ORIGINAL PAPER

Assessment of Budget Impact on the Financial Sustainability of the Altai Territory Economy

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ABSTRACT

Based on the methods of quantitative and coefficient analysis of financial indicators, the author assessed the state of the Altai Territory budget and its impact on the financial sustainability of the region's economy. The problems in the structure of income and expenditure revenues were noted: high growth rates of the budget expenditures, mainly due to social expenses; decreasing budget receipts of own revenues, such as property tax and other tax and non-tax revenues; growing dependence of the regional budget on uncompensated receipts, mainly due to increasing grants allocated by the federal center to equalize budgetary provision. Of note was the imbalance of the regional budget leading to its financial imbalance. The author suggested measures to make the regional budget balanced: ensuring the efficiency and control of the budgetary resources, reducing the growth rate of budget expenditures and increasing tax and non-tax revenue receipts. The scientific novelty of the study consists in using a set of financial indicators to determine the state of the Altai Territory budget for 2016–2018 in order to assess its impact on the financial sustainability of the region's economy. The results can be used by federal and regional authorities as a fiscal stimulus tool for the financial sustainability of the Altai Territory and other regions of the Russian Federation.

Keywords: regional economy, structure of regional budget, financial sustainability, budget revenues and expenditures, growth rate, tax and non-tax revenues, uncompensated receipts; budget evaluation criteria; budget coefficients

INTRODUCTION

The relevance of the study of the regional budget in the Russian Federation is steadily growing, since it is part of the financial system participating in the distribution of financial income by the main priority sectors of economic activity and subsequently affects its financial sustainability [1, 2]. The increasing interest in this issue is confirmed by the studies of the authors who consider the impact of the budget on the sustainability of the regional economy [3]. The budget is an integral component of the policy of regional authorities in financial and economic development and plays an important role in ensuring the financial sustainability of the regional economy.

The chief goals of the executive branch of the regional authority are to ensure budgetary resources, consolidate and reduce budgetary expenditures, improve budget formation and execution processes, and control municipal and state debts [4]. At the expense of the budget funds, the regional authorities distribute income from profits from the profitability sector of economy and among other administrative-territorial entities. Here, problems may arise affecting the budget system sustainability [5]. There can be: inflation, a crisis in the country and an inefficient financial system. As a result, a budget deficit may appear when expenses exceed revenues.

The state is interested in providing gratuitous assistance to the regional budget for the regional authorities to carry out their own budget policies and maintain financial sustainability [6]. State support involves the investment of the budgetary resources in the priority sectors of the economy [7, 8].

However, one of the main problems in the budget system is to choose the expenditure pattern. It is responsible for the budget balance and the effective allocation of the budgetary resources, as well as for developing favorable conditions for the national economy, providing high-quality public services and maintaining sustainability in the social sphere [9, 10].

The aim of the paper is to study the budget indicators of the Altai Territory that will let us assess its impact on the financial sustainability of the region.

Accordingly, the following should be done:
• to determine the criteria and methods for assessing the regional budget;
• to analyze the structure of the regional budget of the Altai Territory;
• to assess the impact of the regional budget on the financial sustainability of the Altai Territory.

BUDGET ASSESSMENT METHODS AND EVALUATION CRITERIA

The regional budget was assessed by means of the quantitative evaluation criteria and the coefficient analysis method [11–13].

To determine the financial sustainability of the regional budget the following states can be highlighted:
1) absolutely stable;
2) normal;
3) unstable;
4) crisis (*Table 1*).

To assess the impact of the regional budget on the financial sustainability of the Altai Territory, budget coefficients should be used [14, 15]. Thus, we consider the following set of financial indicators that allow us to assess the independence, sustainability and directions of the regional budget:

1) coefficient of budget autonomy (independence):

$$C_{aut} = \frac{TNTR}{R} \times 100\%;$$

2) coefficient of budget dependence:

$$C_{dep} = \frac{UR}{R} \times 100\%;$$

3) coefficient of sustainability:

$$C_{sust} = \frac{UR}{TNTR} \times 100\%;$$

4) coefficient of deficit:

Methods to determine sustainable state by the following quantitative criteria

Type of financial sustainability	Calculation formula	Calculation formula, %
Absolutely stable	$E < Ro + Cr$	$Ro / R = 60-70\%$ $Cr / R = 30-40\%$ $D / E = 10-15\%$
Normal	$E = Ro + Cr$	$Ro / R = 40-50\%$ $Cr / R = 50-60\%$ $D / E = 20-25\%$
Unstable	$E = Ro + Cr + AF$	$Ro / R = 20-30\%$ $Cr / R = 70-80\%$ $D / E = 30-35\%$
Crisis	$E = Ro + Cr + AF$	$Ro / R = 5-10\%$ $Cr / R = 90-95\%$ $D / E = 40-45\%$
Definitions	Sum of expenses (E) = Own revenues (Ro) + Control revenues (Cr) + Additionally attracted finance (AF)	1. Own revenues (Ro) includes ongoing tax and non-tax revenues. 2. Control revenues (Cr) includes tax revenues distributed on a temporary basis and at differentiated rates. 3. Additional financial sources (AF) are extra-budgetary funds, borrowed funds. 4. Debt (D) is the size of the budget deficit

Source: calculated according to [14].

$$C_d = \frac{Def}{TNTR} \times 100\%;$$

5) coefficient of business activity:

$$C_{ba} = \frac{NTR}{TNTR} \times 100\%;$$

6) coefficient of tax revenues:

$$C_{tr} = \frac{TR}{TNTR} \times 100\%;$$

7) coefficient of budget coverage:

$$C_{bc} = \frac{R}{E} \times 100\%;$$

8) coefficient of budgetary provision of the population:

$$C_{bpp} = \frac{E}{P} \times 100\%;$$

where R — is total budget revenues;

E — is total budget expenditures;

$TNTR$ — is received tax and non-tax revenues, revenues of trust budgetary funds, i.e. total revenues minus non-repayable and non-recoverable transfers;

UR — is non-repayable and non-recoverable transfers from budgets of higher levels;

TR — is tax revenues;

Def — is deficit;

NTR — is non-tax revenues;

P — is population.

REGIONAL BUDGET STRUCTURE ANALYSIS OF THE ALTAI TERRITORY

Today, the implementation of all social programs and obligations is the key priority for the regional budget, structural transformation and modernization of economic development. The system of social policy, education and health care is being improved to increase the level of well-being and the quality of life of the population [16, 17]. In 2018, about 70% of all budget expenses were used to achieve the goals.

The state programs for the economic development of the Altai Territory are no less important for the regional authorities. They are aimed at supporting agriculture, industry, small and medium enterprises, improving labor market conditions and promoting employment. This will increase the competitiveness of the region's economy[1]. Implementing state programs for the socio-economic development of the Altai Territory requires an effective budget policy that will achieve financial sustainability [18].

The budget state and possible implementation of the state development programs are shown by revenue receipts. The income structure consists of own revenues and uncompensated receipts (*Table 2*).

The calculations show a significant increase in total budget revenues by 17 billion

rubles in 2018 compared to 2017, while the growth rate was already 120%. The growth rate of own revenues exceeds the average rate in Russia by 1.5 times. Uncompensated receipts in 2018 showed the highest growth rate for the last three years and amounted to 134%, or 47.8 billion rubles. In 2016, own revenues also reflected the stable budget revenues, with the highest growth rate of 122%, or 50 billion rubles. This suggests that the regional budget was the least dependent on federal centers, in contrast to 2018[2].

The structure of the budget's own revenues should be analyzed to see why they increased (*Table 3*).

Table 3 shows that over the past three years the largest share is represented by individual income taxes, income taxes and excise taxes, which is about 70% of total tax revenues.

In 2018, there was a high growth rate of individual income tax (113%, or 17.6 billion rubles) and corporate income tax (114%, or 14 billion rubles) with the highest share in the revenue structure (33% and 26%). The lowest share of revenues is still retained by property tax and non-tax revenues, 9% and 11%, respectively. Therefore, there are problems in the revenue structure requiring increase in their tax base [19].

Uncompensated receipts from the federal budgets to the regional budget are necessary to implement regional development programs and cover the budget deficit, thereby ensuring sustainable development. However, constantly increasing gratuitous aid means that the budget system is unstable and belongs to the subsidized one (*Table 4*).

The data of the uncompensated receipts structure show that the fewest grants for the last three years were provided in 2016–58% of all receipts. The regional budget was less dependent on the federal budgets [20, 21]. However, 2018 notes a rather high share of grants (71%) and growth rate (142%) compared to

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[1] Law of the Altai Territory dated December 05, 2017 No. 92-3C "On the regional budget for 2018 and for the planning period of 2019 and 2020". URL: http://docs.cntd.ru/document/450377816 (accessed on 22.07.2018).

[2] Information on the regional budget execution as of 01.01.2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 19.02.2019).

Table 2

Revenue receipts of the Altai Territory budget

Indicator	2016		2017		2018	
	Growth rate (chain), %	Value, billion rubles	Growth rate (chain), %	Value, billion rubles	Growth rate (chain), %	Value, billion rubles
Revenues, total	104	83 045	102	84 965	120	102 029
Uncompensated receipts	85	32 979	108	35 570	134	47 780
Own revenues	122	50 065	100	49 395	110	54 248

Source: the author's calculations according to the Ministry of Finance of the Altai Territory. 2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 02.19.2019).

Table 3

Structure of own revenues of the Altai Territory

Indicator	2016			2017			2018		
	Value, billion rubles	Share, %	Growth rate, %	Value, in billion rubles	Share, %	Growth rate, %	Value, billion rubles	Share, %	Growth rate, %
Individual income tax	14 750 873	30	105	15 657 818	32	106	17 649 269	33	113
Corporate income tax	12 898 267	26	160	12 256 768	25	95	13 970 129	26	114
Excise taxes	13 263 457	26	128	11 371 420	23	85,7	11 644 095	21	102
Corporate property tax	4 423 136	9	104	4 695 127	9	106	5 109 288	9	109
Other tax and non-tax revenues	4 729 636	9	103	5 413 387	11	114	5 875 453	11	108
Total revenues, billion rubles	50 065 369			49 394 520			54 248 234		

Source: the author's calculations according to the Ministry of Finance of the Altai Territory. 2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 02.19.2019).

Table 4

Structure of the main uncompensated receipts to the Altai Territory budget

Receipts from the federal budget	2016			2017			2018		
	Value, billion rubles	Share, %	Growth rate, %	Value, billion rubles	Share, %	Growth rate, %	Value, billion rubles	Share, %	Growth rate, %
Grants	18 533 909	58%	105%	23 605 828	66%	127%	33 486 904	71%	142%
Subsidies	6 559 561	20%	83%	5 469 531	16%	83%	6 005 152	13%	110%
Subventions	5 498 641	17%	105%	5 098 899	15%	93%	5 230 649	11%	102%
Inter-budgetary transfers	1 671 841	5%	22%	883 184	3%	53%	2 673 476	5%	302%
Total revenues, billion rubles	32 263 952			35 057 443			47 396 182		

Source: the author's calculations according to the Ministry of Finance of the Altai Territory. 2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 02.19.2019).

Table 5

Structure of budget expenditures of the Altai Territory

Indicator	2016			2017			2018		
	Value, billion rubles	Share, %	Growth rate, %	Value, billion rubles	Share, %	Growth rate, %	Value, billion rubles	Share, %	Growth rate, %
Social expenses	53 664 036	69	98	58 166 314	70	108	66 055 101	71	113
National economy	16 497 375	21	86	14 885 748	18	90	16 028 062	17	107
General inter-budgetary transfers to local budgets	2 000 592	2	107	4 733 284	5	236	4 101 218	4	87
National security and law enforcement	524 697	1	117	714 837	1	136	1 002 051	1	140
Other expenses	5 178 482	7	82	5 024 161	6	97	6 058 869	7	120
Total expenses, billion rubles	77 865 182			83 524 344			93 245 301		

Source: the author's calculations according to the Ministry of Finance of the Altai Territory. 2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 02.19.2019).

the previous periods. Low income of own taxes caused the increase in grants for socio-economic development programs (*Table 5*).

According to *Table 5*, expenses increased by 10% in 2018 compared to 2017. It reached the highest level of 93 billion rubles. This growth was due to the high share of social expenses within the state and regional development programs, which occupies 71%, or 66 billion rubles, of the budget spending. Extreme funds of 19.2 billion rubles were allocated from the regional budget for social support of the population. There was an increase in wage expenses for public sector employees by an average of 10%.

There is an increase in the growth rate of expenses on the national security in the amount of 1 billion rubles (140% growth rate). In 2017, budget funds in the amount of 4.8 billion rubles were allocated for general inter-budgetary transfers (236% growth rate).

The data of the national economy are approximately the same expenditure indicators for the considered time period. The main expenses are allocated to the important sectors of the economy, such as agriculture, industry, small and medium-sized businesses, etc. Expenses in these areas amounted to 60% of total expenses of the national economy in order to develop the real sector of the region's economy, to introduce the latest technologies and to increase labor productivity.

BUDGET ASSESSMENT AND RESEARCH RESULTS

To analyze budget indicators as a tool, the following coefficients maybe applied: budget autonomy (independence), budget dependence, sustainability, deficit and budget coverage, etc. (*Table* 6).

In *Table 7*, according to 2016–2018 quantitative criteria for estimating the Altai Territory budget, the calculations of the indicators for 2016 demonstrate the absolute financial sustainability of the budget. In 2017–2018, the indicators have normal financial sustainability, which confirms the downward trend in the financial sustainability of the regional budget (*Table 8*).

Carried out by means of the coefficient analysis, the calculations in *Table 8* show a tendency over the past year of decreasing autonomy of own revenues of the regional budget system against increasing dependence of the regional budget system on uncompensated receipts from the federal budget. Due to these receipts, the budget revenues cover expenses, thereby forming a high level of surplus.

Despite this, in 2018, the coefficient of financial sustainability revealed a negative trend in the sustainable development of the budget due to increased uncompensated receipts and lower revenues of its own budget.

As a rule, increased share of uncompensated receipts indicates the inability of the regional budget to cover expenses from its own budget revenues to implement targeted programs of socio-economic development, thereby showing its financial unsustainability. Thus, in 2018, the Altai Territory showed a sufficient increase in dependence on the federal budget; as a result, this region can be considered subsidized. Its own tax and non-tax revenues to the regional budget should be increased in order to reduce dependence on the federal budget. The following measures are required:

1) to balance the regional budget — to spend the budget funds efficiently, to allocate resources to priority areas of economic development;

2) to increase the tax base of revenues with low growth rates;

3) to increase tax potential;

4) to conduct effective planning, monitoring and application of the budget funds.

The region's development requires developing strategic programs to solve the problems above, where budget policy is the most important. It should be focused on increasing the financial sustainability of the regional budget, increasing the efficiency of expenditures in the social and investment sphere, changing the structure of the budget and the level of expenditure based on reliable forecasts of revenues to the budget.

Table 6

**Data for assessing the regional budget impact on the financial sustainability of the Altai Territory,
billion rubles**

Indicator	2016, billion rubles	2017, billion rubles	2018, billion rubles
Budget revenues (*R*)	83 045	84 965	102 029
Budget expenditures (*E*)	77 865	83 524	93 245
Tax revenues (TR)	45 336	43 981	48 373
Non-tax revenues (*NTR*)	4729	5413	5875
Tax and non-tax revenues (*TNTR*)	50 065	49 394	54 248
Uncompensated receipts (*UR*)	32 979	35 570	47 780
Deficit (surplus) (*Def*)	+5179	+1441	+8784
Population (*P*) million people	2376	2365	2350

Source: the author's calculations according to the Ministry of Finance of the Altai Territory. 2019. URL: http://fin22.ru/isp/ispbud/o2018/o2018_2923.html (accessed on 02.19.2019).

Quantitative criteria for estimating the Altai Territory budget

Indicator	2016	2017	2018
Formula	$E < Ro + Cr$	$E = Ro + Cr$	$E < Ro + Cr$
Type of financial sustainability	Stable	Normal	Stable
Relative indicators of financial sustainability			
State	*Ro/R*	*Cr/R*	*D/E*
Absolutely stable	*Ro/R* = 60–70%	*Cr/R* = 30–40%	*D/E* = 10–15%
Normal	*Ro/R* = 40–50%	*Cr/R* = 50–60%	*D/E* = 20–25%
Unstable	*Ro/R* = 20–30%	*Cr/R* =70–80%	*D/E* = 30–35%
Crisis	*Ro/R* = 5–10%	*Cr/R* = 90–95%	*D/E* = 40–45%
Calculation			
2016	60.3%	39.8%	2.8%
2017	58.1%	41.9%	2.4%
2018	53.2%	46.9%	2.1%

Source: calculated by the author.

Table 8

Coefficient analysis rating of the Altai Territory budget

Indicator	Calculation formula	Standard		2016		2017		2018	
Coefficient of autonomy	$C_{aut} = TNTR / R \times 100\%$	⩾ 80	1	−1	60.3	−1	58.1	−1	53.2
		⩾ 70	0						
		⩽ 70	−1						
		⩽ 40	−2						
Coefficient of dependence	$C_{dep} = UR / R \times 100\%$	⩽ 20	1	0	39.7	−1	41.9	−1	47.8
		⩽ 30	0						
		⩾ 40	−1						
		⩾ 60	−2						
Coefficient of sustainability	$C_{sust} = UR / TNTR \times 100\%$	⩽ 30	1	−1	65.9	−1	72	−1	88
		= 30–60	0						
		= 60–100	−1						
		⩾ 100	−2						
Coefficient of deficit (surplus)	$C_d = D_{ef} / TNTR \times 100\%$	−	+2	+2	+10.3	+2	+2.92	+2	+16.2
		⩽ 10	+1						
		⩽ 15	−1						
		⩾ 15	−2						
Coefficient of business activity	$C_{ba} = NTR / TNTR \times 100\%$	⩾ 20	+2	−1	9.4	+1	10.96	+1	10.83
		= 10–20	+1						
		⩽ 10	−1						
Coefficient of tax revenues	$C_{tr} = TR / TNTR \times 100\%$	= 60–80	+1	−1	90.5	−1	89	−1	89.2
		⩾ 80	−1						
Coefficient of budget coverage	$C_{bc} = R / E \times 100\%$	⩾ 100	+2	+2	106.7	+2	101.7	+2	109.4
		= 100–95	+1						
		⩽ 95	−1						
Coefficient of budgetary provision of the population	$C_{bpp} = E / P \times 100\%$	Growth rate of the coefficient should be ahead of inflation rate		+1	32.7	+1	35.3	+1	39.7
Total value				1		2		2	
				Unstable state		Unstable state		Unstable state	

Source: calculated by the author.

In recent years, expenses on social development programs have grown significantly. It is necessary to optimize social expenses and to maintain a balanced redistribution of available budgetary resources among current expenses (mainly in the social part) and expenses on the development of other important areas (intensive development of the real sector of the economy, support for innovation, infrastructure, education and healthcare, implementation of approved state development programs).

CONCLUSIONS

The paper provides the analysis of the budget structure of the Altai Territory where revenues and expenses were studied. The state of the regional budget was assessed by means of the quantitative and coefficient analysis and the main problems were identified. The comprehensive assessment proved that the regional budget of the Altai Territory is financially unstable.

The results demonstrated the current state and problems of the regional budget. Monitoring the dynamics of key financial indicators is necessary to solve the problems. A comprehensive increase in the effectiveness, diligence and control over the use of budgetary resources is required, as well as reducing the growth rate of budget expenditures and increasing tax and non-tax revenues. This will increase the volume of own tax revenues, improve the efficiency of budget expenditures, reduce the financial dependence of the regional budget on the federal budget and reduce the debt burden. These measures will help to balance the budget of the Altai Territory and to increase financial sustainability.

The use value of the study lies in developing and applying theoretical and methodological foundations to assess the impact of the budget on financial sustainability. The quantitative and coefficient analysis, based on a rating assessment of the regional budget state, made it possible to conduct a comprehensive assessment of the impact of the regional budget on financial sustainability and to obtain reliable values of the indicators.

The main contribution of this study is in the measures proposed to improve the budget system of the Altai Territory as a single tool to ensure financial sustainability. Subsequent adjustment of the budget policy and state development programs is possible based on the presented findings. The study can be used by the federal and regional authorities for budget stimulation of the financial sustainability of the Altai Territory and other regions of the Russian Federation. The results can be applied for an integrated assessment of the financial sustainability of the Altai Territory economy.

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