

Improving the System of Management of Risks of the Income Base of Regions' Consolidated Budgets



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Abstract. Budgetary risks of the Russian regions have been characterized by a sustained upward trend since the beginning of the 200–2009 crisis. This hinders the achievement of target indicators and fails to provide financial stability and sustainable socio-economic development of territories, which makes it important to search for solutions to the scientific issue of improving the system of management of risks affecting the income base of regions' consolidated budgets. It is necessary that the authorities made timely management decisions aimed at minimizing the impact of negative risk-contributing factors on public finances of the constituent entities of the Russian Federation. Informational and analytical basis of such operational decisions may include methodological tools of assessment of the impact of budgetary risks on the sustainability of the regional budgets'

For citation: Galukhin A.V., Uskova T.V. Improving the system of management of risks of the income base of regions' consolidated budgets. *Economic and Social Changes: Facts, Trends, Forecast*, 2016, no. 6. pp. 162-179. DOI: 10.15838/esc/2016.6.48.9

income base. However, such tool is currently missing. The novelty of the research lies in the fact that the authors have proven that when assessing budgetary risks, principles of comprehensiveness and objectivity need to be complied with, these principles imply the consideration of the risk of failure to perform the budget, the risk of imbalance and the risk expenditure non-implementation in connection with the repayment of the region's debt. Moreover, the authors suggest a gradation of the level of budgetary risks based on a hierarchy of groups of budget expenditures which can be reduced with minimal impact on the socio-economic development of territories. The results of testing the proposed methodological tools conducted in the constituent entities of the Northwestern Federal district have demonstrated an increase in the integral quantity of budgetary risks destabilizing the income base of regional budgets. The greatest risk is currently generated in the management of regions' public (municipal) debt. In order to improve the management and mitigate budgetary risks, the authors have proposed an algorithm for determining the feasibility of establishing a reserve fund of a constituent entity of the Federation and establishment of its optimal amount. It has been revealed that reserves funds in all regions of the Northwestern Federal district in 2015 were many times less than the optimal amount; this made it impossible to perform the basic function of this tool of budgetary risk management. The proposed algorithm and tools for assessing the impact of budgetary risks on the sustainability of the income base of the regions' consolidated budgets can be used by the regions' financial bodies of executive power for improving the efficiency and effectiveness of budget management as a part of its informational and analytical support.

Key words: consolidated regional budgets, budgetary risk, income base, budget sustainability, methodological tools for evaluation, reserve funds.

During the process of implementation of a full range of expenditure and debt commitments adopted by the authorities, achievement of target indicators and indicators of socio-economic development embodied in various program documents, budget risk management appears is a key element of ensuring budget (economic) security of the state and regions. However, as evidenced by official statistics on public finance of the Russian Federation during the period after the 2008–2009 crisis, budget-related risks have not been overcome and became even more intense. This situation destabilizes regions' financial

state and hampers the achievement of target indicators and indicators of socio-economic development of territories. For example, despite the years-long policy of fiscal consolidation aimed, primarily, at minimizing deficit there still remain the risks of further escalation of the budget system imbalance¹ and increase in debt burden². To make appropriate management decisions to minimize the

¹ According to the forecast of the Ministry of Finance of the Russian Federation, deficit of consolidated regional budgets might exceed 640 billion rubles in 2016.

² According to the calculations of AKRA Rating Agency, the regions' debt by the beginning of 2017 will come close to 2.5 trillion rubles.

factors destabilizing the financial situation of the territories, the authorities need an adequate informational base. It may be the assessment of the impact of fiscal risks on the sustainability of the revenue base of regional budgets³. However, such a methodological technique does not exist yet. The developments on the assessment of fiscal risks that exist in science and legal studies [1, 2, 8, 12, 16] have a number of disadvantages such as: mathematical errors, lack of comprehensive and systematic performance evaluation, inconclusive assessment results, lack of interpretation of economic indicators. This leads to the distortion of evaluation results and incorrect management decisions. Moreover, risk management techniques are limited, which does not improve the regions' financial situation. All this reflects the relevance of studying this range of problems, which defined the purpose for the study lying in solving the problem of improving the system of

management of risks affecting the income base of consolidated regional budgets as an essential component of sustainable socio-economic development of territories.

The sustainability of any system is determined by a set of parameters; when they reach critical level, there is a risk of transition from sustainability to non-sustainability. The probability of this is determined by a set of risks [19].

Modern dictionaries define "risk" as danger, possibility of loss or damage. Literally "risk" is interpreted as a decision, the result of which is not known in advance [20].

The budget-related risk is considered in the context of accumulation and consumption of centralized capital fund intended for financial support of state functions, performing a full range of expenditure and debt commitments [1]. The authors distinguish several approaches to the definition of a budget-related risk (*Tab. 1*).

Table 1. Approaches to the definition of a budget-related risk

Approach	Authors
Budget-related risk as a failure to implement planned budget expenditures	A.A. Ulyukaev
Budget-related risk as a risk of budget shortfalls	T.M. Kovaleva, D.V. Gorokhova, A.L. Kudrin, I. Tomberg, Yu. Radkovskii, E. Solov'eva, M.I. Solomko, I.V. Uskov
Budget-related risk as a risk of budget non-implementation	M.E. Chicheleva, V.B. Iyashvili, V.V. Gamukin, N.V. Baksha, A.P. Svintsova, E.A. Stepanova, E.D. Mel'nik, V.V. Yanov
Compiled from [5, 7, 11, 15, 16, 18, 20, 25].	

³ The sustainability of the income base of regional budgets in this paper is defined as the budget's ability to timely accumulate a sufficient amount of income necessary for performing a full set of commitments (expenditure and debt) assigned to the authorities of the RF constituent entities on the realization of state, public and personal interests and priorities preserving the region's development dynamics amid constantly changing internal and external factors.

Based on consolidation of results of the analysis of theoretical aspects of budgets risk management, the authors believe that a budget-related risk should be interpreted as a probability of failure implement budget on revenues and expenditures influenced by a set of risk-contributing management factors.

It should be noted that from the point of view of economic content, budget-related risks associated with budget revenues are prior to risks associated with expenditures. However, it is necessary to consider risks associated with managing budget deficit and state (municipal) debt of the regions and which, on the one hand, influence each other and, on the other hand, determine the sufficiency of budget funds for the execution of expenditure and debt commitments.

It should be emphasized that budget risks have both objective and subjective nature. Since risks accompany practically all types and areas of financial activity, it is objective, but at the same time it

depends on management decisions, which reflects its subjective nature. The essential characteristic of budget risks is its uncertainty, which lies in the fact that deviation from the planned amount of budget funds may be both downward and upward.

In accordance with the conceptual approach proposed by F. Knight, risk (uncertainty) is a source of success or damage. Adhering to the views of scientists such as V. V. Gamukin [5], O.I. Tishutina [17] and N.I. Yashin [21], the authors claim that there are three economic results of implementation of budget revenues related to budget risk management (*Tab. 2*).

Since the situation of risk implies the possibility of estimating the probabilities of future conditions, it is advisable to make a quantitative assessment of budget risks [19].

In the authors' opinion, "execution of budget income" may serve as the most comprehensive and informative indicator

Table 2. Economic results of implementation of budget revenues

Economic result	Nature	Risk nature
Zero	Exact match of projected and actual income	No risk
Positive	Actual income exceeded the projected figures	Risk of inefficient waste of excess income, including their inefficient earmarking
Negative	Actual income failed to reach the projected figures	Risk of deficit (debt accumulation) Risk of funding shortfalls of expenditure commitments (risk of their reduction)

characterizing the quantitative representation of uncertainty of government revenue generation. This choice is explained by the fact that this indicator reflects not only the evaluation result of the government revenue generation, but also the quality of budget planning and forecasting. Volatility and variation coefficient, which become wide spread in modern financial analysis, are considered as a measure of risk. However, the use of a standard formula of calculation of standard deviation leads to an apparent underestimation of the target value [17, 21] since the reference level of the indicator "execution of budget income" is, according to the system of budget planning and general theory of risk management, an exact match of projected and actual income, i.e. 100%. According to the authors, this very value is appropriate to use when determining the amount of risk of non-execution of budget income.

It should be noted that the coefficient of budget income variation necessary for assessing the impact of budget risks on the sustainability of the treasury income base, despite its complex nature, is not exhaustive as it does not assess the risks of unbalanced budget execution (sufficiency of funds to perform expenditure commitments) and non-execution of budget costs in connection with the territory's debt repayment (sufficiency of funds for

the implementation of expenditure commitments while performing debt obligations). Thus, the risk of imbalance may be estimated through the indicator of an increase of the region's budget costs not provided with the sufficient increase in income. Assessment of insolvency risk may be carried out by defining the acceptability of the level of expenditure commitments execution risk in connection with the debt repayment of the RF constituent entity.

Based on the qualitative evaluation of the integral value of regions' budget risk (*Tab. 3*), it is possible to make a conclusion about its level. In the author's opinion, it is reasonable to link its gradation with the hierarchy of expenditure groups, which is presented on the basis of the opportunities and consequences of their reduction for the implementation of the citizens' constitutional rights, state and public interests and priorities.

The proposed methodological techniques of assessing the impact of budget risks on the sustainability of the income base of regional budgets is intended for financial units of executive institutions at both federal and regional levels for the purpose of additional informational and analytical support of regional budget management process and the implementation of the following opportunities: to make timely management decisions to achieve the strategic goals of

Table 3. Sequence of calculations when assessing the impact of budget risks on the sustainability of the regional budgets' income base

Stage	Scope		
1. Definition of values of specific risk types	Calculation of budget income non-execution risk (R_1)	Calculation of mismatch risk (R_2)	Calculation of risk of budget expenditures non-execution due to the region's debt repayment (R_3)
	$R_1 = \frac{\sigma}{\bar{B}} \cdot 100\% ,$ where \bar{B} – average value of budget execution for 3 years*, % $\sigma = \sqrt{\frac{1}{n} \sum_{i=1}^n (B_i - 100\%)^2} ,$ where σ – standard deviation of budget income; B_i – i -th budget execution, %; n – number of observations, years.	$R_2 = \left \frac{P_{act} \div P_{proj}}{I_{act} \div I_{proj}} \right \cdot 100\% ,$ where P_{act} – factual budget income of an RF constituent entity in the reporting year; P_{proj} – planned budget income of an RF constituent entity in the reporting year; $P_{act/proj}$ – actual/projected budget income of an RF constituent entity in the reporting year.	$R_3 = \frac{P_{srj}}{I_j + I_{debtj}} \cdot 100\% ,$ where P_{srj} – expenditures on servicing and repayment of debt of an RF constituent entity in the j -th year; I_{debtj} – amount of debt financing of an RF constituent entity in the j -th year; I_j – budget income of an RF constituent entity in the j -th year (excluding subventions from federal budget).
2. Calculation of integral value (R)	$R = \sqrt[3]{R_1 \times R_2 \times R_3} .$		
3. Interpretation of integral value (R)	$0 < R \leq 1.0$ – minimal risk $1.0 < R \leq 5.0$ – small risk $5.0 < R \leq 15.0$ – moderate risk $15.0 < R \leq 25.0$ – high risk $R > 25.0$ – critical risk		
* Time periods for assessing the impact of budget risks on the sustainability of the income base of consolidated regional budgets were chosen to last 3 years based on the experience of budget process organization in Russia, carried out on a 3-year budget cycle basis.			

fiscal policy based on “feedback”; to evaluate the performance of the used techniques and the level of budget risks; to compare the obtained results in space and time; to improve the relevance of improving fiscal policy; to assess the potential and ways of increasing sustainability of the income base of consolidated regional budgets.

The testing of the proposed methodical technique of assessing the impact of

budget risks on the sustainability of the income base of consolidated regional budgets is conducted using the example of constituent entities of the Northwestern Federal District and helped identify the following:

1. The results of assessment of risk of budget income non-execution show that in 2015 budgets of the Leningrad, Pskov and Arkhangelsk oblasts experienced significant income volatility (*Tab. 4*).

Table 4. Estimation of risk of budget income non-execution in the regions of the Northwestern Federal District, %

Region	2007	2008	2009	2010	2011	2012	2013	2014	2015
Leningrad Oblast	17.51	21.65	20.31	19.78	13.58	16.50	12.55	19.39	21.17
Pskov Oblast	11.82	14.07	13.37	14.10	11.92	14.35	14.20	15.93	13.11
Arkhangelsk Oblast	17.59	19.53	19.25	21.14	19.53	21.11	12.51	14.12	12.08
Kaliningrad Oblast	11.88	12.46	10.91	13.06	12.41	14.28	11.48	12.84	7.93
Komi Republic	12.00	15.45	13.60	17.07	13.97	13.96	6.27	7.75	7.62
Murmansk Oblast	20.03	21.52	20.52	17.69	14.16	14.15	3.72	3.89	6.99
Vologda Oblast	25.27	28.17	30.76	28.83	24.12	18.07	5.43	7.50	6.63
Republic of Karelia	10.96	19.73	20.60	22.13	14.99	14.33	5.65	6.71	5.53
Saint Petersburg	26.12	26.21	18.37	11.54	9.37	5.56	4.06	4.40	4.68
Novgorod Oblast	4.10	7.20	7.03	7.96	5.11	15.10	14.85	14.89	1.41

Table 5. Comparison of parameters of Federal Budget Acts

Draft budget* for the period	2011		2012		2013		2014		2015	
	Income	Expenditures								
2009–2011	12.8	11.3								
2010–2012	7.5	9.4	8.1	9.7						
2011–2013	8.8	10.7	9.5	11.2	10.3	12.2				
2012–2014			11.8	12.7	12.7	13.7	14.1	14.6		
2013–2015					12.9	13.4	14.1	14.2	15.6	15.6
2014–2016							13.6	14.0	14.6	15.4
2015–2017									15.1	15.5

* Initial versions of Acts were used for analysis.
Source: ConsultantPlus information-reference system

Table 6. Comparison of parameters of the Vologda Oblast Federal Budget Acts

Draft budget* for the period	2011		2012		2013		2014		2015	
	Income	Expenditures								
2009–2011	49.8	51.0								
2010–2012	32.0	36.0	34.2	31.8	36.2	33.0				
2011–2013			35.1	39.5	41.0	36.2	43.4	38.5		
2012–2014					38.2	39.3	38.9	35.7	41.7	36.0
2013–2015							40.9	44.1	41.8	43.9
2014–2016									43.0	43.0

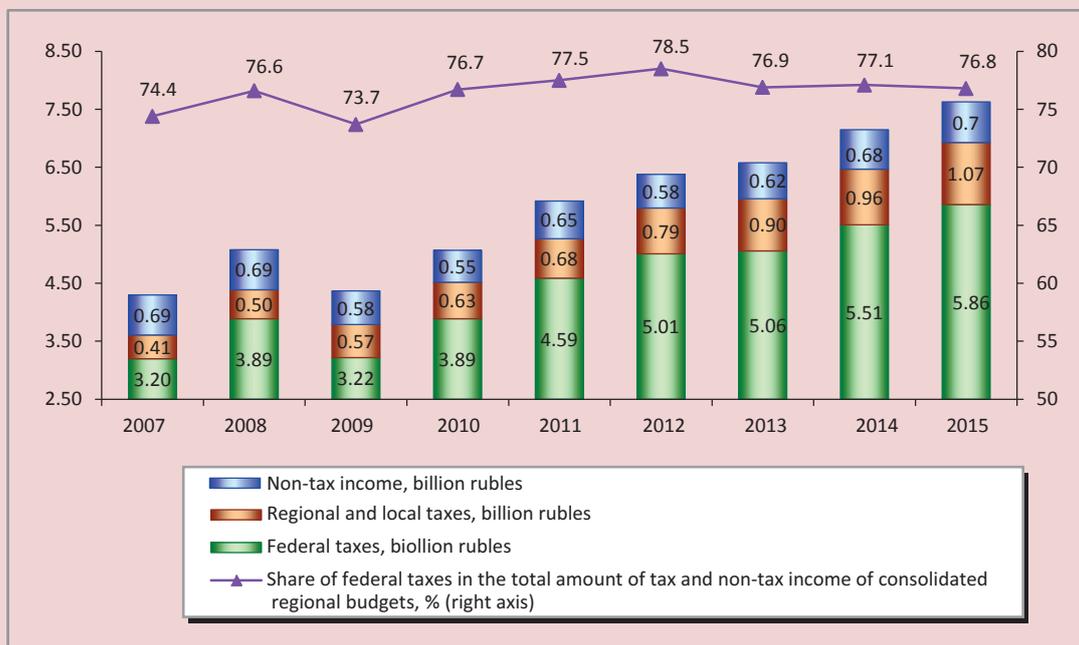
* Initial versions of Acts were used for analysis.
Source: ConsultantPlus information-reference system

The reason for this lies in lack of ability to provide high-quality budget planning and forecasting amid uncertain behavior of key indicators of the country’s socio-economic development, foreign-policy situation and external market turbulence. At the same time, this problem is characteristic of all levels of the country’s budgetary system (Tab. 5 and 6). For example, the number of amendments to the Vologda Oblast Budget Act has reached 11 over a year and the deviations of actual budget execution from the projected in the initial edition in the regions of the Northwestern Federal District reached 40%. A significant number

of adjustments to budget parameters leads to the reconsideration of financing of expenditure commitments and a failure to achieve target indicators. For example, in 2014, due to lack of funding only 7.4% of planned activities in the framework of the state Programs of the Vologda Oblast were fully or partly implemented.

The financial situation of sub-federal territories is even more exacerbating by strong dependence of regional and local budget parameters on decisions made at the federal level: net financial autonomy⁴ of RF constituent entities in 2015 did not exceed 25% nationwide (Fig. 1).

Figure 1. Own revenues of consolidated regional budgets and their share of federal taxes and duties



Source: calculated by the authors based on reports of the Federal Treasury. Available at: <http://roskazna.ru/byudzhetov-subektov-rf-i-mestnykh-byudzhetov/>.

⁴ Net financial autonomy – share of income of consolidated regional budgets, the flow of which may be directly influenced by regional and local authorities (share of non-tax revenues, regional and local taxes and duties in the total amount of own income of an RF constituent entity)

2. By the end of 2015, the highest risk of budget imbalance was recorded in the dynamically developing after 2008 regions of the Northwestern Federal District: in the Leningrad Oblast – 15%, in Saint Petersburg and in the Kaliningrad Oblast – 13% (*Tab. 7*).

Thus, the originally planned budget surplus of the regions of the Northwestern Federal District in 2008 and 2011 was replaced by budget deficit. Starting from 2012, when a conservative variant of forecasting the territories' socially-economic development began to apply in the budgeting process, the actual results of implementation of consolidated regional budgets has been much better than those projected for the beginning of the respective year.

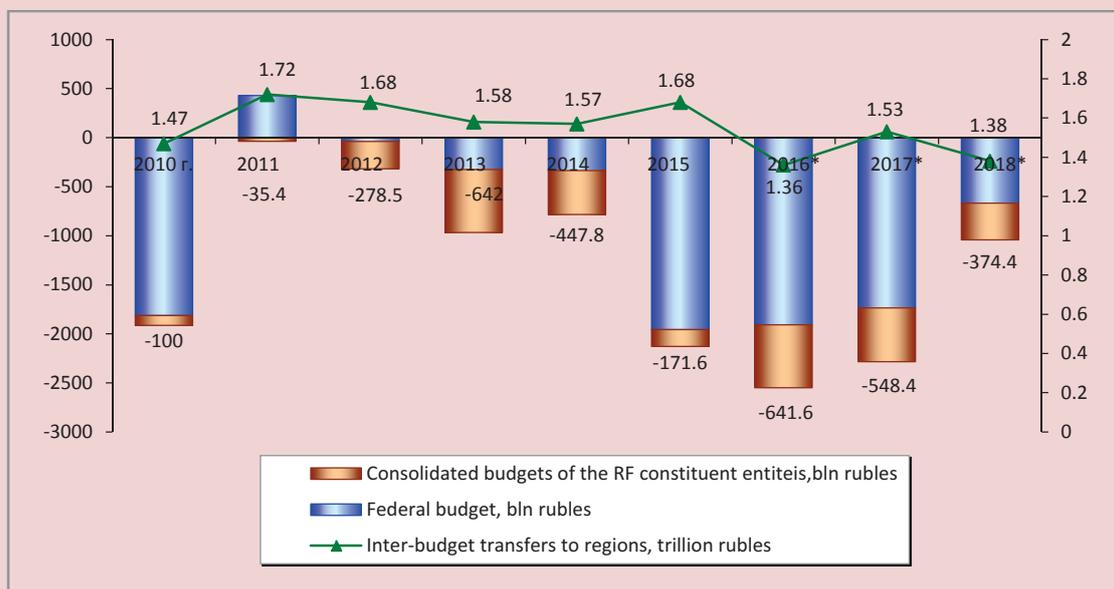
For comparison: in Russia the projected deficit of consolidated regional budgets amounting to 671 billion rubles did not exceed 180 billion rubles in fact. According to the forecast of the Ministry of Finance of the Russian Federation, in 2016, the deficit of consolidated regional budgets may again exceed 640 billion rubles (*Fig. 2*), including due to a sharp increase in the federal budget deficit in recent years, which could lead to a significant reduction in grant revenues, including resources allocated to financing the regions' expenditure commitments.

However, even in a situation of excess of income growth over expenditures, according to the theory of risk management, the higher the imbalance of changes, the higher the risk. Hence the magnitudes of

Table 7. Assessment of risk budget imbalance in the regions of the Northwestern Federal District in 2007–2015, %

Region	2007	2008	2009	2010	2011	2012	2013	2014	2015
Leningrad Oblast	9.96	8.22	0.59	8.06	22.66	14.02	4.78	20.62	15.55
Saint Petersburg	18.05	9.10	29.95	2.67	3.81	7.93	9.51	7.20	13.22
Kaliningrad Oblast	10.04	6.91	6.44	3.14	20.09	21.46	2.43	9.18	12.89
Murmansk Oblast	10.25	6.22	0.43	19.51	9.82	3.99	4.97	1.82	11.12
Arkhangelsk Oblast	14.71	5.49	17.95	8.74	18.18	15.84	2.17	5.80	8.42
Vologda Oblast	5.01	10.48	48.99	3.20	22.74	5.34	5.40	0.56	3.21
Novgorod Oblast	2.15	4.95	4.22	4.14	8.07	14.87	16.25	7.21	1.91
Pskov Oblast	5.50	6.93	7.29	8.08	22.86	13.54	0.62	11.73	0.6
Komi Republic	1.48	7.31	7.86	8.13	9.37	10.27	5.64	2.59	0.15
Republic of Karelia	217.0	236.3	5.10	5.95	18.65	7.62	5.51	0.27	0.04

Figure 2. Results of budget execution of the RF budgetary system, volume of inter-budget transfers to regions in 2010–2015 and forecast for 2016–2018



* Forecast.

Source: data of the Federal Treasury.

budget execution imbalance risk in 2015 in the Leningrad and Kaliningrad oblasts and in Saint Petersburg.

As a result of borrowings refinancing the risk of failure to implement budget expenditures in connection with debt repayment in the Arkhangelsk Oblast exceeded 40% in 2015, in the Komi Republic it reached almost 35% (Tab. 8).

In the same year, the debt burden in the Republic of Karelia exceeded the threshold established by in the Budget Code of the Russian Federation as 100% of own income, in the Pskov Oblast – it reached 82% (Tab. 9). Another three regions of the Northwestern Federal District (the

Vologda, Novgorod and Kaliningrad oblasts) demonstrated a debt increase amounting to 70% of tax and non-tax revenues. 90% of budget expenditures of the Arkhangelsk Oblast and the Komi Republic were devoted to the implementation of debt commitments (repayment of borrowings and execution of the provided state (municipal) guarantees). The number of Russian regions with a critical debt level (100% or more) in 2015 reached 14, the debt level of 40 RF constituent entities exceeded 50%. The practice of the federal center of replacing grant financial support (grants and subsidies) with required payments (budget loans), even if they are

Table 8. Estimation of risk of budget expenditures non-implementation due to debt repayment in the regions of the Northwestern Federal District in 2007–2015, %

Region	2007	2008	2009	2010	2011	2012	2013	2014	2015
Arkhangelsk Oblast	0.51	6.07	18.44	13.77	14.92	24.45	34.43	54.74	40.92
Komi Republic	2.57	1.40	2.11	11.79	1.02	2.73	8.22	14.15	34.47
Pskov Oblast	1.57	0.87	0.50	0.73	0.54	3.62	5.41	12.17	31.39
Murmansk Oblast	1.32	3.26	2.96	2.40	8.06	3.31	14.11	23.02	27.54
Novgorod Oblast	1.07	1.91	3.85	9.59	9.78	10.23	29.36	23.82	24.98
Vologda Oblast	0.78	0.86	3.09	4.50	10.34	14.87	21.23	36.18	20.05
Republic of Karelia	4.31	12.14	15.19	24.78	18.74	20.85	33.39	38.01	18.61
Kaliningrad Oblast	0.51	4.72	5.42	6.16	4.90	5.07	12.79	10.15	14.12
Leningrad Oblast	0.71	0.56	0.63	1.77	0.97	1.72	3.35	5.75	1.61
Saint Petersburg	1.89	2.16	0.02	0.02	0.09	0.69	0.95	1.25	0.20

Table 9. Ratio between the region's state (municipal) debt and their own budget income

Region	2007	2008	2009	2010	2011	2012	2013	2014	2015	Measurements for 2007–2015
Republic of Karelia	22.91	23.25	44.00	45.16	37.12	52.07	72.07	96.26	101.50	78.59
Pskov Oblast	4.64	1.75	3.68	13.21	34.46	48.77	73.79	72.40	82.02	77.38
Vologda Oblast	4.86	3.82	39.44	52.78	67.04	70.66	81.13	82.02	78.16	73.30
Novgorod Oblast	9.86	17.05	28.41	50.21	48.46	51.24	68.69	74.34	73.58	63.72
Kaliningrad Oblast	31.30	30.71	54.81	67.50	72.99	63.83	71.74	69.49	71.12	39.82
Arkhangelsk Oblast	7.00	15.30	37.53	40.03	49.63	47.01	57.85	62.05	69.36	62.36
Komi Republic	10.46	8.25	20.17	16.49	19.22	21.73	35.81	52.33	59.00	48.54
Murmansk Oblast	0.98	2.45	21.99	23.11	13.16	22.75	29.76	46.52	40.66	39.68
Leningrad Oblast	13.02	10.46	12.06	10.61	9.52	10.18	14.97	11.78	9.42	-3.60
Saint Petersburg	2.10	0.12	0.73	2.36	2.60	6.39	5.01	3.64	3.48	1.38

Sources: data of the Federal Treasury and the Ministry of Finance of the Russian Federation.

almost free of charge (the cost of budget loans is set at the rate of 0.1% per annum), does not resolve the problem at its root [10]. Moreover, according to the AKRA rating agency [3], the provision of new budget loans will gradually decline and will be replaced with market debt, which

will result in the changes in its structure and the increase in the average weighted rate of loan portfolio (and consequently the increase in debt servicing costs) from the current 9.2% to 10.8% by the end of 2018. This will further exacerbate the risk of region's insolvency.

The testing of methodological provisions related to the assessment of the impact of budget risks on the sustainability of the income base of consolidated regional budgets in the Northwestern Federal District has showed that, according to the quality gradation of risk level in 2015, the Komi Republic, Saint Petersburg and the Novgorod Oblast were in the group of regions with low risk level. The Arkhangelsk Oblast has been a region with high risk level for the past two years. The rest of the regions of the federal district belonged to the group with a moderate risk level. In general, during 2007–2015

the risk magnitude increased from average 7% to almost 9% (Tab. 10), which reflect the relevance of budget risk management.

In foreign practice of budget risk management, the most common are avoidance or rejection of risk (the so-called policy of strict fiscal restraints, including the use of fiscal rules and limitations on the possible amount of deficit and borrowings), risk reduction (the use a conservative forecast of socio-economic development in the framework of budget planning), and risk financing (for example, by establishing reserve funds which exist in Canada, USA, UAE, etc.) [22, 24, 25].

Table 10. Integrated assessment of the impact of budget risks on the sustainability of the regional budgets' income base in the Northwestern Federal District

Region	2007		2009	2010	2014	2015		Measurements for 2007–2015
	Value, %	Characteristics	Value, %	Value, %	Value, %	Value, %	Characteristics	
Arkhangelsk Oblast	5.10	Moderate	18.54	13.65	21.78	18.55	High	▲
Murmansk Oblast	6.47	Moderate	2.96	9.39	5.46	14.98	Moderate	▲
Kaliningrad Oblast	3.94	Small	7.25	6.32	11.84	13.72	Moderate	▲
Leningrad Oblast	4.99	Small	1.96	6.56	6.65	10.11	Moderate	▲
Vologda Oblast	4.62	Small	16.69	7.46	6.21	8.87	Moderate	▲
Pskov Oblast	4.68	Small	3.65	4.36	13.49	7.34	Moderate	▲
Republic of Karelia	21.73	High	11.69	14.83	5.77	5.95	Moderate	▼
Novgorod Oblast	2.11	Small	4.85	6.81	14.86	4.76	Small	▲
Komi Republic	3.58	Small	6.08	11.78	7.26	3.86	Small	▲
Saint Petersburg	9.61	Moderate	2.10	0.89	4.82	2.89	Small	▼
Average by the federal district	6.68	Moderate	7.58	8.21	10.81	8.70	Moderate	▲

Russia has adopted this practice (with the exception of the use of a conservative variant of forecasting socially-economic development)⁵, however, the use of most risk management methods of the general theory of risk management in domestic practice of budget process is still limited for the regions. The diversification method is mostly used only for managing debt risks and risks arising in connection with investing of temporarily available funds and debt risks. Cash flow hedge and insurance methods are limited by lack of necessary legal support and the threat of transition to a lower level of insurance protection. The most common are limitation and reservation methods. The first method is built in the budget process (limits of budget commitments and financing ceiling, limitations of deficit amount, amount of state (municipal) debt and expenditures on its servicing, as well as other restrictions, differentiated according to the degree of the region's subsidization).

The second method – reservation – is applied in the framework of counter-cycle fiscal policy according to which it is recommended to rely on conservative development scenarios of the income base in order to create regional reserve funds.

However, analysis of regional legislation concerning reserve funds of the RF constituent entities (hereinafter RFCE) indicates the absence of unified approaches to their formation, which adversely affects the effectiveness of their functioning. Moreover, there is the issue of the appropriateness of their use.

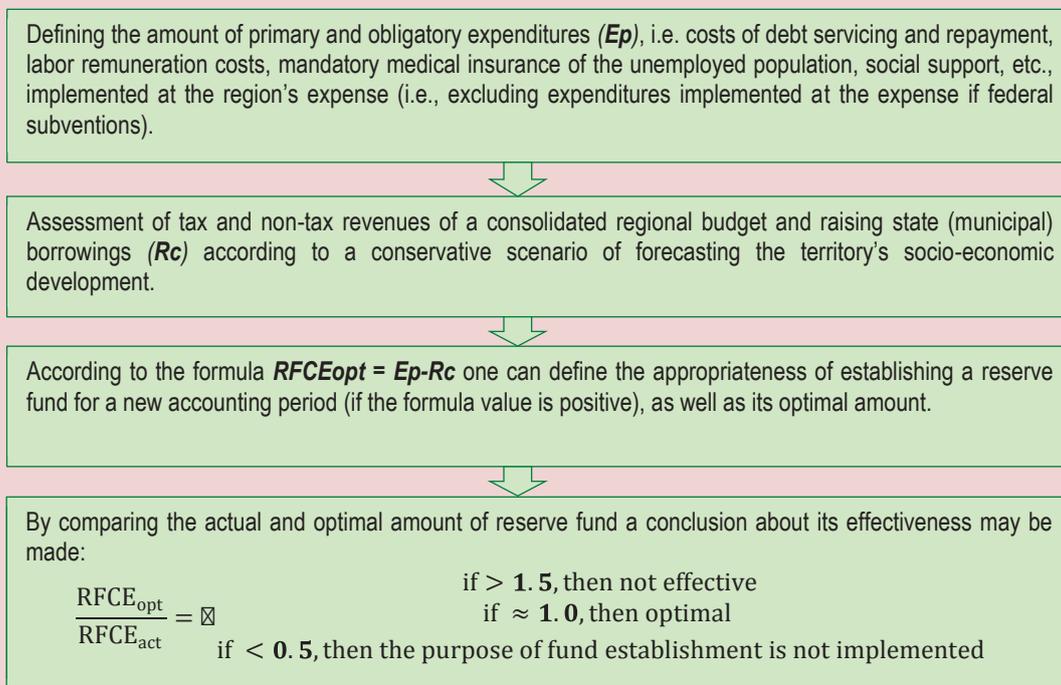
In light of this RFCE the authors propose to use the following algorithm for evaluating the appropriateness of establishing RFCEs (*Fig. 3*).

Only the region's own funds should be used as sources of RFCE formation – tax and non-tax revenues, no-purpose fund balances of a uniform account at the beginning of a new accounting period, revenues from managing the reserve fund.

The testing of the developed algorithm was conducted using the example of the regions of the Northwestern Federal District. It has been revealed that in 2015 the establishment of a reserve fund was appropriate in the Republic of Karelia, the Arkhangelsk, Kaliningrad and Pskov oblasts. The optimal amount of reserved funds was to be from 3.6 billion rubles (4.5% of expenditures) in the Arkhangelsk Oblast to 14.9 billion rubles (21.5% of

⁵ Russia uses the base variant of forecasting socially-economic development in the process of budget planning.

Figure 3. Algorithm for determining the appropriateness of establishing a reserve fund and its optimal size



* According to Article 81.2 of the Budget Code of the Russian Federation, “a reserve fund of an RF constituent entity is intended for the implementation of expenditure commitments of an RF constituent entity in case of insufficient budget income of an RF constituent entity for financial support of expenditure commitments”.

expenditures) in the Kaliningrad Oblast. The actual amount of reserve funds of the regions of the Northwestern Federal District in 2015 was much less than the calculated optimal values. The most impressive reserve funds were demonstrated by the Vologda (4.6 million rubles) and Pskov (4.4 million rubles) oblasts. However; even in these regions the share of expenditures which could be covered by the funds in case of budget shortfalls and if the amount of expenditures remains the same does not

exceed 0.02%. Based on the ratio of actual and optimal amount of a reserve fund in all regions of the Northwestern Federal District, it can be stated that the purpose of their establishment is not implemented (Tab. 11). This confirms the fact that RFCEs are currently used only to cover temporary cash shortages or in cases of emergency.

Thus, the developed algorithm will help financial units of regional executive institutions determine the appropriateness

Table 11. Evaluation of appropriateness of establishing RFCE and determination of their optimal amounts in 2015

Region	Ep, bln RUR	Rc, bln RUR	RFCE opt		Conclusion about establishment appropriateness mln RUR.	RFCE act		Ration of RFCE opt and RFCE act	Conclusion about fund effectiveness
			bln RUR	%*		%*			
Republic of Karelia	35.4	31.02	4.38	11.76	Appropriate	0.005	0.000	0,000	No purpose implementation
Komi Republic	92.06	98.41	x	x	Inappropriate	0.028	0.000	x	x
Arkhangelsk Oblast	110.7	107.1	3.60	4.53	Appropriate	0.828	0.001	0,000	No purpose implementation
Vologda Oblast	57.57	59.84	x	x	Inappropriate	4.621	0.008	x	x
Kaliningrad Oblast	61.12	46.20	14.91	21.53	Appropriate	0.275	0.000	0,000	No purpose implementation
Leningrad Oblast	91.47	122.2	x	x	Inappropriate	0.050	0.000	x	x
Murmansk Oblast	73.49	77.31	x	x	Inappropriate	0.000	0.000	x	x
Novgorod Oblast	32.2	32.97	x	x	Inappropriate	0.090	0.000	x	x
Pskov Oblast	32.93	28.96	3.98	14.11	Appropriate	4.369	0.015	0.001	No purpose implementation
Saint Petersburg	326.0	423.3	x	x	Inappropriate	0.201	0.000	x	x

*to the expenditures excluding expenditures implemented at the expense of subventions.
Sources: data of reports of the Federal Treasury; authors' calculations.

of establishing and the optimal amount of reserve funds to mitigate the risks affecting the income base of budgets of the Rf constituent entities.

Undoubtedly, in order to reverse the well-established steady budget risks increase, alongside with the developed additional informational and analytical management support (methodical approach to assessing the impact of budget risks on the sustainability of the income base of consolidated regional budgets) and the improvement of the reservation method, it is also important to do the following:

1. To complement the legislative framework of budgets risk management (establishing the category of “budget risk”, basic risk management mechanisms and their constraints, etc.).

2. To regulate inter-budget relations through:

- full funding by the Federation of the regions' expenditure commitments;
- long-term consolidation of income sources by level of the budgetary system and its main elements of mandatory payments to regional and local budgets;
- preservation of responsibilities in relation to the possibility of changing

only that income source (or its part) which is fixed (credited) at a particular level of the budgetary system (by analogy with the experience of Canada and the USA);

- strengthening the stimulating character of transfers on the development of regions' financial independence (it is advisable for Russia to consider and adopt the experience of Brazil and India, where the distribution of financial support from the federal center among the regions takes into account the indicators of economic development and the efforts of the financial units of executive authorities in the development of territories' profitable potential and reduction in obligatory payments to the budget);

- improvement of the overall budget policy coherence at all levels of governance (using the example of Germany).

3. To enhance the efficiency of using budget funds, including:

- reduction of fiscal offences;
- improving the effectiveness of using state (municipal) borrowing (use of borrowed funds as an investment resource for the development of territories by analogy with foreign countries: e.g. Germany, the USA, Canada, etc. [23]).

4. To prolong budget loans previously given out to regions and to gradually refinance them by providing free financial support from federal government, etc.

Only with a clear vision and prompt complex solution of the problems of risk management will it be possible to stop the increase in budget risks, increase the sustainability of regional budgets and strengthen fiscal security, which will undoubtedly have a positively impact on the regions' socio-economic development.

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Received September 30, 2016.