of territories of different levels to specific management objectives is a rather labor-intensive task, but it forms new opportunities for assessing financial and economic mechanisms of development, expanding the ideas about the interrelationships of economic development of territories.

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