



## Governmental Programming of Regional Budgetary Self-Sufficiency

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### ABSTRACT

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In the paper, the impact of the features of the Russian model of performance budgeting on the problem of stably low levels of regional budgetary self-sufficiency is discussed. A methodical approach to the structural analysis of the governmental programs of territorial development is proposed, which makes it possible to check territorial proportions and levels of regional budgetary self-sufficiency at the stage of their development. The proposed approach is applied to the "Development of the North Caucasian Federal District until 2025" Governmental Program of the Russian Federation. It is assumed that the predominance of program activities (i.e. the provision of subsidies and budget investments in capital construction) of social nature in the Governmental Program unfolds a spiral of budget expenditures, contributing to the preservation or even reduction of regional budgetary self-sufficiency. Two experiments using mathematical methods for processing statistical data are performed. First, a hypothesis about the presence of negative feedback between the share of program activities of a market nature in the expenditures of the regional consolidated budget and the share of non-repayable transfers in its revenues is substantiated. Secondly, an approach to estimate the validity of the volumes of federal transfers allocated to the regions is proposed. For this purpose, an indicator of regional budgetary self-sufficiency potential is introduced. The information and analytical database of the research includes data on the execution of the regional consolidated budgets in 2001-2017 from the Russian Federal Treasury, as well as budget classification of the Russian Ministry of Finance. Conclusions and results of the work can be used by participants of the national strategic, including budget, planning to improve legislative and methodological foundations of the governmental program management. Further study is supposed to analyze the influence of the principles of the Russian budget system on the process of developing both federal and regional governmental programs, on the nature of relationship between them and, ultimately, on regional development.

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## INTRODUCTION

One of the indicators of social and economic development is the regional budgetary self-sufficiency (hereinafter BSS), meant as the ability of regional administration to execute the expenditures of regional consolidated budget at the expense of internal sources of financing. Formally, the BSS indicator can be represented as one minus the share of non-repayable receipts<sup>1</sup> in the revenues of regional consolidated budget. Russia is practicing a rigid model of fiscal federalism, which is characterized by a high degree of centralization<sup>2</sup> of budgetary and fiscal powers. Under these conditions, federal intergovernmental transfers (hereinafter FITs), whose share is more than 90% in non-repayable receipts of the Russian regional consolidated budgets, are the main source of co-financing for the governmental territorial development programs.

FITs, however, do not have a noticeable effect on socio-economic performance of the Russian regions. Thus, when assessing the influence of FITs on fiscal behavior of regional authorities in the period of 1996-2006, the authors (Idrisova and Freinkman, 2010) identified the presence of the Flypaper effect, which traditionally refers to disproportionate impact of FITs on regional expenditures. Weak influence of the regional development programs on the socio-economic situation in the Russian macroregions in 1998-2006 was demonstrated in (Tatevosyan et al., 2004; Tatevosyan et al., 2009). In particular, it was revealed that during the specified period subjects of the South Federal District, as well as of the Trans-Baikal region and of the Far East, in which by 2006 the first stages of the corresponding regional development programs (namely, "The South of Russia" (2002-2006) and "Economic and social development of the Far East and the Trans-Baikal region for 1996-2005 and until 2010") had been completed, either did not change their position in the rating, or even worsened it. Another study (Yermakov, 2017) for the period of 1995-2013 also found no statistically significant effect of FITs on the problem of high inequality between the Russian regions in terms of socio-economic performance and BSS. Using data of public administration performance in the Russian regions, the authors (Gagarina et al., 2017) show that in 2011-2015 out of eighty subjects of the Russian Federation, only nine had a degree of socio-economic potential, measured with the help of 30 selected indicators, exceeding 40%. Dynamics of regional budgetary insufficiency<sup>3</sup> for subjects of the Russian Federation included in the North Caucasian Federal District (hereinafter the NCFD subjects) in 2001-2017, presented in Tables 1 and 2 generally confirms conclusions of the mentioned authors. Annual values of this indicator do not show a tendency to a steady decline, which is poorly consistent with the regular appeals of the federal center to the search for and activation of internal sources of regional development.

**Table 1.** Budgetary insufficiency levels of the NCFD subjects, 2001-2008, %

Region	Years							
	2001	2002	2003	2004	2005	2006	2007	2008
North Caucasian Federal District	62,52	66,74	64,83	65,42	64,52	63,93	69,90	67,35
Stavropol Territory	30,68	40,10	31,24	22,02	35,73	30,38	33,22	34,56
Republic of North Osetiya-Alaniya	55,71	64,17	70,72	63,85	63,31	60,31	61,95	72,37
Republic of Ingushetia	81,04	89,83	88,25	88,25	90,47	89,13	96,36	91,45
Karachay-Cherkess Republic	68,49	77,62	71,91	61,63	63,00	66,67	67,17	70,88
Kabardino-Balkarian Republic	56,48	69,39	72,78	65,06	65,36	57,63	60,09	57,37
Republic of Dagestan	83,06	79,95	78,99	77,57	79,12	76,59	78,50	72,86
Chechen Republic	99,51	82,68	87,63	92,89	86,85	88,82	92,67	90,68

<sup>1</sup> In accordance with article 3 of paragraph II (Classification of budget revenues) of the Guidelines on the Budget Classification of the Russian Federation (Approved by Order of the Ministry of Finance of Russia dated July 01, 2013 No. 65H) non-repayable receipts are an external source of the revenues of consolidated budgets of the Russian budget system.

<sup>2</sup> See articles 50 and 51 of the Russian Budget Code.

<sup>3</sup> In this paper budgetary insufficiency of a subject is defined as the share of non-repayable receipts in the revenues of its consolidated budget. That is, budgetary insufficiency and budgetary self-sufficiency, as can be seen from the definition of the latter, are indicators that are opposite in meaning.

**Table 2.** Budgetary insufficiency levels of the NCFD subjects, 2009-2017, %

Region	Years								
	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Caucasian Federal District	69,08	63,93	65,55	64,25	60,97	60,86	60,26	56,55	58,32
Stavropol Territory	37,85	33,87	38,07	33,84	33,55	32,46	30,78	27,89	30,32
Republic of North Ossetiya-Alaniya	66,77	59,98	58,82	59,25	56,30	56,54	55,50	47,58	48,75
Republic of Ingushetia	90,73	89,03	83,82	86,40	85,03	86,50	84,61	85,98	81,30
Karachay-Cherkess Republic	71,07	68,20	63,85	72,92	68,52	64,96	65,64	59,30	65,47
Kabardino-Balkarian Republic	56,57	53,95	58,96	55,56	56,17	53,93	49,98	47,25	52,23
Republic of Dagestan	78,66	73,66	73,96	72,22	69,98	70,05	68,55	65,86	69,71
Chechen Republic	90,64	86,60	86,88	85,12	81,36	81,57	83,33	78,49	80,38

Calculated using the data on execution of regional consolidated budgets of Russia in 2001-2017 [6].

At the same time, the issue of the most important factors of low, and in some cases critically low, levels of regional BSS is not sufficiently studied. In this paper we propose to evaluate the impact of program structure (Premchand, 1989, p. 327), which means the list of planned (that is, timed and funded) subprograms, program activities and types of expenditures of a governmental program, on the dynamics of regional BSS. Program structure reflects logical links between program objectives and the means to achieve them.

## 1. GENERAL CHARACTERISTICS OF THE “DEVELOPMENT OF THE NORTH CAUCASIAN FEDERAL DISTRICT UNTIL 2025” GOVERNMENTAL PROGRAM OF THE RUSSIAN FEDERATION

The term of the “Development of the North Caucasian Federal District until 2025” Governmental Program of the Russian Federation (hereinafter the Program) is divided into 3 stages<sup>4</sup> and is 13 years. In 2013-2015 the first, preparatory, stage of the Program was completed. Most of its activities were implemented within the organizational framework of the federal special-purpose programs, which, as a residual<sup>5</sup> phenomenon, are included in governmental programs at the subprogram level. Therefore, program structure analysis at this stage is not carried out in this work.

During the second, main (2016-2020), and the third, prognostic (2021-2025), stages, the Program<sup>6</sup> involves implementation of twelve subprograms, namely:

- №1-№7 – subprograms of socio-economic development of the subjects of the North Caucasian Federal District: Stavropol Territory, the Republic of North Ossetia-Alania, the Republic of Ingushetia, Karachaevo-Cherkessia, Kabardino-Balkaria Republic, the Republic of Dagestan and the Chechen Republic);
- №8 – the “Development of the tourism cluster in the North Caucasian Federal District, the Krasnodar Territory and the Republic of Adygea” subprogram;

<sup>4</sup> Order of Russia’s Council of Ministers of December 17, 2012 No. 2408-p “On adoption of the “Development of the North Caucasian Federal District until 2025” Governmental Program of the Russian Federation” and Resolution of Russia’s Council of Ministers of April 15, 2014 No. 309 “On adoption of the “Development of the North Caucasian Federal District until 2025” Governmental Program of the Russian Federation”.

<sup>5</sup> See paragraph 5 of Article 47 of the Federal Law No. 172 (June 28, 2014) “On Strategic Planning in the Russian Federation”.

<sup>6</sup> Resolution of Russia’s Council of Ministers of 27.02.2016 No. 148 “On Amendments to the “Development of the North Caucasian Federal District until 2025” Governmental Program of the Russian Federation”.

- №9 – the subprogram of “Ensuring the implementation of the Governmental program of the Russian Federation “Development of the North Caucasian Federal District” for the period up to 2025”;
- №10 – the subprogram of “Developing the infrastructure of the state information policy in the North Caucasian Federal District”;
- №11 – the subprogram of “Creating a medical cluster in the territory of the Caucasian Mineral Waters and implementing investment projects of the North Caucasian Federal District”;
- №12 – Federal special-purpose program of “Socio-economic development of the Republic of Ingushetia in 2010 - 2016”.

The administrator of the Program is the Federal Ministry of the North Caucasus. The projected total funding of the Program is 319.9 billion rubles (in prices of corresponding years). It is well known that a program is a means of solving problems (Optner, 1969; Fonotov, 1972; Popov and Kosov, 1980; Agafonov, 1990). This is confirmed by examples from the world and Russian experience, such as the National electrification plan of 1921 in the USSR, the New Deal programs in the USA, national space programs, regional and infrastructure programs such as the Tennessee Valley Administration or the construction of Baikal-Amur Mainline, the French developmental programs of 1960-1970s for traditional and high-tech industries (De Long and Eichengreen, 1991; Tatevosyan and Magomedov, 2016; Langley, 2015). However, the current Procedures<sup>7</sup> for developing governmental programs in Russia do not provide techniques of problem analysis and alternative decision making. Objectives of the Program as a whole, as well as of its subprograms, do not reflect specific problems of this macro-region and consist in “creating favorable conditions for the growth of real economy of the North Caucasian Federal District” and in “improving the quality of life and well-being of its community”. At the same time, the Program’s administrator is going<sup>8</sup> to solve the problem of stably high levels of budgetary insufficiency of the NCFD subjects only through the implementation of program activities that contribute to “maximally possible tax and non-tax revenues of the Russian budget system from the development of new production sectors”.

Thereby it is ignored that any budget is drawn up on the basis of the balance method (Yermakova, 2010). Consequently, a projected increase in tax and non-tax revenues cannot per se act as an indicator characterizing a decrease in the level of regional budgetary insufficiency and needs to be weighed against changes in expenditures of a regional consolidated budget. However, such an obvious omission is most likely a consequence of the practice of incremental financing (Berry, 1990), which has not yet been eradicated by Russian budget planners. Unfortunately, the current program budgeting model in Russia is unable to solve this problem. According to the Guidelines<sup>9</sup>, a governmental program is retrospectively considered to be effective if its budget was distributed in time and in full. Article 22 of the Guidelines states that each program objective should be provided with “relevant and quantifiable indicators”. Moreover, “*if the indicator is not included in the official statistics data, ... explanatory documents for the draft governmental program should contain information on the procedure of collecting information and the method of its calculation*”. Unfortunately, despite the fact that regional budgetary insufficiency is a quantitatively measurable indicator (see above) it is not found in the list of the Program’s objectives.

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<sup>7</sup> Decree No. 588 of Russia’s Council of Ministers of 02.08.2010 “On adoption of Procedures of development, implementation and effectiveness evaluation of governmental programs of the Russian Federation”.

<sup>8</sup> See the “Objectives of the Program” section of the Program’s memorandum and the “Expected results of the subprogram” section of the memoranda of the subprograms for social and economic development of NCFD subjects in the wording of the Decree No. 390 of Russia’s Council of Ministers of March 31, 2017 “On Amendments to the “Development of the North Caucasian federal district until 2025” Governmental Program of the Russian Federation”.

<sup>9</sup> See article 55 of the “Guidelines for the development and implementation of the federal governmental programs” (approved by Order of the Ministry of Economic Development of September 16, 2016, No. 582).

## 2. PROGRAM STRUCTURE ANALYSIS

### 2.1 Subprograms

Since the federal budget is the only source of funding for the Program, subprogram analysis provides an idea of the nature of the federal policy in the North Caucasus Federal District. As can be seen from Tables 3 and 4, it is planned to distribute practically the same amounts of the Program's budget between the NCFD subjects (see subprograms №1-№7) despite significant differences in their geographical and socio-economic characteristics and the specifics of their problems. On the other hand, the distribution of funds between subprograms № 8, № 11 and № 12 demonstrates a significant bias in favor of some subjects of the North Caucasus Federal District due to the limitation of financial resources for the development of the others.

**Table 3.** Distribution of the Program's projected budget between subprograms in 2016-2020, %

	Main period					
	2016	2017	2018	2019	2020	Total
SP* № 1	5,3	4,2	3,7	4,2	4,1	4,2
SP № 2	0,9	4,2	3,7	4,2	4,1	3,8
SP № 3	2,6	4,2	3,7	4,2	4,1	3,9
SP № 4	10,9	4,2	3,7	4,2	4,1	4,6
SP № 5	4,8	4,2	3,7	4,2	4,1	4,1
SP № 6	10,4	4,2	3,7	4,2	4,1	4,6
SP № 7	6,9	4,2	3,7	4,2	4,1	4,3
SP № 8	9,4	22,7	25	34,7	38	28,9
SP № 9	4,2	1,7	1,7	1,4	1,3	1,7
SP № 10	0,6	0,3	0,3	0	0	0,2
SP № 11	17,2	45,8	47,1	34,7	32,3	37,4
SP № 12	26,7	0	0	0	0	2,3
Total	100	100	100	100	100	100

SP\* – subprogram.

**Table 4.** Distribution of the Program's projected budget between subprograms in 2021-2025, %

	Prognostic period						2016-2025
	2021	2022	2023	2024	2025	Total	
SP* № 1	14,1	14,1	14,1	14,1	14,1	14,1	9,2
SP № 2	14,1	14,1	14,1	14,1	14,1	14,1	9,1
SP № 3	14,1	14,1	14,1	14,1	14,1	14,1	9,1
SP № 4	14,1	14,1	14,1	14,1	14,1	14,1	9,5
SP № 5	14,1	14,1	14,1	14,1	14,1	14,1	9,2
SP № 6	14,1	14,1	14,1	14,1	14,1	14,1	9,5
SP № 7	14,1	14,1	14,1	14,1	14,1	14,1	9,3
SP № 8	0	0	0	0	0	0	14,1
SP № 9	1,6	1,6	1,6	1,6	1,6	1,6	1,7
SP № 10	0	0	0	0	0	0	0,1
SP № 11	0	0	0	0	0	0	18,2
SP № 12	0	0	0	0	0	0	1,1
Total	100	100	100	100	100	100	100

SP\* – subprogram.

Thus, subprogram № 11 of “Creating a medical cluster in the territory of the Caucasian Mineral Waters and implementing investment projects of the North Caucasian Federal District” is located in the area of the Caucasian Mineral Waters, which is part of the Stavropol Territory. Activities of the “Development of the tourism cluster in the North Caucasian Federal District, the Krasnodar Territory and the Republic of Adygea” subprogram № 8 are implemented in the territory of Karachay-Cherkessia, Kabardino-Balkaria and the Chechen Republic in some years of 2016–2018. The impact of these facts on the regional distribution of the Program’s budget is shown in Tables 5 and 6.

**Table 5.** Distribution\* of the Program’s projected budget between the NCFD subjects in 2016-2020, %

Regions	Main period					Total
	2016	2017	2018	2019	2020	
Stavropol Territory	23,7	51,1	51,8	39,4	36,8	<b>42,3</b>
Republic of North Osetiya-Alaniya	0,9	4,3	3,8	4,2	4,1	<b>3,8</b>
Republic of Ingushetia	30,8	4,3	3,8	4,2	4,1	<b>6,3</b>
Karachay-Cherkess Republic	16,4	4,3	3,8	16	16,9	<b>11,4</b>
Kabardino-Balkarian Republic	10	15,9	16,5	16	16,9	<b>15,8</b>
Republic of Dagestan	11	4,3	3,8	4,2	4,1	<b>4,7</b>
Chechen Republic	7,2	15,9	16,5	16	16,9	<b>15,6</b>
<i>Total</i>	100	100	100	100	100	100

**Table 6.** Distribution\* of the Program’s projected budget between the NCFD subjects in 2021-2025, %

Regions	Prognostic period						2016-2025
	2021	2022	2023	2024	2025	Total	
Stavropol Territory	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	27,9
Republic of North Osetiya-Alaniya	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	9,2
Republic of Ingushetia	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	10,4
Karachay-Cherkess Republic	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	12,9
Kabardino-Balkarian Republic	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	15
Republic of Dagestan	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	9,6
Chechen Republic	14,3	14,3	14,3	14,3	14,3	<b>14,3</b>	14,9
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

\* Since the activities of subprograms No. 9 and No. 10 are of an auxiliary nature and are evenly distributed among all the subjects of the North Caucasian Federal District, their budgets are not included in the analysis.

It should be noted that there is a strong disproportionality in distributing the Program’s budget between the NCFD subjects in its main period. Program budget of the Stavropol Territory exceeds the same indicator for the Republic of Dagestan by 9 times, given that these NCFD subjects are comparable<sup>10</sup> in terms of area, population and gross regional product. It should be borne in mind that the negative consequence of such a regional budget policy is the differentiation growth of socio-economic development in the NCFD subjects. The prognostic period of the Program is characterized by the same distribution of its budget both by year and by region. Both patterns can be viewed as a consequence of methodological failures of the modern Russian practice of public ad-

<sup>10</sup> The Gross regional product (at current basic prices) in 2015 and the territory of the Stavropol Territory exceed the same indicators of the Republic of Dagestan by 1.1 and 1.3 times, while the Republic of Dagestan is the leader in terms of population (1.1 times higher in 2015). Source: “Socio-Economic Indicators - 2017”. Statistical database of Rosstat. Retrieved from: <http://www.gks.ru> (access date: 09/09/2018).

ministration to comply with the basic rules of performance budgeting (Yerznkyan and Magomedov, 2018; Artsishevskiy, 2014; Tambovtsev and Rozhdestvenskaya, 2016). Among them is a violation of the integrity principle of a regional program, which “does not boil down to a simple sum of individual events, but is an organic, multidimensional system of interrelated activities, which, although developed according to its own special laws, is entirely devoted to solving a regional problem” (Shniper, ed., 1981, p.111).

The violation of the integrity principle of a regional program in the modern Russian practice of public administration is possible due to the following facts, namely:

1) the process of developing governmental programs is subordinated to the budget planning process, as a result of which control events of any governmental program can be scheduled in detail only for every three years of the medium-term budget planning;

2) Administrator of a governmental program is entitled to change<sup>11</sup> program structure, namely the list of activities and the amount of their funding that appears from paragraph 2 of article 174.2. of the Budget Code of the Russian Federation and from article 30 of the Procedures;

3) the requirement of paragraph 6 of the Guidelines, stating that “governmental program of territorial development should coordinate activities to achieve the objectives of the socio-economic development of the relevant territory, as well as to ensure the implementation of complex projects that cannot be fully attributed to one of the sectoral governmental programs” is not fulfilled.

As a result, the Program itself is a list of autonomous developmental subprograms of the NCFD subjects. Eventually, when analyzing the Program’ memorandum it is impossible to identify the future image of the regional landscape. The above is proof that governmental programs continue to put into practice the policy of incremental budgeting, although initially they were meant<sup>12</sup> to replace it.

## 2.2 Program Activities

First, all program activities were analyzed regionally on three characteristics, namely:

- ratio between the projected budget allocations to business sector and social sphere both for the whole program period and for certain years (table 7);
- ratio of individual subsectors (i.e. manufacturing sector, agro-industrial complex, transport and logistics, tourism and recreation) within business sector in program structure of the NCFD subjects for the entire program period and by years (table 8);
- stability of program expenditure flows distributed annually between individual subsectors within the business sector of each NCFD subject.

The analysis made it possible to distinguish three groups of the NCFD subjects, namely:

- first group: Stavropol Territory and Republic of Severnaya Osetiya-Alaniya;
- second group: Karachay-Cherkess Republic, Kabardino-Balkarian Republic and Chechen Republic;
- third group: Republic of Ingushetia and Republic of Dagestan.

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<sup>11</sup> For example, as noted above, during 2012-2017 Russia's Council of Ministers approved four significant changes in the structure of the Program.

<sup>12</sup> Order of the Russia's Council of Ministers of 30.06.2010 No. 1101-p “On Adoption of the Program of the Russia's Council of Ministers on Improving the Efficiency of Budgetary Expenditures for the Period up to 2012”.

**Table 7.** The Program's Projected expenditures on social development (SD) and on business sector (BS) in the NCFD subjects, %

No.	Regions	Years										
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2016-2025
1.	Stavropol Territory	100	100	100	100	100	100	100	100	100	100	100
	business sector	76,4	97	97,5	97,3	96,6	86,7	88,8	88,8	88,8	88,8	94,1
	social development	23,6	3	2,5	2,7	3,4	13,3	11,2	11,2	11,2	11,2	5,9
2.	Republic of North Osetiya-Alaniya	100	100	100	100	100	100	100	100	100	100	100
	business sector	0	74,5	100	100	100	100	100	100	100	100	98,4
	social development	100	25,5	0	0	0	0	0	0	0	0	1,6
3.	Republic of Ingushetia	100	100	100	100	100	100	100	100	100	100	100
	business sector	7,7	69,6	58,1	58,4	72,9	40,8	40,8	40,8	40,8	40,8	40,2
	social development	92,3	30,4	41,9	41,6	27,1	59,2	59,2	59,2	59,2	59,2	59,8
4.	Karachay-Cherkess Republic	100	100	100	100	100	100	100	100	100	100	100
	business sector	34,7	68,9	100	100	90,1	61,1	77,7	73,8	66	47,1	74,1
	social development	65,3	31,1	0	0	9,9	38,9	22,3	26,2	34	52,9	25,9
5.	Kabardino-Balkarian Republic	100	100	100	100	100	100	100	100	100	100	100
	business sector	49,2	96,9	100	100	90,1	100	100	53	55,8	52,7	83,4
	social development	50,8	3,1	0	0	9,9	0	0	47	44,2	47,3	16,6
6.	Republic of Dagestan	100	100	100	100	100	100	100	100	100	100	100
	business sector	0	0	46,3	58,9	58,2	23	16,2	18,7	0	0	16,9
	social development	100	100	53,7	41,1	41,8	77	83,8	81,3	100	100	83,1
7.	Chechen Republic	100	100	100	100	100	100	100	100	100	100	100
	business sector	0	90,1	95,2	94	81,8	84	97,9	97,9	97,9	97,9	90,7
	social development	100	9,9	4,8	6	18,2	16	2,1	2,1	2,1	2,1	9,3

**Table 8.** Structure of the Program's projected expenditures in the NCFD subjects, %

	indicator/year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2016-2025
1.	Stavropol Territory	100	100	100	100	100	100	100	100	100	100	100
	IMC	100	94,43	95,06	91,73	91,97	0,00	0,00	0,00	0,00	0,00	70,48
	MSA	0,00	3,34	3,17	4,83	5,31	60,00	60,98	60,98	63,41	63,41	18,25
	AIC	0,00	2,23	1,78	3,44	2,73	40,00	39,02	39,02	36,59	36,59	11,27



2.	Republic of North Osetiya-Alaniya	100	100	100	100	100	100	100	100	100	100	100
	AIC	0,00	49,04	50,00	50,00	50,00	50,00	50,00	50,00	50,00	50,00	49,97
	MSA	0,00	31,34	30,00	30,00	30,00	30,00	30,00	30,00	30,00	30,00	30,05
	TLC	0,00	9,81	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	9,99
	TRC	0,00	9,81	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	9,99
3.	Republic of Ingushetia	100	100	100	100	100	100	100	100	100	100	100
	AIC	0,00	48,74	54,03	53,36	59,75	50,89	50,89	50,89	50,89	50,89	51,87
	MSA	100	51,26	45,97	46,64	40,25	32,97	32,97	32,97	32,97	32,97	36,58
	TLC	0,00	0,00	0,00	0,00	0,00	16,14	16,14	16,14	16,14	16,14	11,55
4.	Karachay-Cherkess Republic	100	100	100	100	100	100	100	100	100	100	100
	TRC	100	0,00	0,00	73,49	73,05	28,49	25,22	32,82	37,79	23,00	46,94
	MSA	0,00	79,66	88,93	24,46	22,71	62,95	68,04	66,66	62,21	77,00	49,05
	AIC	0,00	20,34	11,07	2,06	4,25	8,56	6,74	0,52	0,00	0,00	4,01
5.	Kabardino-Balkarian Republic	100	100	100	100	100	100	100	100	100	100	100
	TRC	100	78,86	82,99	82,96	87,66	7,80	12,48	11,31	10,52	8,22	52,58
	MSA+AIC	0,00	21,14	17,01	17,04	12,34	92,20	87,52	88,69	89,48	91,78	47,42
6.	Republic of Dagestan	100	100	100	100	100	100	100	100	100	100	100
	TLC	0,00	0,00	23,83	15,93	16,82	54,16	100	100	0,00	0,00	51,39
	MSA	0,00	0,00	67,03	78,77	77,93	35,40	0,00	0,00	0,00	0,00	43,51
	AIC	0,00	0,00	9,14	5,30	5,25	10,44	0,00	0,00	0,00	0,00	5,09
7.	Chechen Republic	100	100	100	100	100	100	100	100	100	100	100
	TRC	0,00	80,87	81,00	78,15	80,42	0,00	0,00	0,00	0,00	0,00	38,72
	MSA	0,00	8,62	9,28	9,08	4,69	72,69	83,24	77,17	63,22	53,49	39,87
	AIC	0,00	10,51	9,72	12,78	14,89	27,31	16,76	22,83	36,78	46,51	21,41

Abbreviations: IMC - innovation medical cluster; MSA - manufacturing sector activities; AIC - agro-industrial complex; TLC - transport and logistics complex; TRC - tourist and recreation complex.

For the Stavropol Territory and the RNO-Alania, belonging to the first group, the share of business sector in their aggregate program budgets is 94.1% and 98.4%, respectively. Moreover, in the Stavropol Territory at the main stage of the Program (2016-2020), more than 90% of these funds are planned to be spent on activities to create an innovative medical cluster, and at the second stage (2021-2025) - an average of about 62% of the annual regional program budget is supposed to be invested in manufacturing sector. Program structure of the RNO-Alania during 2016-2025 is characterized by an even distribution of funds invested in business sector between agro-industrial, industrial, tourist and recreation, transport and logistics complexes in proportion of 5: 3: 1: 1.

The second group is characterized by a slight lag behind the leader in terms of the share of business sector in aggregate regional program budget. For the entire program period of 2016-2025 its values are 74.1%, 83.4% and 90.7% for Karachay-Cherkessia, Kabardino-Balkaria and

Chechnya, respectively. However, high values of this indicator in the period of 2016-2020 are the result of the influence of subprogram No. 8 on the development of tourist cluster in the territories of these NCFD subjects. This circumstance was the decisive factor to form the second group. At the final, third, stage of the Program in this group, there is a shift in priorities in favor of manufacturing sector, which occupy at least 60% in the structure of business sector in some years.

The distinctive feature of the third group is approximately equally low share of the Program's expenditures on manufacturing industry in total spending on business sector within the entire program period (36,6% and 43,5% for Ingushetia and Dagestan, respectively), burdened by a comparatively low share of business sector in their aggregate program budgets (40,2% and 16,9% for Ingushetia and Dagestan, respectively). Moreover, the program structure of Dagestan is aggravated by the absence of business sector activities on its territory within the first two and last two years of the Program.

The demonstrated results lead to the conclusion that increasing the level of BSS is practically unattainable for the members of the third group. Obviously, the prevalence of government spending on social sphere in the program budget (e.g. construction of schools, hospitals, social protection institutions, etc.) unfolds a spiral of public expenditures (e.g. payment of salaries and welfare to employees of public institutions, the provision of subsidies, government purchases of goods, works and services, capital repair and maintenance of government property, etc.), thus leading to a shrinkage of the regional business sector and its reduced ability to self-serve the increased social sphere. This suggests an analytical hypothesis that regional BSS depends on the ratio of measures (that is, subsidies and budget investments in capital construction) of a market and non-market nature in a medium-/long-term regional development program.

Undoubtedly, from the perspective of the federal authorities, there are two important positive consequences of budget expenditures on social sphere, namely, public peace and predictable growth of the main macroeconomic indicators, such as tax and non-tax revenues, assigned as program targets. However, if the increase in taxes on personal incomes of the employees of government-financed organizations and on economic activity (assuming that it is transparent and profitable) of government counterparties is exceeded by increasing government spending, then this will require, with more or less lag, additional volumes of federal transfers, i.e. will increase the level of regional budgetary insufficiency.

Market program activities aimed at ensuring the implementation of investment projects for the production of goods, works and services is a completely different matter. The results of such projects increase regional revenues without opposing factors noted for budget investments in the social sphere. The above program structure analysis give rise to two interrelated hypotheses (with their subsequent experimental verification by calculations on the data of seven NCFD subjects), suggesting the presence of:

- the negative feedback between the share of market activities in the expenditures of regional consolidated budget (variable  $X_1$ ) and the share of FITs in the revenues of regional consolidated budget (variable  $Y_1$ );
- the positive feedback between the share of market activities in the expenditures of regional consolidated budget (variable  $X_1$ ) and the share of business taxes in the revenues of regional consolidated budget (variable  $Y_2$ ).
  - Testing these hypotheses involves a two-step procedure, namely:
- selection of data to determine values of the variables  $X_1$ ,  $Y_1$  and  $Y_2$ ;
- correlation analysis between the specified variables.

### 3. EXPERIMENT No. 1

The informational and analytical background of the study are the data of the Federal Treasury of the Russian Federation on the execution of regional consolidated budgets and budget classification codes approved by the Russian Ministry of Finance. Since the functional and economic content of the Russian budget classification during 2001-2017 was subject to change<sup>13</sup>, let us explain how the data were interpreted and selected to determine values of the variables  $X_1$  and  $Y_2$  for the period of 2015-2017.

Market activities are reflected in the following subsections of the “National Economy” section of the Russian classification of budget expenditures, namely: 1) General economic issues; 2) Fuel and energy complex; 3) Agriculture and fishing; 4) Transportation; 5) Road facilities (road funds); 6) Other issues of national economy. These subsections include expenditures on the measures to promote employment, as well as expenditures on state support of economic agents, that is producers of goods, works and services of market nature.

The reason why the rest of subsections of the “National Economy” section and all other sections of the functional classification of budgetary expenditures were excluded from the analysis as not relevant to market activities is given in (System of National Accounts of 2008, p.62). It states that “principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production”. That is, the vast majority of budget expenditures concentrated in the excluded sections and subsections of the budget classification provide non-market<sup>14</sup> output. Then, the following types of expenses within the selected subsections were summed up for each NCFD subject:

- (code 412) “Budgetary investments for the purchase of real estate”;
- (code 414) “Budgetary investments in capital construction”;
- (code 450) “Budget investments to other legal entities”;
- (code 810) “Subsidies to legal entities (except non-profit organizations), individual entrepreneurs, individuals producing goods, works and services”.

The values of variable  $Y_1$  are given in table 1.

To determine the values of variable  $Y_2$ , the following types of business taxes were used:

- tax on profits;
- tax levied on taxpayers who have chosen income as an object of taxation;
- tax levied on taxpayers who have chosen income, reduced by the amount of expenses, as an object of taxation;
- single tax on imputed income for certain types of activities;
- single agricultural tax;
- sales tax.

In order to substantiate the formulated hypotheses, a correlation analysis (namely, Spearman rank correlation coefficients) of the ranking results of the NCFD subjects by two specified pairs of

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<sup>13</sup> See the Guidelines on the procedure for applying the budget classification of the Russian Federation, approved by: 1) Orders of the Ministry of Finance of the Russian Federation: No. 38H dated May 25, 1999 and No. 127H dated December 11, 2002 – for 2001-2004; 2) Orders of the Ministry of Finance of the Russian Federation: No. 72H dated August 27, 2004; No. 114H dated December 10, 2004; No. 152H dated 21.12.2005; No. 168H dated 08.12.2006 – for 2005-2007; 3) Orders of the Ministry of Finance of the Russian Federation: No. 74H dated August 24, 2007; No. 145H dated December 25, 2008; No. 150H dated 12.30.2009; No. 190H dated December 28, 2010; No. 180H dated December 21, 2011; No. 171H dated 21.12.2012 – for 2008-2014; 4) Order of the Ministry of Finance of Russia No. 65H dated July 01, 2013 – for 2015-2017.

<sup>14</sup> Non-market output consists of goods and individual or collective services produced by non-profit institutions serving households (NPISHs) or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole [20, p.627].

variables is applied. Calculations show (see Tables 9 and 10) negative correlation dependence between variables  $X_1$  and  $Y_1$  and positive, with small exceptions, correlation dependence between variables  $X_1$  and  $Y_2$ , both varying over the years of 2001-2017.

**Table 9.** Ranks and Spearman rank correlation coefficients, variables  $Y_1, X_1$

Year	Ranks $Y_1 / X_1$							Spearman rank correlation coefficient
	ST	RNO	RI	KCR	KBR	RD	CR	
2001	7 / 4	6 / 1	3 / 2	4 / 5	5 / 3	2 / 6	1 / 7	-0,643
2002	7 / 6	6 / 5	1 / 7	4 / 2	5 / 3	3 / 4	2 / 1	0,143
2003	7 / 1	6 / 6	1 / 7	5 / 3	4 / 4	3 / 5	2 / 2	-0,429
2004	7 / 6	5 / 1	2 / 4	6 / 2	4 / 5	3 / 3	1 / 7	-0,321
2005	7 / 2	5 / 7	1 / 1	6 / 3	4 / 4	3 / 5	2 / 6	-0,036
2006	7 / 3	5 / 6	1 / 2	4 / 7	6 / 1	3 / 4	2 / 5	-0,107
2007	7 / 3	5 / 7	1 / 1	4 / 6	6 / 4	3 / 2	2 / 5	0,321
2008	7 / 2	4 / 5	1 / 6	5 / 4	6 / 1	3 / 7	2 / 3	-0,679
2009	7 / 6	5 / 5	1 / 7	4 / 2	6 / 1	3 / 4	2 / 3	-0,214
2010	7 / 5	5 / 4	1 / 3	4 / 2	6 / 1	3 / 7	2 / 6	-0,250
2011	7 / 4	6 / 6	2 / 3	4 / 2	5 / 1	3 / 5	1 / 7	-0,250
2012	7 / 4	5 / 7	1 / 1	3 / 3	6 / 2	4 / 5	2 / 6	0,179
2013	7 / 4	5 / 5	1 / 1	4 / 3	6 / 2	3 / 6	2 / 7	-0,071
2014	7 / 3	5 / 5	1 / 1	4 / 4	6 / 2	3 / 7	2 / 6	-0,143
2015	7 / 3	5 / 6	1 / 1	4 / 4	6 / 2	3 / 5	2 / 7	-0,107
2016	7 / 2	5 / 7	1 / 4	4 / 3	6 / 1	3 / 5	2 / 6	-0,500
2017	7 / 3	6 / 7	1 / 6	4 / 4	5 / 1	3 / 5	2 / 2	-0,107

Abbreviations: ST – Stavropol Territory; RNO – Republic of North Osetiya-Alaniya; RI – Republic of Ingushetia; KCR – Karachay-Cherkess Republic; KBR – Kabardino-Balkarian Republic; RD – Republic of Dagestan; CR – Chechen Republic.

**Table 10.** Ranks and Spearman rank correlation coefficients, variables  $Y_2, X_1$

Year	Ranks $Y_2 / X_1$							Spearman rank correlation coefficient
	ST	RNO	RI	KCR	KBR	RD	CR	
2001	1 / 4	3 / 1	6 / 2	2 / 5	5 / 3	4 / 6	7 / 7	0,195
2002	1 / 6	5 / 5	7 / 7	6 / 2	4 / 3	3 / 4	2 / 1	0,230
2003	1 / 1	5 / 6	7 / 7	4 / 3	2 / 4	3 / 5	6 / 2	0,545
2004	1 / 6	5 / 1	6 / 4	2 / 2	3 / 5	4 / 3	7 / 7	0,125
2005	1 / 2	4 / 7	7 / 1	2 / 3	5 / 4	3 / 5	6 / 6	0,090
2006	1 / 3	3 / 6	7 / 2	2 / 7	4 / 1	5 / 4	6 / 5	-0,294
2007	1 / 3	2 / 7	6 / 1	4 / 6	3 / 4	5 / 2	7 / 5	-0,259
2008	1 / 2	5 / 5	6 / 6	2 / 4	3 / 1	4 / 7	7 / 3	0,405
2009	1 / 6	3 / 5	6 / 7	2 / 2	5 / 1	4 / 4	7 / 3	-0,085
2010	1 / 5	4 / 4	6 / 3	2 / 2	5 / 1	3 / 7	7 / 6	-0,015
2011	1 / 4	3 / 6	6 / 3	2 / 2	4 / 1	5 / 5	7 / 7	0,370
2012	1 / 4	2 / 7	6 / 1	4 / 3	3 / 2	5 / 5	7 / 6	-0,085
2013	1 / 4	3 / 5	6 / 1	4 / 3	2 / 2	5 / 6	7 / 7	0,300
2014	1 / 3	2 / 5	6 / 1	3 / 4	4 / 2	5 / 7	7 / 6	0,160
2015	1 / 3	2 / 6	6 / 1	3 / 4	4 / 2	5 / 5	7 / 7	0,125
2016	1 / 2	3 / 7	6 / 4	2 / 3	4 / 1	5 / 5	7 / 6	0,440
2017	1 / 3	3 / 7	6 / 6	4 / 4	2 / 1	5 / 5	7 / 2	0,195

Developing the analysis of the stably low levels of BSS in the NCFD subjects, let us consider the extent to which non-repayable receipts correspond to the regional ability to independently cover total expenditures for economic and social purposes (that is, how much a certain amount of federal transfers is justified by the regional need for it). The proposed approach to answering this question is similar to the above calculations of the rank correlation.

## 4. EXPERIMENT No. 2

In this case, the dependent variable  $Y$  is the same percentage share of non-repayable receipts in the revenues of consolidated budget of the NCFD subjects. Let us identify it, as before, through  $Y_1$ . This variable determines the places of the NCFD subjects in the rating of six subjects (without the Chechen Republic, for which there is no information necessary for the calculations). As for the ranked variable  $X$ , it is considered as an indicator characterizing the potential of regional budgetary self-sufficiency. The logic of its construction is as follows. The potential of regional budgetary self-sufficiency, which downside is the level of the region's need for non-repayable receipts, is directly related to the share of the revenues of consolidated budget of the  $i$ -th subject, formed from its own sources (denoted by  $Z_i$ ). On the other hand, it is appropriate to assume that a given value of  $Z_i$  is more or less sufficient relative to the budget needs of both the economy, measured by the value of gross regional product (GRP <sub>$i$</sub> ), and the population, measured by its size (PS <sub>$i$</sub> ). According to these considerations, we define the variable  $X$  as a vector  $X_{3i}$  with components  $Z_i/GRP_i$  and  $Z_i/PS_i$ .

Further, for each year of 2001-2016, ranks in the rating of the NCFD subjects by values of  $X_{3i}$  are determined. To build this rating, a method of ranking multidimensional objects based on pairwise comparisons (Belen'kiy and Grebennikov, [2013] by two criteria (namely,  $Z_i/GRP_i$  and  $Z_i/PS_i$ ) is used. The weights of these criteria are endogenous, that is, they are calculated by a specific rule rather than given by experts. The rank correlation coefficients between the results of ranking regions by the variables  $X_{3i}$  and  $Y_1$  are shown in Table 11.

**Table 11.** Ranks and Spearman rank correlation coefficients, variables  $Y_1$ ,  $X_{3i}$

Year	Ranks $Y_1 / X_{3i}$						Spearman rank correlation coefficient
	ST	RNO	RI	KCR	KBR	RD	
2001	6 / 2	5 / 1	2 / 4	3 / 5	4 / 3	1 / 6	-0,886
2002	6 / 1	5 / 2	1 / 4	3 / 5	4 / 3	2 / 6	-0,829
2003	6 / 1	5 / 2	1 / 4	4 / 3	3 / 6	2 / 5	-0,771
2004	6 / 1	4 / 3	1 / 5	5 / 2	3 / 4	2 / 6	-0,943
2005	6 / 1	4 / 3	1 / 6	5 / 2	3 / 4	2 / 5	-1,000
2006	6 / 1	4 / 3	1 / 6	3 / 4	5 / 2	2 / 5	-1,000
2007	6 / 1	4 / 3	1 / 6	3 / 4	5 / 2	2 / 5	-1,000
2008	6 / 1	3 / 3	1 / 6	4 / 4	5 / 2	2 / 5	-0,943
2009	6 / 2	4 / 4	1 / 6	3 / 3	5 / 1	2 / 5	-0,886
2010	6 / 1	4 / 4	1 / 6	3 / 3	5 / 2	2 / 5	-0,943
2011	6 / 1	5 / 4	1 / 5	3 / 3	4 / 2	2 / 6	-0,771
2012	6 / 1	4 / 3	1 / 6	2 / 4	5 / 2	3 / 5	-0,943
2013	6 / 1	4 / 2	1 / 6	3 / 4	5 / 3	2 / 5	-0,943
2014	6 / 1	4 / 3	1 / 6	3 / 4	5 / 2	2 / 5	-1,000
2015	6 / 2	4 / 4	1 / 6	3 / 3	5 / 1	2 / 5	-0,886
2016	6 / 2	4 / 4	1 / 6	3 / 3	5 / 1	2 / 5	-0,886

It is obvious that the financial relations between the federal center and the regions should follow the rule "the greater the potential of budgetary self-sufficiency of a region, the smaller the share of non-repayable receipts in the revenues of its consolidated budget". As can be judged by the calculated values of the Spearman coefficient shown in Table 11, this rule is satisfied for the entire period considered in the analysis. The proposed method allows us to assess whether it works for another period or another group of regions. In our future study, we propose to carry out a similar experiment using examples from a number of other macro-regions of the Russian Federation in a period comparable to that analyzed in this work.

## CONCLUSION

Among the most serious methodological shortcomings of the Russian model of performance budgeting that affect the quality of the governmental territorial development programs' design are the following:

- lack of problem analysis procedures that consider heterogeneity and regional development differentiation of the Russian economy;
- lack of procedures for the development of alternative means of achieving program objectives, which makes it impossible to assess the budgetary efficiency<sup>15</sup> of the state program;
- violation of the integrity principle of the regional program, expressed, in particular, in ignoring the requirement of interconnection of program activities.

The “Development of the North Caucasian Federal District until 2025” Governmental Program of the Russian Federation is a list of independent subprograms for socio-economic development of the NCFD subjects. Almost all of these subprograms, in turn, consist of an eclectic set of program activities, for the most part not corresponding to the federal status of territorial development program. As a result, the problem of forming a single socio-economic territory in the North Caucasus Federal District remains unresolved, which, first of all, is due to the lack of institutional foundation for territorial planning in Russia. Being an element of the federal executive branch, formed according to the sectoral principle, the Ministry for the Affairs of the North Caucasus simply does not have an infrastructure (i.e. legislative support, a network of subordinate departments) sufficient to solve inter-subject problems.

One of the most important factors influencing the level of regional budgetary self-sufficiency is the ratio of market and non-market measures in the expenditure part of regional consolidated budget, formed as a set of governmental programs. The study found that program structures of the Republic of Dagestan and the Republic of Ingushetia, with the predominance of social activities, plays the role of a kind of “trap for budgetary insufficiency”, making it impossible to solve the problem of reaching the stable trajectories of social and economic development without regular budgetary injections from the federal center.

Elimination of the above shortcomings could make a reasonable contribution to improving the efficiency of joint work of federal and regional executive authorities aimed at improving the quality of territorial development in Russia.

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<sup>15</sup> See Art. 34 of the Budget Code of the Russian Federation.

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