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**Fiscal Federalism in Russia:  
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Governments**

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The study has reviewed the experience of foreign countries in the sphere of implementation of respective measures designed to prevent the emergence of soft budget constraints imposed on subnational authorities in a situation of fiscal decentralization. Also, a number of theoretic simulation models have been built and analyzed that describe the interactions arising between the central government and regional authorities while specific variants of budget policy are being selected. Certain hypotheses concerning the existence of soft budget constraints in the regions of the Russian Federation are empirically tested.

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## Introduction

Studies of relations between economic agents concerning the allocation of resources demonstrate that if one economic agent receives resources from other economic agents, it may have different implications, which to a significant extent are determined by behavioral peculiarities of economic agents in the course of their interaction adopted by different economic agents (economic agents may be defined as firms, authorities, individuals, etc), while they are interacting. Thus, the obtainment of financial resources (on requital basis in the form of credits or for free in the form of financial aid, deferment of liabilities, or write-off of indebtedness) enables a given economic agent to have his marginal costs of carrying out a certain activity be in excess vis-avis the marginal effect from the activity. This results in the fact that this type of activity may be carried out on a larger scale than without obtainment of resources, which permit to finance losses borne by the said agent. In the general case, the set level of production or consumption may be considered as exceeding the efficient level.

Under certain conditions, behavior of economic agents being recipients of external financial resources modifies with the purpose to retain the excessive levels of their budgets. In other words, economic agents may take decisions related to high risks of insolvency foreseeing (or expecting) that in such a situation unannounced previously financial aid will be provided to them from outside. This case is similar to a situation, where there arises a risk of *opportunist* behavior of an insured person or post-contract opportunistic behavior (*moral hazard*). Economic literature characterizes such a situation as presence of *soft budget constraint*, since initially the economic agent acts under the condition of a certain fixed budget constraint; however, expectations of additional financing which has not been envisaged by the initial conditions of the action results in the expected (probable) change in the budget constraint, i.e. its softening. Both enterprises, which operate proceeding from expectations that arising financial problem can be resolved at the expense of the state, a bank, or other agents, and authorities expecting that outside creditors or higher authorities assume responsibilities and costs related to their decisions may be in the situation of soft budget constraints.

The soft budget constraints imposed on enterprises can be defined as the possibility for an economic agent, during a long period of time, to cover its losses at the expense of other economic agents (the State, consumers and suppliers, banks, employees). The State may influence this process by allowing enterprises to increase their arrears of debt, by changing the levels of budget expenditures on subsidies allocated to enterprises and by interfering with the enforcement system designed to ensure compliance with the terms of contracts concluded with other agents, by toughening the sanctions to be imposed on debtors, or, vice versa, by preventing the bankruptcy of debtors.

Thus, two negative consequences of soft budget constraints imposed on economic agents can be pointed out:

1) Distortions in the system of incentives that determine the behavior of economic agents;

2) An excess in the volume of production and (or) consumption of public goods, as compared to optimum levels, under conditions of hard budget constraints.

As concerns budget constraints of governmental agencies, one can point to a similarity with the situation when, within a multi-tier budget system, an additional financial aid provided to a budget of one level of state authority from a budget of another level results in increased production of public goods. In this connection, it should be pointed out that the situation, where the amount of provided public goods increases due to financial transfers, can not be always viewed as inefficient from the standpoint of the society. For instance, in the case there are relations between levels of authority in a state with a multi-tier budgetary system, the central authorities can grant financial transfers to subnational authorities with the purpose to increase at the subnational level the provision of public goods generating positive externalities, which subnational authorities fail to take into account. As a result of such transfers, financed at the expense of funds paid by all taxpayers in the state, the amount of production of public goods exceeds that provided without taking into account this aid. However, the amount of expenditures borne by the central budget in relation to the transfer can be below the value of externalities corresponding to the increase in the amount of provision of public goods. This situation is similar to that arising in the course of subsidizing of monopolistic enterprises on the part of the

state, when this subsidizing results in an increased level of their output that corresponds to the social optimum. In the case discussed above, the creation of incentives for growth in production of public goods generating positive externalities, the free transfer of financial resources within the framework of state finances in a general case represents a tool aimed at the achievement of the socially optimal allocation of resources. However, in many instances not only the very fact of financial resources having been allocated is of significance, but also the strategy for their allocation, which can influence the behavior of the recipients of financial resources, thus creating incentives for the latter to make inefficient decisions. It can be suggested that it is the issue of soft budget constraints that has largely been the cause of the problems associated with the management of public finances at the subnational level in Russia.

This paper discusses the conditions, under which soft budget constraints of regional authorities are generated in the system of fiscal federalism. The study describes certain theoretical approaches to the analysis of the problem of soft budget constraints with respect to intergovernmental fiscal relations as well as reviews the experience of foreign countries with different systems of government as concerns the use of mechanisms of financial aid to subnational authorities from the standpoint of the problem of soft budget constraints and ways to overcome negative implications thereof.

In the framework of our model, where simulations of the problems to be solved are applied, the situation of soft budget constraints occurs in the cases, where regions may use the right of the first move for increasing the values of own utility function. This right of a first move results from the expectations of subnational authorities, while they are making their decision as to the volume of their budget expenditure, that the national authorities may provide initially unplanned financial aid in the case of financial troubles. These expectations result in an excessive amount of production of public goods in the region in comparison with the optimum as seen from the standpoint of the central government. Our model suggests that regional authorities can ensure such a boost in production of public goods in the event they finance it not only from the taxes collected in their region, but also by increasing budget arrears to suppliers, public sector employees, etc. High levels of indebtedness of re-

gional authorities ensuring large amounts of expenditures of regional budgets affect the decisions taken by the center with respect to the allocation of financial aid. By maximizing social welfare, the central government has to allocate financial aid to regions with large amounts of budget debts.

Basing on the analysis of game models of strategic interaction of regions and the central authorities, in the paper there are advanced certain hypotheses about the consequences of the existence soft budget constraints of Russian regional authorities, tested in the empirical section of the study. Here we present the results of testing of certain hypotheses about the presence and possible implications of the existence of soft budget constraints in Russia in 1994 through 2003, obtained on the basis of an estimation of the models of dependence of various expenditure items on tax revenues, federal financial aid, as well as other factors; the models of dependence of expenditures, with and without accounts payable being taken into consideration, on federal financial aid; and also the models of mutual dependence of regional budget expenditures, federal financial aid and accounts payable.

In the conclusion section of the paper, there are presented the principal results of the study, conclusions and proposals concerning economic policy.

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# **1. Soft Budget Constraints: Theory, Empirical Analysis, and Practice**

In the economic science, the analysis of behavior of economic agents determined by the specifics of relations existing among them, including transfers of financial resources, has started from the study of behavior of enterprises in centrally planned economies. Later studies demonstrated that as concerned financial relations between different levels of government, institutional aspects of the system of intergovernmental fiscal relations had similarly significant effect on the behavior of subnational authorities as formal mechanisms of division of revenue and expenditure powers, allocation of tax revenues and interbudgetary transfers.

At the same time, it should be noted that in the states with multi-tier budgetary systems, as a rule, there exist natural prerequisites bringing about the problem associated with soft budget constraints. This is predetermined, in particular, by the fact that, in spite of the existence of several formally independent levels of government, the electorate of lower levels is at the same time the electorate of higher levels of government; therefore, in the cases of financial difficulties occurring at lower levels higher authorities as a rule provide assistance to lower level authorities. In this connection, policies in the sphere of intergovernmental budget relations should be aimed at the building of the procedures, under which negative implications of the problem of soft budget constraints would be prevented and minimized.

In this section, there will be discussed major approaches to the analysis of the problem of soft budget constraints of enterprises and governmental agencies. There will be also analyzed some methods of empirical estimations of the urgency of the problem of soft budget constraints of subnational authorities. In conclusion, there will be carried out a comparative analysis of the fiscal federalism systems in countries with unitary and federative systems of government from the standpoint of presence of the problem of soft budget constraints of subnational authorities and the efficiency of curbing of negative implications of this problem.

## **1.1. Analysis of Theoretical Aspects of the Soft Budget Constraints Problem**

An analysis of theoretical aspects of the problem of soft budget constraints of governments is a relatively new direction of analysis in the framework of the economic theory concerning the public sector and public finances. It should be noted that in the economic science the analysis of the phenomenon of soft budget constraints has begun with the study of the problem associated with the behavior of agents, which took into account their relations with other economic agents providing financial resources. Therefore, below there will be presented a brief outline of respective studies concerning planned and market economies.

### *1.1.1. Soft Budget Constraints of Enterprises*

#### **Soft Budget Constraints of Enterprises in a Planned Economy**

The notion of “soft budget constraints” has been first introduced in the economic literature by Janos Kornai in the context of the study of behavior of economic agents in planned economies<sup>1</sup>. In the works of J. Kornai<sup>2</sup> it was noted that constraints faced by each firm solving the problem of profit maximization may be conventionally divided into three large groups:

1. *Resource constraints*. Physical and technical constraints – for instance, constraints related to the number of employees of different specialties ready to participate in production, as well as available raw resources, equipment.
2. *Demand constraints*. Amounts of sales of a certain product can not exceed the demand for this product at the set price, what is a significant constraint.
3. *Budget constraints*. Expenditures of a firm can not exceed its financial capital and sales proceeds.

According to Kornai, the classical form of market economy is an economic system, where demand constraints are efficient. In the course of normal functioning of a market economy, even in the case

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<sup>1</sup> Maskin (1999).

<sup>2</sup> See: Kornai (1979), Kornai (1980).

additional resources necessary for increase in output are available for a firm, it does not always use this opportunity. The firm should not produce more goods than the amount buyers want to purchase. At the same time, according to Kornai, a socialist type economy is a system, where resource constraints are efficient. However, it does not mean that in the framework of this system resources are fully utilized – there may be observed both the deficit of one resource and excess of another resource.

In the case of hard budget constraints, expenditures of a firm can not exceed its proceeds; otherwise, the firm goes bankrupt or terminates its operations. Nevertheless, the firm may make borrowings, although on the terms equal for all other market operators.

In the situation of soft budget constraints, financial difficulties (i.e. excess of expenditures over proceeds) do not result in the firm's bankruptcy. One of market operators (in the case of the socialist system described by Kornai it is the state) provides assistance to the firm either directly, or exempting it of a part of taxes, or setting fixed low prices of resources the firm needs, or high prices of goods produced by the firm. In such a situation, the firm is guaranteed against losses, it may carry out different investment projects without being afraid that an unsuccessful project may result in bankruptcy. This circumstance significantly affects the behavior of the firm and the process of decision making concerning economic issues, in particular, the firm unjustifiably expands its operations, what would not happen in the situation of hard budget constraints.

In the case the budget of the firm is unlimited (i.e. financial aid will be provided in any case and in any amount, the firm is free of hard budget constraints), the demand of the firm for capital goods does not depend on the price of these goods and is absolutely inelastic with respect to prices. Since prices do not limit the demand of the firm for capital goods, in the first approximation it may be taken for unlimited.

In his study, Kornai attempted to show that the firm operating in the situation of soft budget constraints strives for unlimited expansion of its production purchasing all goods and resources it needs for that. It results in permanent deficits in the economy. Deficits exist both on the market of capital and consumer goods, since households also need many goods consumed by firms.

Full employment, which is a result of unlimited demand of firms for labor is considered to be one of the few positive specific features of economic systems, where firms face soft budget constraints<sup>3</sup>.

### **Soft Budget Constraints of Enterprises in a Transition Economy**

According to Kornai, many problems experienced by planned economies (deficit of resources, inefficient use of resources) result from soft budget constraints. At the same time, the results of studies demonstrate that success of economic reforms in the framework of market transformations depends on the results of actions aimed against soft budget constraints<sup>4</sup>. Nevertheless, soft budget constraints often persist in transition economies in spite of reorganization and privatization of state owned enterprises<sup>5</sup>.

Therefore, it may be demonstrated that the reason of the wide presence of soft budget constraints in planned and transition economies is the existence of responsibility of state to enterprises. The system of planned economy makes it one of its aims to create strategically important enterprises, which, probably, would not be viable in the situation of a market economy. In order such enterprises could exist, the government distorted prices of resources such enterprises needed and prices such enterprises set for goods they produced. Besides, the authorities used administrative methods in order to provide resources for enterprises and place their end-use products. As a result, the authorities assumed the responsibility for the functioning of strategically important enterprises, while enterprises faced soft budget constraints.

After the transition to the market economy many enterprises remained noncompetitive. However, the state may continue to provide financial aid to such enterprises, since their economic ruin would bring

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<sup>3</sup> See Gaidar Ye. T. Nasledie sotsialisticheskoi ekonomiki: macro- i mikroekonomicheskie posledstviia miagkikh biudzhethnykh ogranichenii. (The legacy of the socialist economy: macro- and microeconomic consequences of soft budget constraints). – Nauchnye trudy No. 13R (Scientific works No. 13R). – M.: Institute for the Economy in Transition. 1999; Gaidar Ye. T., Koshkin V. I. Khozaschiot i razvitiie khoziastvennoi samostoiatelnosti predpriatii. (Cost accounting and the development of economic independence of enterprises). M. Ekonomika, 1984. 215 pp.

<sup>4</sup> See, for instance, Lin, Tan (1999).

<sup>5</sup> See: *Trends and Policies in Privatization*. Vol. II. No. 1. Organization for Economic Co-operation and Development. Centre for Co-operation with Economies in Transition, 1994.

about serious implications. First, if a large enterprise terminates its operations, it will result in a growth in unemployment levels. Second, many enterprises bear social obligations to their employees. Bankruptcy of an enterprise may bring about the problem of unfulfilled obligations, which the state would have to assume. Besides, bankruptcies of large enterprises resulting in the respective redundancy of labor resources and decline in social obligations may bring about a growth in social tensions existing in the country.

Among the social obligations borne by enterprises, there may be listed the following<sup>6</sup>:

1. *Pensions and other social payments.* In a planned economy of the Soviet type, major avenues of expenditures made by households at the expense of their labor incomes were purchases of food products and consumer goods, while the expenditures for financing of health care, education, pension payments and other social purposes, including the subsidizing of a significant portion of expenditures for housing and communal services, were directly funded from the state budget. As a result of economic reforms, enterprises had to shoulder a part of these expenditures. Therefore, large old enterprises were in less favorable situation than newly created companies.
2. *Redundancy of labor.* In the situation of a planned economy, the number of employees at enterprises often exceeds that needed to ensure the production processes. As a result of the centralized redistribution of resources, enterprises had got the funds needed to maintain additional workforce. After the rejection of the principles of planned economy this support ceased; however, the process of labor shedding (necessary to overcome labor redundancies and as a result of the reduction of volumes of production from the excessive output characteristic of a planned economy) occurs at a very slow rate.

The problems indicated above are characteristic of enterprises in the situation of transition economies and are not related to forms of ownership. Since the state on the whole is responsible for the fulfillment of social obligations, the enterprises, which due to different reasons

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<sup>6</sup> See: P. Kozarzewski. *Corporate Governance and Secondary Privatization in Poland: Legal Framework and Changes in Ownership Structure*. Working Paper. Warsaw, 2002.

have to fulfill such obligations, will seek different privileges from the state, like tax preferences, deferrals and exemptions, budget subsidies, low interest credits, abolitions of restrictions of monopolistic activities. It may be assumed that disproportions existing in the tax systems of certain post-socialist economies at the first stages of transition were caused exactly by the states seeking to maintain their presence in the economy in this form to assist the enterprises trying to meet social obligations<sup>7</sup>.

Such a support proved to be extremely inefficient. Different enterprises bear different social obligations, are of different financial standing, and differently adapt to new conditions of economic activities, therefore, the state has practically no possibilities to determine what losses relating to the fulfillment of social responsibilities are borne by each enterprise. In this situation, the fulfillment of social obligations will be the major formal reason for any losses borne by an enterprise. Therefore, the financing of direct provision of social services by enterprises results in the fact that such enterprises still operate in the situation of soft budget constraints.

Privatization processes in Russia and other transition economies have often resulted in the fact that managers became owners of the enterprises they run<sup>8</sup>. As a result, after enterprises became private, their managers were not only free to act, but also obtained the right to make personal gain at the expense of state aid and softer budget constraints. Due to this fact rent seeking of company managers becomes even more frequent.

Therefore, there may be drawn the conclusion that soft budget constraints in transition economies exist because, on the one hand, large old enterprises lack competitive power and, on the other hand, bear the burden of the social obligations inherited from the old system<sup>9</sup>.

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<sup>7</sup> See: *Post-Privatization Period in Eastern Europe: a Chance for Enterprises and Shareholders*. Proceedings of the International Conference Chisinau, Moldova Republic, October 15–17, 1997 / Edited by Valentin Railean, Ivan Samson, p. 170.

<sup>8</sup> See: *Post-Privatization Period in Eastern Europe: a Chance for Enterprises and Shareholders*. Proceedings of the International Conference Chisinau, Moldova Republic, October 15–17, 1997 / Edited by Valentin Railean, Ivan Samson.

<sup>9</sup> Concerning the problem of quasi-budget expenditures in a transition economy, see: Sinelnikov-Muryliov S. G., *Biudzhetniy krizis v Rossii: 1985–1995 godakh. (Budget crisis in Russia: 1985–1995 – M. Yevrazia, 1995, “Rossiiskaia ekonomika: tendentsii i perspek-*

In this connection, it should be noted that if, in the case a decision to preserve a nonviable enterprise is made at the level of the state, this enterprise will be inevitably faced with the problem of soft budget constraints. As for those enterprises that have no financial problems, the major step on the way towards their successful reformation will be the discontinuation of their performance of quasi-state functions of social support of their employees (as well as of the families of their employees). A key measure, from the point of view of toughening budget constraints in the framework of structural reforms early in the transition period, was the introduction of a regime under which an enterprise which had no burden of social obligations could not expect any additional tax privileges and financial support to be granted by the State would grant in case of financial difficulties.

### **Theoretical Models of Analysis of the Problem of Soft Budget Constraints of Enterprises**

Below, we will briefly review studies focusing on the modeling of behavior of economic agents (enterprises) permitting to single out the conditions, under which economic agents operate in the situation of soft budget constraints and detect major implications of soft budget constraints. In this connection it should be noted that the study of the approaches toward analyzing the issue of soft budget constraints imposed on enterprises and the peculiar features in the behavior of economic agents under conditions of soft budget constraints will be necessary in order to achieve appropriate understanding of and to develop approaches to the analysis of the problem of soft budget constraints for bodies of state authority. As we are going to demonstrate later, the approaches to analyzing the problem of soft budget constraints imposed on bodies of state authority under conditions of a multi-tier administrative structure of such bodies are largely based on the approaches applied in the analysis of soft budget constraints imposed on enterprises.

In elaboration of J. Kornai works, which had focused on the problem of soft budget constraints in planned economies, there were developed models of soft budget constraints of enterprises aimed at the analysis of individual aspects of this phenomenon. *Schaffer (1989)* and *Goldfeld, Quandt (1988)* demonstrated how centralized planning may result

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tivity" (Russian Economy: Trends and Prospects" – annual overviews published by the Institute for the Economy in Transition in 1995–1997.

in inefficiencies of operations carried out by economic agents. *Freixas, Guesnerie и Tirole (1985)* built a model of dynamic inefficiency of the centralized planning. Later, *Dewatripont, Maskin (1995)* showed that the problem of soft budget constraints exists not only under centralized planning, but in the situation of any concentration of funds, which may be spent for free financing of agents facing crises.

### ***Conditions of Soft Budget Constraints***

Some studies focusing on the analysis of soft budget constraints advance the following hypotheses about the major conditions, under which soft budget constraints may be present at the level of enterprises.

#### *Centralization of Financial Resources*

The assumption that a most important condition, under which soft budget constraints arise at the level of enterprises, is contained in *Dewatripont, Maskin (1995)*. The study discusses the relations between an entrepreneur (borrower) and one or two banks over three periods of time. It is also assumed that the entrepreneur having no own money to implement a project borrows credit resources from a bank. In their turn, banks, which have no sufficient information, taking the decision about financing of the project are unable to distinguish between efficient and inefficient project with unity probability, and efficiency is characterized by the amount of profit actually being received.

In the framework of the model there are reviewed two cases. In the first case only one bank forms supply on the market of credit resources, in the second case there operate two banks.

Basing on their analysis, the authors arrive to the conclusion that in the case financial resources necessary for financing of projects are decentralized (i.e. there exist two or more crediting organizations able to provide financing), there is the single equilibrium, where only efficient projects are financed. At the same time, in the situation of centralization of all financial resources by one creditor, there are possible cases, where there are financed both efficient and inefficient projects. This can be explained by the fact that the sole creditor, who provides resources, becomes interested in additional refinancing of ineffective projects in order to obtain payments pertaining to redemption and servicing of loans (marginal costs are insignificant in comparison with the gains



from repayment of the credit). The authors assume that in the course of allocation of credit resources, when decisions concerning refinancing of ineffective (cost intensive) projects are taken by several creditors on the basis of a comparison of the marginal costs of provision of additional resources to the gains from repayment of the credit by the borrower, they may cancel refinancing of inefficient projects.

### *Public Property*

In the framework of the model *Dewatripont, Maskin (1995)* the only difference between the centralized and decentralized economies lies the different structures of their banking sectors. In the study of *Li (1992)* it is suggested that in the case state ownership prevails in the economy, banks and enterprises take similar decisions concerning financing of projects, since they in fact belong to one owner. Vice versa, in the case the economy is dominated by a diversified structure of private property, banks take decisions unaffected by borrowing enterprises.

In contradistinction to the models described in *Dewatripont, Maskin (1995)*, in model presented in *Li (1992)* the analysis is based on the hypothesis that only one bank manages the resources loaned to borrowers. In the framework of this model, the planned and market economies differ by the way the bank takes decisions on refinancing of projects. In the case the decision on refinancing of the loan is taken jointly (in the case of the planed economy), the enterprise may transfer to the bank (via the mechanism of common property) part of its profits from the implementation of the project, what may affect the decision the bank takes about the refinancing of the enterprise. In other words, the bank becomes interested in crediting the project even at intermediate stages, since beside payments aimed to redeem and service the credit the bank participates in the borrower's profits.

Therefore, privatization and de-monopolization of the structure of ownership in the economy is a way to overcome soft budget constraints of enterprises<sup>10</sup>. In the study *Schmidt, Schnitzer (1993)* it is suggested that in the case state owned firms are not privatized, i.e. the state keeps its control over such firms, the aggregate costs borne by the society will be less under soft budget constraints. However in the situation where

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<sup>10</sup> See: *Kornai (1986)*.

managers work under soft budget constraints they have much less incentives to restructure their enterprises. Therefore, choosing the optimal privatization policy there should be taken into account all possible benefits of more efficiently operating economy and possible social costs.

## ***Economic Implications of Soft Budget Constraints of Enterprises***

### ***Low Level of Innovations***

Low levels of innovations in the economy are a characteristic feature of centralized economic systems. *Qian, Xu (1998)* have offered an explanation of this phenomenon based on the theory of soft budget constraints. In their work they assert that in contradistinction to a centralized planned system in a market economy projects may be selected for financing *ex post*, i.e. at the moment the creditors (owners of credit resources) learn about the major characteristics thereof. In a centralized economy, the choice of projects *ex post* can not be made due to the softness of budget constraints. In a planned economy, the softness of budget constraints results in the fact that any project, notwithstanding its economic efficiency, may be refinanced. Therefore, in economies of planned type the main mechanism via which the choice of projects is made is less efficient selection *ex ante* conducted by the bureaucratic apparatus.

Let us assume that prior to the launch of the project there is no information on expected costs and possible profits of its implementation. However, in the result of an analysis and basing on expert evaluations the investor can anticipate the approximate cost of implementation of the project. The authors of the study proceed from the assumption that the mechanism of formation of the profits derived by the businessperson is similar to that described in the framework of the model described in *Dewatripont, Maskin (1995)*, i.e. it was assumed that the businessperson may implement either the efficient or inefficient project.

It may be assumed that in the framework of a planned economy all resources are allocated by a single investor acting on behalf of the state. Therefore, when there is financed an expenditure intensive project, there exists a high probability that its financing will be continued, since most probably the project without necessary innovations will become profitable in a longer time than a more efficient innovative project.

Therefore, businesspersons have no incentives to terminate implementation of expenditure intensive projects at early stages, because profits became positive only after the completion of projects.

In a decentralized economy, all resources are distributed among several investors. Due both to the asymmetry of information<sup>11</sup> and because of other factors<sup>12</sup>, the distribution of resources among several investors makes it possible that there may arise a situation, where refinancing of an expenditure intensive project may be terminated at an early stage of its implementation. In anticipation of this, the businessperson will terminate implementation of the project as soon as it becomes clear that the project involves high costs.

Given the fact that in the framework of a centralized economy the investor can not stop the financing of an expenditure intensive project *ex post*, it becomes possible to use bureaucratic structures to select profitable projects *ex ante*. For instance, such a method was widely used in the Soviet Union. However, this approach is more cost intensive and less efficient, therefore it resulted in a still lesser number of the few less cost intensive projects, which might be selected for implementation.

An analysis of the model makes it possible to arrive at a conclusion that a bureaucratic selection of efficient innovation projects may work relatively efficiently in the case the investor has as full information as possible; however, it is relatively inefficient if the investor lacks information (as in the case of computer industry) permitting to evaluate the efficiency of the project in advance.

### *Shortages*

Shortage of consumer goods was a widespread phenomenon of centralized economies<sup>13</sup>. *Qian (1994)* explains its origins by the example of a model much similar to the model presented in *Dewatripont, Maskin (1995)*. In the framework of the model described in *Qian (1994)* there is discussed a centralized economic system. In this economy, some goods are consumed not only by households, but by firms, which use these goods for production of other goods. At the same time it is assumed that sellers do not distinguish between firms and households and sell them goods at the same price. In a centrally planned economy

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<sup>11</sup> See, for instance, *Dewatripont, Maskin (1995)*, *Huang, Xu (1998)*.

<sup>12</sup> See, for instance, *Hart, Moore (1995)* or *Bolton, Scharfstein (1996)*.

<sup>13</sup> See: *Kornai (1980, 1992)*.

the setting of prices at a level below the market equilibrium price may be a method of implicit crediting of loss making firms<sup>14</sup> and results in shortages. Therefore, one of the factors behind the shortages of goods may be soft budget constraints reflecting in subsidizing of inefficient enterprises.

## ***Methods to Prevent Negative Effects of Soft Budget Constraints***

### ***Fiscal Competition between Territories***

Comparing many transition economies with the economy of China, *Qian, Xu (1993)* noted that even prior to the launch of the Chinese economic reforms in the late 1970s, in China the structure of government was multileveled: some tax powers and expenditure obligations there were delegated to the subnational level. In China, the decentralization of financial resources permitted to harden budget constraints of enterprises, since limited resources of local governments did not permit to finance the enterprises in their jurisdictions.

Later, *Qian, Roland (1998)* offered a model of functioning of enterprises, in the framework of which hard budget constraints result from competition between regions for private investments. These authors review a federative structure with three levels of power: the central government, several independent regional governments, and numerous state owned and private corporations. In a centralized economy, the central government collects taxes from corporations and uses the respective tax revenues for salaries of public officials, provision of public goods, and subsidizing of state owned corporations. In the case of a federative state, the central government delegates the better part of its tax powers to regional governments, which spend their tax revenues for provision of public goods and creation of necessary infrastructures in the territories of their regions.

In the study by *Qian, Roland (1998)*, it is assumed that in the situation, where revenue and expenditure powers are decentralized and capital moves across regions due to the fiscal competition between regions, regional authorities will diminish expenditures for subsidizing of enterprises (the expenditures softening budget constraints on enterprises) in favor of expenditures for the development of their infrastruc-

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<sup>14</sup> See: *Prell (1996)*.

tures, which increase the aggregate growth in welfare of their residents at the expense of economic growth resulting from inflow of investment. Besides, hardening budget constraints force the enterprises earlier receiving budget subsidies stop to orient towards possible compensation of their losses at the expense of the budget and undertake measures aimed at the restructuring and prevention of situation, where they need subsidies.

Therefore, all other things being equal (for instance, hard budget constraints of regional authorities *per se*, see below) in the case the structure of government is decentralized, subnational authorities have to participate in fiscal competition by reducing taxes. It results in the fact that regional budgets have no sufficient resources to grant subsidies to corporations. At the same time, the scarcity of resources makes regional authorities to use budget resources in a more efficient way for provision of public goods and creation of necessary infrastructure, thus introducing incentives for attraction of investments.

### *Competitive System of Crediting and Financial Intermediation*

In the paper of *Berglof, Roland (1998)*, the creation of a market system of crediting and financial intermediation is viewed as a means to harden budget constraints of enterprises. In this study, with the use of the same logic as that applied in *Qian, Roland (1998)* there was built a mode of soft budget constraints of banks.

Thus, the model assumes that the source of resources for banks is the state budget allocating its financial resources for financing of different projects. In the framework of the model, banks may choose how to spend the resources they receive: either for financing of new projects, or refinancing of relatively inefficient projects, which have already been financed at the expense of borrowed funds.

In this situation, the main factor affecting the choice of project made by the bank is the alternative costs of refinancing of an inefficient project in comparison with a new project. In the case the profits from the new project is sufficiently high, there arise hard budget constraints, since in spite of the fact that the refinancing of the inefficient project results in positive expected profits, the profits from financing of the new project may be even higher.

In the framework of this model, the problem of soft budget constraints does not arise if the new project promises sufficiently high expected profits. This model may explain the fact that in market economies soft budget constraints are a rather rare phenomenon, while in transition economies, where financial institutions just emerge, soft budget constraints pose a serious problem. Besides, the model assumes that in the case of soft budget constraints the financing of new projects is squeezed out, since the bulk of available funds is used for the refinancing of inefficient projects. Under soft budget constraints, a relatively lesser portion of available resources is used for financing of new projects, since, firstly, the profits derived from the projects financed in preceding years are relatively less, and, secondly, because a substantial part of available funds is used for refinancing of inefficient projects.

The study of *Berglof, Roland (1998)* demonstrates that informal relations between banks and governmental agencies may result in softening of budget constraints, i.e. corporations may remain in the framework of soft budget constraints in spite of the fact that banks would refuse to refinance corporations under these conditions. However, in the situation, where banks have close ties to the government, they may make concessions to corporations in exchange for concessions made by the government to banks.

In this model, similarly to the previous one, it is assumed that the government provides banks with resources for crediting of commercial projects. However, in contradistinction to the previous model, banks turn to governmental agencies for support in the case the projects they financed turn out to be inefficient and state subsidizing is required to continue the financing of such projects, since banks' own funds may be insufficient to continue financing if they take such decisions.

Let us assume that the bank has initially invested certain financial resources in financing of inefficient projects. Then it follows from the model under review that in the case the share of efficient projects in the credit portfolio is rather small, budget constraints are soft. It is explained by the fact that proceeds from these projects will be insufficiently high for banks to be able to continue the financing of inefficient projects exclusively at the expense of own funds. However, in the case banks turn to the government for subsidies, further only inefficient pro-

jects will be financed, since the authorities control the funds they provided to be spent only for the announced targets.

On the contrary, in the framework of a competitive banking system, where banks do not depend on the state subsidizing, the financing of inefficient projects will be terminated as information about their inefficiency becomes known.

*Aghion, Bolton, Fries (1996)* assert that the major factor behind soft budget constraints are the incentives making bank managers to conceal bank losses from owners, what may result in bank crises. The authors assert that for bank managers it is very difficult psychologically to terminate financing of any project *ex post*, if the decision to finance this project has been taken *ex ante*.

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For purposes of analyzing the problem of soft budget constraints imposed on regional authorities and the ways in which the organization of the system of fiscal federalism may influence the actual status of these constraints, we did a brief analytical review of the studies on the problem of soft budget constraints imposed on enterprises. Such a review is necessary, first of all, for a fullest possible investigation of the main approaches being applied in analyzing the problem of soft budget constraints for economic agents, because it was the analysis of the problem of soft budget constraints imposed on enterprises in a centralized economic system that initially set the path for the later more general studies of the problem of soft budget constraints. Our review has led to the following conclusions, which have made it possible to develop approaches to analyzing the status of the soft budget constraints imposed on regional authorities.

Firstly, the problem of soft budget constraints as an object of analysis is relatively new. A detailed study of the effects of soft budget constraints on behavior of economic agents started only in the late 1970s in the course of the analysis of behavior of enterprises in the framework of planned economy.

Secondly, the problem of soft budget constraints as a rule arises in the cases, where principles of market economy are distorted as con-

cerns the relations between economic agents – resources are allocated among borrowers in a non-market way, financial resources are unnecessarily centralized, decisions on financing of projects are taken in a centralized way basing on the principles other than considerations of economic efficiency of projects. The methods of taking the decisions with respect to financing of investment projects described above result in the emergence of soft budget constraints and negative effects on the behavior of economic agents due to the asymmetry of information.

Thirdly, along with the general decline in the efficiency of the use of resources in the economy soft budget constraints imply other negative effects, among which there should be noted the emergence of impetuses to diminish innovations and emergence of shortages on commodity markets.

Fourthly, it should be noted that the main method of prevention of the softening of budget constraints of enterprises is the creation of a decentralized competitive crediting system not susceptible to the influence of external factors, including preferences of government agencies concerning financing of different investment projects. In a number of cases, the decentralization of the system of government (including fiscal decentralization) may permit to decrease the degree of influence of the government on decision making in the sphere of financing of investment projects.

Summarizing the results of the brief review of approaches to the analysis of the problem of soft budget constraints of enterprises, we have composed a set of main factors generating soft budget constraints. Similarly to the problem of soft budget constraints of enterprises, further we will discuss the problems relating to soft budget constraints of subnational authorities. Below, it will be shown that the nature of soft budget constraints in the under fiscal federalism somewhat differs from the similar problem pertaining to enterprises, but on the whole these issues are related to each other.

### *1.1.2. Soft Budget Constraints of Subnational Governments*

The state and budget systems of many countries experience significant transformations. Over the last decade, many developed and developing economies have realized that their central authorities could not completely ensure the qualitative provision of certain public goods.



These developments resulted in the division of government powers and powers pertaining to the management of budget resources into several different levels not depending on the formal system of government (unitary or federative). Therefore, in the modern world alongside with traditional federations like USA, Canada, Federative Republic of Germany, Switzerland, etc there emerged a rather large number of states not being federations in formal terms nevertheless are characterized by multi-level budgetary systems and more or less independent subnational authorities as concerns fiscal decision making.

In this connection it should be noted that industrial countries have both the experience and record of fiscal decentralization, while developing and transition economies only start to master the practices of such decentralization. Often, the weakness of financial and political institutions of developing countries aggravates problems relating to the division of powers and enforcement of financial discipline.

The experience of decentralized countries permits to study the impact of decentralization from the viewpoint of efficiency and fairness of resource allocation, as well as its impact on the macroeconomic stability. On the one hand, decisions taken at the subnational level to a greater degree reflect preferences of the populations of administrative units of states, what enhances the efficiency of provision of public goods on the whole; on the other hand, it results in new costs and expenditures diminishing potential benefits. Such costs result from both losses borne due to lack of economies of scale in production of public goods, and the fact that the decentralization of financial and political power with higher probability generates opportunistic behavior of subnational authorities, i.e. permits them to take inefficient fiscal decisions in anticipation of financial support from higher authorities.

Financial discipline at subnational levels of government is probably a most serious problem existing in a decentralized economy. Apparently, under hard budget constraints the expenditures exceeding available resources may bring negative consequences (bankruptcy, external management) for a company or a government agency, what makes managers use resources in a more efficient way. However, as it has been noted above, firms may find themselves in a situation, where they can increase costs or consumption without bearing full costs of production or consumption of goods and services.

A similar problem may also arise as concerns subnational authorities, which have the possibility to receive financial aid from superior authorities. It should be noted that major avenues of research of the problem of soft budget constraints in the system of fiscal federalism are aimed to resolve the following problems: to determine the conditions giving rise to the problem of soft budget constraints in interbudgetary relations, to analyze economic implications of the problem of soft budget constraints, to find out methods of evaluation of the degree of hardness of budget constraints, as well as analyze the ways of prevention of negative effects of soft budget constraints in interbudgetary relations.

Below, we will discuss the major prerequisites of emergence of soft budget constraints at the subnational level of government and perform an analytical review of theoretical models as concerns economic effects, ways of evaluations, and methods of prevention of negative effects of soft budget constraints.

### **Prerequisites of Soft Budget Constraints of Subnational Authorities**

While discussing analytical approaches to the study of the problem of soft budget constraints of subnational authorities, it should be noted that two conditions are necessary for softening of budget constraints<sup>15</sup>:

1) Subnational authorities should have incentives to choose a strategy of behavior resulting in additional (unplanned) financial aid from the national authorities;

2) As concerns the national authorities, the optimal strategy for them is to deviate from the initially announced policy in the sphere of distribution of financial resources and provide additional financial aid to subnational authorities in the case a region faces the threat of a financial crisis. Knowing that, subnational authorities expect such aid and these expectations affect their behavior.

It should be noted that the existence of the second condition is the main problem faced in the prevention of soft budget constraints of subnational authorities. The essence of this case is that the national authorities *ex ante* find it optimal to deny provision of additional financial aid to subnational authorities in order to instill financial discipline; how-

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<sup>15</sup> See: *Inman (2003)*.

ever, in the case subnational authorities encounter financial difficulties *ex post* the optimal strategy of national authorities is the provision of unplanned financial aid to a region<sup>16</sup>. Therefore, in virtue of own preferences the national authorities are unable to adhere to the principle of non-provision of additional financial aid aimed at ensuring the solvency of subnational authorities they have proclaimed.

As it may be seen from the essence of the problem, soft budget constraints do not result from a direct choice of the fiscal policies by the national authorities (since they deviate from the initially announced plans concerning the allocation of financial resources). The factors behind this phenomenon are rather institutional specifics of states with multilevel systems of budgets, some of which are discussed below.

### ***a) Vertical Imbalances of the Fiscal System***

Vertical imbalance is a rather widespread specific feature of states with multilevel systems<sup>17</sup>; they arise due to the excess of the degree of decentralization of expenditure powers (or expenditure obligations) over the degree of decentralization of tax powers<sup>18</sup>. The reason of this is the differentiation of standing (or level of development) of regions and the need to reallocate resources. There should be noted such a circumstance that all other things being equal soft budget constraints do not arise if subnational authorities are independent of the national financial aid (i.e. are able fully finance their expenditures at the expense of own revenue sources)<sup>19</sup>. Accordingly, lacking broad revenue powers (set by the central authorities), i.e. unable to increase tax burden at the subnational level, subnational authorities obtain the informal right to ask the national authorities for financial assistance.

Moreover, in the case revenue capacities of subnational authorities are limited, subnational taxpayers and creditors are inclined to shift responsibility to the national authorities when facing financial difficulties,

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<sup>16</sup> See: Kornai, Maskin, Roland (2003).

<sup>17</sup> See: *Fiscal Federalism... (2001) (Fiscal Federalism: Problems, Theory, Experiences. – M.: The Russian-Canadian Consortium for Economic Policy Research and Advice, 2001).*

<sup>18</sup> See: Lugovoy, Kadochnikov, Sinelnikov, Trounin (2001) (O. Lugovoy, P. Kadochnikov, S. Sinelnikov-Murylev, I. Trounin “*Estimation of fiscal capacity and expenditure needs of the subjects of the Russian Federation*” – M.: The Russian-Canadian Consortium for Economic Policy Research and Advice, 2001).

<sup>19</sup> See: Rodden (2001).

while the national authorities bear responsibility to provide additional financial aid to regions, since in the situation of high centralization of revenue powers only the national authorities have the possibility to urgently resolve the arising financial problems<sup>20</sup>.

The presence of vertical imbalance of the fiscal system aggravates the common-pool problem arising due to soft budget constraints of subnational authorities. A formal analysis of such a situation is contained in *Garcia-Mila, Goodspeed, McGuire (2002)*, where there is presented a two-period model of interaction between the national and subnational authorities with the following characteristics:

- in the second period the national authorities provide additional financial aid to subnational authorities;
- such an additional financial aid is provided with the purpose to facilitate the repayment of the debt of subnational authorities generated by subnational borrowings in the preceding period and is financed by the national authorities at the expense of the raising of the proportional rate of the national income tax.

Therefore, in the case subnational authorities are granted additional aid, tax payments of regional taxpayers increase, but by the amount less than the amount of the provided financial aid. As a result, for the region at large the cost (tax price) of borrowings diminishes, what creates incentives for additional borrowings. Moreover, the tax price of borrowings diminishes the more, the less is the size of the region, what results in increasing incentives to make borrowings (pursuit of riskier financial policies) in smaller regions.

### ***b) Own Revenue Powers of Subnational Governments***

While discussing the factors generating problems relating to soft budget constraints on subnational authorities, it should be noted that even in the situation of insignificant vertical fiscal imbalance, where subnational authorities finance own expenditure powers at the expense of tax revenues generated by tax bases differing from the bases of cen-

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<sup>20</sup> An illustrative example is the fact that for instance in the countries where there is observed high vertical imbalances of fiscal systems credit rankings of subnational authorities reflect high probability that the national authorities provide financial aid to regions (in Germany, all regions are granted AAA ranking notwithstanding their financial standing). See: *Rodden (2001)*, *Rodden, Eskeland, Litvack (2003)*.

tral taxes, the tax powers of subnational authorities may be insignificant (for instance, in Germany or Russia). In other words, the degree of autonomy of subnational with respect to alteration of tax rates, determination of tax bases, granting of tax privileges, etc. may be rather insignificant<sup>21</sup>. Such a lack of flexibility as concerns the choice of own revenue sources and levels of tax revenues (in other words, lack of autonomy in tax related decision making) may result in the fact that subnational authorities will have limited capacity to mobilize additional budget revenues in the case of financial difficulties. In this case, similarly to the presence of the vertical imbalances in fiscal systems, subnational voters and creditors of subnational authorities are inclined to shift the responsibility for arising of solvency crises to the national authorities, what in turn results in provision of additional financial aid from the national budget.

### ***c) Structure of the System of Intergovernmental Grants***

While discussing different factors generating the emergence of soft budget constraints, it should be noted that even in the case significant vertical imbalances are present in a fiscal system, the problem of soft budget constraints may be avoided if the system of interbudgetary transfers used in a country does not base on discretionary decisions, but is in the framework of legislatively set and strongly enforced procedures<sup>22</sup>. In the situations, where there exist clear and unambiguously defined criteria of allocation of transfers and in the absence of discretionary transfers, even if there occur financial difficulties, the allocation of unplanned grants may be prevented<sup>23</sup>. On the contrary, under the procedures of allocation of grants allowing manipulation of the criteria affecting the amounts of provided financial aid or in the cases where such criteria are not clearly defined, subnational authorities have the possibility to persuade the national authorities to provide additional funds in the framework of the national system of financial support. It should be noted that exactly because of the unclarity of criteria the national

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<sup>21</sup> See: *Fiscal Federalism... (2001)*.

<sup>22</sup> See: *Rodden (2001)*.

<sup>23</sup> For details of different methods of allocation of interbudgetary transfers and the incentives they create see: *Sinelnikov, Kadochnikov, Trounin (2002)*.

authorities will be unable to argue that the system of allocation of inter-budgetary transfers does not permit to provide additional financing.

At the same time, even clearly formulated rules and criteria of allocation of financial aid among subnational budgets may facilitate expectations of additional financial aid from the national budget. As concerns soft budget constraints, it is important not only to have in place such rules and criteria, but to correctly formulate them. For instance, in the case the constitution or another legislative act establishes the responsibility of the national authorities in some way facilitate the equalization of the levels of provision of most important public goods across the whole national territory, in the case of a financial crisis the authorities have to soften budget constraints and provide financial aid not foreseen in an explicit way (in the 1970s and 1980s, two federal lands of Germany – Bremen and Saarland – were provided unplanned financial aid from the federal budget exactly for that reason)<sup>24</sup>.

#### ***d) Allocation of Expenditure Powers between the Levels of Government***

A common feature of interbudgetary relations in the states, where powers pertaining to the provision of public goods is decentralized, is the responsibility of subnational authorities to provide key public services in accordance with the minimum social standards or any other expenditure mandates adopted at the national level<sup>25</sup>. In the case there exists a system of minimum social standards, the national government experience difficulties in maintaining the hardness of budget constraints due to legislative restrictions<sup>26</sup>. This problem is especially pressing in the case two tiers of government bear joint responsibility for provision of public goods – in this case voters rest the responsibility for provision (failures to provide) of these goods on the both levels of government.

In the study of *Wildasin (1997)* it is demonstrated that the probability of provision of additional financial aid increases following the growth in the scale of positive externalities created by subnational public goods.

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<sup>24</sup> See: *Vigneault (2003)*.

<sup>25</sup> See: *Vigneault (2003)*.

<sup>26</sup> See: *Rodden, Eskeland, Litvack (2003), von Hagen, Dahlberg (2001)*.

This implies that the probability of softening of budget constraints is higher in large administrative territorial entities, where positive externalities of the public goods provided by such entities may be rather significant. *Wildasin (1997)* assumes that at the first stage the national authorities aiming to increase the provision of public goods at the subnational level launch a co-financing program. At the second stage, subnational authorities taking into account the terms of co-financing choose the level of provision of public goods. At the final stage, the national authorities may take the decision to provide additional financial aid in excess of the planned amount of co-financed aid in the case the level of provision of the subsidized public goods chosen by subnational authorities is below the optimum (such decisions are taken due to the presence of positive externalities created by this type of subnational public goods). The problem of soft budget constraints arises at the second stage, when subnational authorities may choose a level of taxation and provision of public goods being clearly below the optimum in order to obtain additional financial support from the center. In this case, subnational authorities face the problem of choice between costs of non-optimal level of provision of public goods and benefits of additional financing.

### ***e) Non-transparency of the Budget Process and Budget Reporting at the Subnational Level***

Modern systems of fiscal accounting and reporting are as a rule too complicated for voters to correctly evaluate the costs and benefits brought about as a result of the policy pursued by the governments. At the same time, subnational authorities on their own initiative often facilitate non-transparency of fiscal reporting. For instance, aiming to advertise the benefits of the policies they pursue may take following decisions<sup>27</sup>:

- overestimate the rates of economic growth in a region;
- overestimate positive effects of decisions they make;
- overestimate changes in budgetary revenues resulting from changes in tax policies;

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<sup>27</sup> See: *Alesina, Perotti (1999)*.

- approve medium term budgets, where the bulk of unfavorable changes concentrate in later periods.

The intentional complication of the budgetary process and budget reporting may result in the fact that voters may not hold subnational governments responsible for financial difficulties arising at the end of the financial year and shift the responsibility for inefficiencies in the sphere of public finances to the national authorities. In this case, the decisions taken by subnational authorities will reflect preferences of the bureaucracy rather than preferences of voters.

### ***f) Degree of Autonomy with Respect to Borrowing Decisions***

In the case there are no limits on the marginal amount of borrowings made by subnational authorities, the probability of opportunistic behavior is higher. In a situation, where subnational authorities are able to make borrowings and simultaneously obtain emergency financial aid from the national government, subnational authorities may shift credit risks to the national authorities. Due to this reason, many countries introduce different caps both on the marginal amount of borrowings made by subnational authorities, and other aspects of activities carried out by local authorities with respect to borrowings<sup>28</sup>.

Under softer budget constraints (i.e. when there exists an anticipation of additional financial aid provided by the national authorities in the case of financial problems, such expectations may be facilitated, for example, by the guarantees of the central government pertaining to borrowings made by subnational authorities) credit risks and associated costs are shifted on the national government. In this case, excessive borrowings not limited in any way may be very significant, since subnational authorities and voters perceive the projects financed at the expense of borrowed funds as less expensive than the projects financed at the expense of tax revenues<sup>29</sup>. Moreover, in the case subnational authorities are inclined to shift a large amount of credit risks onto the national level, the probability that they obtain additional financial aid from the national authorities increases. This happens because subnational authorities are not interested in emergence of a crisis of the na-

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<sup>28</sup> See: *Ter-Minassian (1997)*.

<sup>29</sup> See: *Poterba (1995)*.



tional scale; however, the possibility of such a crisis becomes more probable in proportion to the size of the subnational administrative territorial entity which is experiencing financial difficulties. The fact that the national authorities seek to support large regions may be explained by their unwillingness to let a crisis to broke out in larger regions, since such a crisis at the subnational level may provoke a national crisis (in the economic literature this problem is referred to as the "*too big to fail*" problem)<sup>30</sup>.

The fact that soft budget constraints result from opportunistic behavior of regional authorities may be illustrated by the Aizenman model<sup>31</sup>. This model demonstrates that under certain conditions the emergence of soft budget constraints is inevitable. The author assumes that some regional representatives are members of the center government. These representatives take decisions concerning state expenditures proceeding from the maximization of the utility function of the representative residents of their regions. In the case the level of expenditures they set exceeds the level of national revenues, it results in the accumulation of the amount of the public debt. It should be noted that the utility function of the representative resident of a region is the weighted sum of utility functions in the infinite number of periods, and in each next period the utility is taken into account with the weight diminishing in geometric progression.

The model assumes that regional authorities may either comply with their respective budgets (in this case their behavior is defined as scrupulous), or increase their expenditures by accumulating public debt (in this case their behavior is defined as opportunistic). Besides, it is assumed that opportunistic behavior is detected after two periods with unity probability. Therefore the planning horizon of scrupulous officials is the infinite number of periods, while the planning horizon of unscrupulous officials is only two periods. From the model, it follows that the emergence of soft budget constraints depends on the ratio of utility of scrupulous and unscrupulous officials within the government – in an instance when there do not exist such levels of the public debt at which the utility of scrupulous behavior can exceed the utility of dishonest behavior, it will not become possible to avoid soft budget constraints.

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<sup>30</sup> See: Wildasin (1997).

<sup>31</sup> See: Aizenman (1994).

### ***g) Structure of Federative State and Current Political Objectives***

In many federations, the national authorities have limited powers to influence expenditure and revenue related decisions taken by subnational authorities. These powers are established by the constitutions, which may be amended only by the respective Parliaments. As a rule, in federative states there exist upper houses of Parliaments formed by regional representatives<sup>32</sup>. This political system may result in the fact that due to political bargaining and interregional cooperation at the national level there will be supported the softening of budget constraints of individual regions (for instance, as remuneration for support in approval of other decisions)<sup>33</sup>. As it will be demonstrated below, exactly such a situation was the major obstacle to the hardening of budget constraints in Brazil.

There may arise a situation, in which in such a system of decision making financially stable regions would support soft budget constraints of all regional authorities (including themselves) and lack of political bargaining. Thus, in the case additional financial support is provided at the expense of revenues generated by the national taxes shared across the budgets of different levels at fixed rates, large regions with high fiscal capacities and limited tax powers may support the decision about the provision of additional financial aid to subnational budgets at the expense of a raise in the rates of federal taxes, since as a result of its adoption their revenues may increase, while the main responsibility is borne by the national authorities<sup>34</sup>.

Incentives to soften budget constraints may arise also in the case the national authorities may benefit from such softening. For instance, in the election campaign periods seeking to obtain support of regional voters the national authorities may encourage growth in budget expenditures at the regional level providing later additional financial aid to regional budgets.

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<sup>32</sup> See: *Rodden (2001)*.

<sup>33</sup> See: *Alesina, Perotti (1999)*, *Rodden (2001)*.

<sup>34</sup> See: *Kohlscheen (2003)*.

### ***h) Reputation of the National Authorities***

In the case the provision of irregular financial aid is a widespread practice (even if there exist objective reasons to provide it), expectations of regional authorities with respect to additional financial aid grow. Therefore, the national authorities in order to prevent an increase in such expectations on the part of subnational authorities may intentionally refrain from additional financing of regional budgets in the case they face financial difficulties<sup>35</sup>.

### ***i) Asymmetry of Information***

In some cases, the national authorities may lack information if a financial crisis at the subnational level was triggered by objective factors (for instance, an adverse external shock) or by opportunistic behavior of subnational authorities. In the case of asymmetry of information, subnational authorities have incentives to assert that the financial crisis was caused by an external shock and therefore there is an objective need of unplanned financial support. It should be taken into account that without thorough monitoring of the fiscal and economic situation at the subnational level, the national authorities may lack information about the real factors behind the financial crisis.

*Gilbert (2001)*<sup>36</sup> offers a model for the analysis of relations between the federal center and regional (local) authorities of the Russian Federation in the framework of a principal – agent model. In the framework of the model it is assumed that regional (local) authorities ask for financial aid, while the federal center may either provide aid or spend some money to find out the amount actually needed by the region and impose a penalty if the regional needs were overestimated, or provide a certain additional amount as the bonus in the case the funds asked by the region were at the necessary level. In such a situation, where verification is associated with certain costs, the central government bears informational costs associated with the verification of the fact if regions provide true information. The study analyzes different variants of penalties and

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<sup>35</sup> See: *Pettersson-Lidbom, Dahlberg (2003)*.

<sup>36</sup> *Gilbert G. (2001)*, “Fiscal Federalism and Financial System”, in “Financial Markets and Transition”, Higher School of Economics, Moscow, 2001.

bonuses while assuming that the central government seeks to minimize informational costs.

Resulting from the analysis, the conditions have been formulated under which regions request the necessary amounts of financial aid, which will depend on the ratios between the probability and cost of verification, types and amounts of penalties and bonuses in the situation of symmetrical and asymmetrical information about the type of the region (necessary amount of financial aid). As concerns the substantive aspects, the paper draws the conclusion that in the Russian situation, where verification is rather difficult due to insufficient informational transparency and underdeveloped institutional environment, informational costs are extremely high and it is preferable to use simple methods of encouragement and punishment of regions for their actions, as well as to seek to diminish the amounts of informational costs.

### **Economic Effects of Soft Budget Constraints of Subnational Governments**

The allocation of financial assistance and the softening of budget constraints result in the emergence of a number of effects and in certain changes in the behavior of subnational authorities. Following are a brief characterization and a description of the possible consequences of such effects.

#### ***a) Various Aspects of the Softening of Budget Constraints of Subnational Governments***

##### *External Financing of Expenditures*

Any acquisition of revenues from external sources (in the form of grants or loans) results, in a certain sense, in the softening of budget constraints, because subnational authorities then get an opportunity to finance the provision of public benefits in the volume exceeding the originally established level of revenue proper. In Russia, for example, any region receives, in one form or another, some funds from the federal budget, but it does not necessarily happen so that any financial assistance will result in the emergence of the soft budget constraints problem for the regions.

If the fiscal price of public benefits is considered as the value of budget tax revenues related to the volume of provision of public bene-

fits, the acquisition of non-targeted irregular financial assistance from the federal center, which is at least partly allocated to the production of public benefits, will inevitably result in a certain reduction in the fiscal price of the public benefits being provided (see *Wilde (1968)*). In this case it means that regional authorities, when taking a decision concerning the volume of production and provision of public goods, assume that the taxpayers of their region will not cover the full volume of the corresponding expenditures. In this case, apart from an increase in expenditures, the provision of financial assistance produces a number of effects, such as the “leakage” of the grant into the private sector because of tax rate reduction, the presence or absence of negative fiscal incentives (which depends on whether the increase in financial assistance results in tax reduction, or not), the “fly-paper effect”, etc. The issue of how the acquisition of financial assistance influences the tax revenues and the amount of expenditures of the regions was examined in our work concerned with the fiscal behavior of regional governments<sup>37</sup>.

### *The Change of the Cap Price of the Provision of Public Benefits, and the Fiscal Illusion*

In the model of a choice between public and individual benefits, the slope of a budget constraint can be considered as the tax (relative) price of public goods<sup>38</sup>. In an instance of the allocation of unconditional financial assistance, the budget constraint will shift, in parallel with the initial state, and the thus determined fiscal price of a public benefit will remain unchanged, i.e., any change in the selected volumes of individual and public benefit will result only from the income effect, with no substitution effect taking place<sup>39</sup>.

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<sup>37</sup> See *Sinelnikov S., Kadochnikov P., Trunin I.*, (2002), *Vlianie mezhibudzhethnykh transfertov na fiskal'noe povedenie regional'nykh vlastei*. (The influence of interbudgetary transfers on the fiscal behavior of regional authorities).

<sup>38</sup> The inclination angle of a budget constraint in this instance demonstrates the degree to which the consumption of private benefits must be reduced in order to increase the consumption of public benefits per one unit. If the volumes of the provision of private and public benefits are described through the expenditures thereon, then in absence of financial assistance the tax price of public benefits will be equal to 1.

<sup>39</sup> It should be noted that if the utility function of subnational authorities (or of a representative consumer) differs from Cobb-Douglas function, the income effect will be accompanied by changes in the share of expenditures on public benefits being funded from reve-

If, in the event of unconditional financial assistance being rendered from the federal budget, regional authorities believe, for some reason, that this assistance is rendered to them for the purpose of increasing their budget expenditures, it will indeed be used for these purposes, while the consumption of private benefits will remain at the former level. This means that in accordance with the concept of the regional authorities, the relative fiscal price of public benefits (the inclination of the budget constraint) will be changed, though, in fact, it will remain at the initial level (due to the parallel shift in the budget constraint as a result of the revenue effect). Accordingly, the regional government will be implementing their choice, as if the revenue effect were coupled with the substitution effect tending to increase the volume of provision of public benefits. This situation can be interpreted as a situation of fiscal illusion, resulting in an increase of expenditures on the provision of public benefits in excess of the optimum level, and thus in a decline in the region's welfare.

Fiscal illusion can also emerge in an instance when the representative consumer, while voting for a certain amount of public goods, incorrectly assesses the volume of taxes he will actually have to pay for the increase in budget expenditures, by comparing the volume of public benefits to be received with the amount of taxes to be paid<sup>40</sup>.

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nues proper. In some cases the central government may promote expenditures on a certain item by allocating financial assistance on condition of co-financing being provided by the region. In this case, the income effect and the replacement effect will be observed. The income effect, as in the case of unconditional financial assistance, will result in growing provision of both private and public good, while the replacement effect will produce growth of the consumption of public good and reduction in the consumption of private good, thereby altering the inclination angle of a budget constraint and, consequently, the relative tax price of public benefits determined by it. The final effect in respect to private benefit will depend on the contribution of each effect. Considering the fact that in this case, when the tax revenues of a subnational budget are constant, the volume of public benefits being granted grows, the amount of taxes paid by the region's residents per one unit of public good will go down.

<sup>40</sup> In particular, Lindahl (see *Lindahl (1919)*, *Johnson (1965)*) argued that individuals "display demand" for the total quantity of public benefits on the basis of a certain redistribution of the tax burden: each individual is responsible for a certain share of taxes within the expenditures on the provision of public benefits. Consequently, the result of voting, when a comparison is made with growth in utility of taxes paid (on the average per one unit of benefit), may be an increase in expenditures, in contrast to the situation when growth in utility is compared to the necessity to increase taxes in order to finance the marginal unit

The upward shifting of expenditures against the optimum in the event of a block grant being allocated may have causes other than the effect of fiscal illusion. Let us assume, for example, that regional authorities cannot increase the consumption of individual benefits in an instance of the allocation of financial assistance (e.g., if they have neither the means nor enough time to reduce taxation or to increase subsidies in a given budget year, etc.). In this case, the whole volume of financial assistance will be used to finance public benefits. Under this scenario, the budget constraint will have a breaking point, the price of increasing the volume of provision of public benefits will remain unchanged, and the price of its being decreased will become unlimited<sup>41</sup>.

Another formulation of the effect of fiscal illusion suggests that regional authorities (or voters) underestimate the fiscal price of public benefits by comparison with the actual one, because they misunderstand the structure of the tax system and the distribution of the tax burden (see *Wagner (1976)*). For example, when comparing different projects financed by direct or indirect taxation, regional authorities (or voters) may prefer to increase indirect taxation, because in this case the subjective estimation of increasing the tax burden will be lower. In this case, the effect of fiscal illusion emerges as well: the underestimation of the fiscal price of public benefits will result in budget expenditures shifting upward from the optimum.

There may also emerge a more complicated situation, when regional authorities can export their tax burden, for example, by introducing taxes on goods consumed outside of the region. In this event, the fiscal price of public benefits will decline, because a certain part of the taxes will be paid by consumers from other regions. In this case, fiscal illusion produces some negative effects, resulting from the fact that subnational authorities do not take into consideration, when making decisions on the implementation of expenditures and the attraction of loans, the

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of public good (in some cases, if the share of expenditures on a public good is the same as its relative tax price, the choice being made between private and public benefits may also be the same in the cases under consideration; however, in a general case they are different).

<sup>41</sup> The tangent to the constant utility curve at the optimal point may have an inclination different from that before the allocation of a grant, – in this sense, when a constraint is imposed on growth in the consumption of private benefits, the price of public benefits being granted becomes lower.

preferences of the national taxpayers. As a result, it can be proved that because of this effect and the emerging softness of budget constraints, the actual level of budget expenditures and subnational borrowings will also exceed the level of efficiency (see *Goodspeed (2001)*, *von Hagen, Dahlberg (2002)*).

Thus, fiscal illusion emerges in the event of inadequate information, when regional authorities either misunderstand the purpose for which financial assistance is allocated, or when the voters assume that the relative price of public benefits goes down when financial assistance is provided. In the event of fiscal illusion, the allocation of financial assistance results in the emergence of both the revenue effect and the replacement effect, and, consequently, in the excessive provision of public benefits by comparison with the public optimum.

It should be also pointed out that in the event of public benefits being financed from other sources, – for example, by accounts payable, – the allocation of financial assistance, the volume of which depends on the amount of accounts payable, any inadequate notions concerning the actual cost of increasing the amount of accounts payable and other effects, similar to those that are mentioned above, can also result in the cost of public benefits and the volume of expenditures being changed by comparison with the optimum level<sup>42</sup>.

### ***a) Opportunistic Behavior of Regional Authorities***

This subsection is concerned with the possible mechanisms responsible for the emergence of soft budget constraints caused by the opportunistic behavior of a region.

#### ***Soft Budget Constraints***

As noted above, the allocation of any financial assistance results in a reduction in the fiscal price, determined as the amount of taxes paid by the population of a subnational formation in relation to the volume of public benefits being provided, and therefore also results in the softening of budget constraints. In the course of the following analysis, we are not going to consider all the instances of a similar reception of financial assistance as a situation of soft budget constraints. A situation of soft

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<sup>42</sup> In this case one can speak, instead of the tax price of public benefits, of the price of public benefits relative to accounts payable.



budget constraints will be understood by us as the situation emerging only as a result of a region's opportunistic behavior. One of the examples of such a behavior on the part of a region may be the latter's tendency to increase the amount of accounts payable with regard to socially important items of expenditure, on the expectation of obtaining additional financial assistance from the center, earmarked for the settling of these accounts.

The problem of soft budget constraints in interbudgetary relations may be studied with the help of a game offered in *Inman (2003)*. In the framework of this game there happens the following:

a) at the first stage, the national authorities announce their policy as concerns the allocation of financial aid;

b) at the second stage, subnational authorities take fiscal decisions (i.e. decisions concerning expenditures, setting of subnational taxes, or making and repayment of borrowings), which may result or not result in insolvency crises;

c) at the final stage, in the case subnational authorities experience financial difficulties the national government may take the decision about infringement on the earlier announced principles of allocation of financial aid in order to bail out subnational authorities.

In the case the national authorities are interested in prevention of the crisis situation by bailing out subnational authorities via provision of unplanned financial aid at the last stage, the latter take into account this circumstance in the framework of the decision making process at the second stage. Therefore, the negative consequences of soft budget constraints imposed on subnational authorities are reflected in increases, over the optimal level, of the level of production of public goods. This happens because subnational authorities expect that the national authorities will bail out regional authorities by providing initially unplanned financial aid in the case they face financial difficulties, and these expectations affect the behavior of regional authorities. To the situations that are not associated with the opportunistic behavior of regions, we are going to apply the term "hard budget constraints".

The opportunistic behavior of subnational authorities is related to the objective contradiction found in the functioning of states with multilevel budget structures and decentralized powers concerning the provision of public goods. On the one hand, aiming to increase the efficiency of

provision of public goods adjust the activities of the government to regional preferences, the national authorities are interested in maximal decentralization of powers pertaining to collection of taxes and provision of public goods. On the other hand, voters of subnational authorities are at the same time voters of the national authorities and it may turn out to be optimal for the national authorities to infringe upon the initially set principles of allocation of financial resources and provide additional financial aid to regional governments in the case they face financial difficulties at the subnational level. In turn, these developments create incentives for subnational authorities to develop strategies of their behavior in the sphere of provision of public goods and taxation basing on expectations of additional financial support and eventually result in a non-optimal amount of provision of public goods on the scale of all regions and the country at large<sup>43</sup>.

The paper of *Rodden, Eskeland, Litvack (2003)*<sup>44</sup> arrives to the conclusion based on the study of experience of 11 countries that a multi-leveled structure of government basing on hard budget constraints on subnational authorities is the most efficient form of government. According to the authors, subnational authorities may be under hard budget constraints in countries characterized by different degrees of fiscal autonomy of subnational authorities being both significantly decentralized federations and unitary states. More thoroughly the experience of foreign countries in the sphere of facilitation of softening or hardening of budget constraints of subnational authorities permitting to derive some conclusions about practical prerequisites and implications of soft budget constraints with respect to the functioning of the system of public finances will be discussed below.

### *The Common-pool Problem*

It should be noted that in an instance when the behavior of regional authorities does influence the amount of financial support, while the total amount of allocations to subnational formations is limited, there may emerge the common-pool problem<sup>45</sup>. This problem is characterized by a situation when regions not only undertake certain actions in order to increase the amount of financial support being received by

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<sup>43</sup> See: *Inman (2003)*.

<sup>44</sup> *Rodden, Eskeland, Litvack (2003)*.

<sup>45</sup> *Cm. PISAURO (2001), von Hagen, Dahlberg (2002)*.

them from the federal center, but also compete for increasing the amount of this support at the expense of other regions. In other words, the costs of financial support being allocated to one region are shared with the taxpayers of other subnational entities.

### ***c) Negative Macroeconomic Effects***

Therefore, the situation characterized by the existence of soft budget constraints of subnational authorities may be defined as the provision by the national authorities of a sort of insurance services to subnational authorities in order to prevent the risk of fiscal crises<sup>46</sup>. It results in the emergence of the risk of moral hazard behavior of subnational authorities as concerns the decisions to increase expenditures or reduce revenues they make.

Soft budget constraints of subnational authorities result in the emergence of negative macroeconomic effects. Thus, excessive budgetary expenditures and borrowings resulting from soft budget constraints at the subnational level may create obstacles to efficient pursuit of fiscal and monetary policy by the national authorities<sup>47</sup>. Besides, the excessive demand generated by such expenditures affects prices. The consequences of such effects are aggravated by the fact that the excessive level of public expenditures may result in a decline in private investment and private consumption in the economy. Eventually, soft budget constraints of subnational authorities may create serious obstacles to the progress of macroeconomic stabilization.

Alongside the simple increases in production of public goods, without any respective raise in tax withdrawals (reduction of production of private goods in the region), in the situation of soft budget constraints regional authorities have propensity to finance non-viable risk-intensive projects, or those projects that are primarily aimed at the growth in the popularity of subnational authorities<sup>48</sup>.

As it has been noted above, the presence of soft budget constraints results from the readiness of the national authorities to provide additional financial aid to the subnational level of government. It should be noted that in contradistinction to the financing of expenditures of sub-

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<sup>46</sup> See: *Pisauro (2001)*.

<sup>47</sup> See: *Prud'homme (1995)*.

<sup>48</sup> See: *Cariago, Weingast (2000), von Hagen, Dahlberg (2002)*.

national authorities at the expense of own tax revenues, the use of financial aid as a source of revenues results in increase of the tax burden on all taxpayers in the country. Therefore, the presence of soft budget constraints is evidence of negative externalities, i.e. the fact that subnational authorities do not take into account welfare of residents of other regions when taking decisions concerning their borrowings and financing of expenditures. As a result, the level of public expenditures and public borrowings may significantly exceed the efficient level<sup>49</sup>.

Therefore, it may be easily seen that soft budget constraints of subnational authorities result in a whole range of negative economic effects, which may be reduced both to the excesses over the efficient level of public expenditures, and to more general effects, like creation of obstacles to the growth in private investments and the growth in the number of inefficient risk intensive investment projects.

#### ***d) Insufficient Fiscal Incentives***

In the paper by *Zhuravskaya et al. (2003)*<sup>50</sup> there are studied causes and consequences of the weakness of fiscal incentives in Russia at the local level (i.e. not only the lack of incentives to efficiently spend budgetary funds, but also to increase own tax revenues). The study focusing on the activities of local governments in Russia defines fiscal efforts as incentives existing in municipalities, which acting in the sphere of administrative regulation determine the rates of development of small and medium sized businesses in the country.

The paper demonstrates that on the average, in Russia the incentives for municipalities to facilitate growth of small and medium sized businesses and restructuring of large enterprises remain weak. Especially weak are the “positive” incentives for municipalities, which are formulated in the promise of regions not to expropriate the revenues which municipalities receive as a result of their efforts aimed at expansion of tax bases. The major factors behind the weakness of fiscal incentives for municipalities, alongside with the “capture of power by large businesses” at the regional level and the political inability of re-

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<sup>49</sup> See: *Goodspeed (2001)*, *Pisauro (2001)*, *von Hagen, Dahlberg (2002)*.

<sup>50</sup> *Zhuravskaya E., Makrushin A., Slinko I., (2003)*, “Prichiny i sledstviya slabosti byudzhetykh stimulov v Rossii na mestnom urovne” (Causes and consequences of the weakness of fiscal incentives in Russia at the local level). M. TsEFIR, 2003.

gional authorities to assume the responsibility not to expropriate municipal revenues are soft budget constraints of subnational authorities. The authors suggest that a greater influence of the federal power, which is understood as an efficient exercising of functions and control in the framework of narrower and far more clear-cut stipulated in the law powers, can let one implement a far more efficient development option under which the central government proves to be able to establish a favorable institutional environment.

It should be noted that the observations contained in the present work suggest that the system of interbudgetary relations existing in Russia at the subregional level does not create any positive incentives for municipalities with regard to the development of their tax base. This conclusion does not provide a direct answer to the question as to whether the problem of negative fiscal stimuli, that is, the allocation to municipal authorities of additional (initially not envisaged) financial assistance in the event of unforeseen financial difficulties (for example, a fall in revenues, or a growth in expenditures), is typical of the Russian system of interbudgetary relations.

Our previous studies with regard to the incentives created by the federal financial assistance for Russian regional authorities<sup>51</sup> indicate that, as regards the period before 2002, an analysis of available empirical data has not led to the conclusion that any negative fiscal incentives with regard to the Federation's subjects did indeed exist in Russia, which means that the stabilizing effect of federal financial assistance with regard to the tax budget revenues of the Federation's subjects throughout the analyzed period of 1998–2002 was observed only in its last year. Moreover, federal financial means were compensating, on the average, only 40% of the changes in regional budget revenues<sup>52</sup>.

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<sup>51</sup> See P. Kadochnikov, S. Sinelnikov-Muryliov, I. Trunin. *Sistema federal'noi finansovoi podderzhki regionov v Rossii i eio vliianie na nalogovuiu i buidzhethnuiu politiku sub"ektov Federatsii. (The system of federal financial support of Russia's regions and its influence on the tax and budget policies of the Federation's subjects.)* – M.: Konsortsium po voprosam prikladnykh ekonomicheskikh issledovaniï (Consortium for issues of applied studies in economics). 2002.

<sup>52</sup> See P. Kadochnikov, S. Sinelnikov-Muryliov, I. Trunin, S. Chetverikov. *Analiz pereraspredeleniia sredstv mezhdru buidzhhetami sub"ektov Rossiiskoi Federatsii v ramkakh sistemy mezhdruidzhethnykh otnoshenii. Otsenka stabilizatsionnykh svoistv pereraspredelitel'nykh instrumentov rossiskikh federal'nykh vlastei. (An analysis of the redistribution of funds between the budgets of the Russian Federation's subjects within the framework of*

## **Methods of Evaluation of Soft Budget Constraints of Subnational Authorities**

In the course of analysis of approaches to empirical evaluations of the soft budget constraints of subnational authorities, it should be noted that such evaluations prove to be somewhat difficult. For instance, in the course of such an analysis it is customary to assume that subnational authorities are characterized by soft budget constraints in the case they take decisions about expenditures and borrowings proceeding not from considerations of economic or social efficiency of such decisions *per se*, but rather from the expectations (or lack thereof) of provision of financial aid from the national authorities in the case there emerge financial difficulties.

This description of the major approach to the evaluation demonstrates that a direct appraisal of the degree of hardness of budget constraints is practically impossible, since the main difficulty here is to identify if subnational authorities have respective expectations. Due to this reason, there have to be developed different indirect indicators of the expectations of the authorities. Let us review several models of evaluation of the presence of expectations of provision of financial aid from the central government in regions.

By the present time, the issue of the influence exerted by federal financial assistance on the financial behavior of subnational Governments has been investigated quite adequately (see the review *D.L. Rubinfeld (1987)*). In this section, we will briefly list the major problems arising in the course of testing the existing empirical models which describe the influence of grants on the expenditures of regional governments, and will dwell on, in more detail, on the models directly concerned with soft budget constraints for subnational authorities.

Some authors (e.g., *Borcherding, Deacon (1972), Deacon (1977)*) indicate that the amount of expenditures on the provision of local public benefits can be described by the equilibrium of the solutions to the standard optimization issues, faced by the consumer and the producer, which determine the demand for and the supply of public goods. At the

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the system of interbudgetary relations. An assessment of the stabilizing properties of the redistribution instruments of Russian federal authorities). – M.: Konsortium po voprosam prikladnykh ekonomicheskikh issledovaniy (Consortium for issues of applied studies in economics). 2003.

same time, it is noted that such an approach creates a number of empirical and theoretical problems.

The first problem deals with the aggregation of preferences. The individual preferences determining the demand for the public benefits of each individual are aggregated into the social demand for public benefits in the course of a certain political process. In other words, by one way or another, this process must be taken into consideration when assessing the demand for public benefits. One of the most widespread ways of solving these problems is to include the level of incomes of the median voter into the function of demand (see, e.g., *Bowen (1943)*, *Barr, Davis (1966)*, *Bergstrom, Goodman (1973)*, *Mueller (1976)*). The level of incomes of the median voter will reflect the aggregate demand for the public benefits of individuals. At the same time, it should be noted that in practice the situation becomes much more complicated under conditions of a more complex political structure, by comparison with the process of election by simple majority.

The second problem deals with the estimation of consumer demand. As is evident from the standard model of consumer choice (see, e.g., *Lindahl (1919)*, and the review *D.L. Rubinfeld (1987)*), the price of a public good is individual, and it can be determined by the amount of taxes paid by each individual. This model suggests that the demand for public benefits provided by subnational budgets should be described as follows:

$$\log G = \beta_0 + \beta_1 \log Y + \beta_2 \log P_G + \beta_3 \log N + \beta_4 \log Z + \varepsilon, (1)$$

where  $G$  is the volume of public benefits,  $Y$  is the incomes of the consumer,  $P_G$  is the price of a public benefit,  $N$  is the size of the population,  $Z$  – the other variables describing the differences in preferences of consumers.

In this case, the model includes financial assistance, from a higher level of government, which influences the volume of expenditures of a subnational budget via the price of the public benefit for each individual, because the allocation of financial assistance results in a reduction of the effective share of taxes, paid by each individual, in the aggregate budget expenditures on the provision of public benefits.

The median voter theory was used for estimating the demand for public goods in a large number of works concerned with these problems (see, e.g., the reviews by *Inman (1978)*, *Denzau (1975)*, *Bergstrom*, *Rubinfeld*, *Shapiro (1982)*, *Pommerehne (1978)*, *D.L. Rubinfeld (1987)*). The obtained results differ depending as to which data were used for assessing the specific types of expenditures. The authors of some of these works have come to the conclusion that the demand for public benefits is not very elastic so far as the price of public benefits is concerned, and therefore the allocation of financial assistance may exert only a weak influence on the demand for public benefits. Partly, this result can be explained by the existence of the effect of fiscal illusion, as a result of which the consumers of public benefits do not take into consideration the actual change in the effective price of a public benefit taking place in the course of the allocation of financial assistance from the budgets of other levels.

On the other hand, the allocation of financial assistance seems to lead to a reduction in the relative tax price of the public benefits being provided, and therefore to the emergence of a fiscal illusion (see above for the classification of soft budget constraints). Some authors, when investigating the influence of unconditional financial assistance on the expenditures of regional and local budgets, discover the existence of the flypaper effect (*Courant et al. 1979*, *Oates 1979*). Apart from the influence on the demand for public benefits, the allocation of financial assistance exerts some influence on the volume of financing of public benefits via the supply of public benefits by subnational budgets (*J. Ashworth, B. Heyndels, 1997*<sup>53</sup>, *J.Hagen, I.J. Harden, 1995*<sup>54</sup>).

Let us consider, for example, one work concerned with the empirical appraisal of the influence exerted by the federal government's financial assistance on the expenditures of regional authorities. Strauss (*Strauss (1974)*)<sup>55</sup> investigated the influence of lumpsum subsidies on the expenditures and tax revenues of local budgets. In his work, the demand for public benefits depends on the number of persons residing in municipi-

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<sup>53</sup> J. Ashworth, B. Heyndels, 1997, Politicians' preferences on local tax rates. An empirical analysis.

<sup>54</sup> Jurgen von Hagen and Ian J. Harden, 1995, Budget processes and commitment to fiscal discipline.

<sup>55</sup> Strauss, R.P., 1974, The Impact of Block Grants on Local Expenditures and Property Tax Rates, *Journal of Public Economics* 3, 269–284.



pality ( $P$ ), the amount of transfer from the budgets of a higher level ( $Trans$ ), and on the rate of the property tax at the expense of which local public benefits are being formed ( $t$  – the rate of the property tax):

$$E_{ij}^d = \beta_1 + \beta_2 Y_{ij} + \beta_3 P_{ij} + \beta_4 P_{ij}^2 + \beta_5 Trans_{ij} + \beta_6 t_{ij}. \quad (2)$$

Strauss describes the dependence of the demand for public benefits on the number of persons residing in the municipality by a quadratic equation, which makes it possible to take into account the scale effect.

The supply of public benefits is described in the work as follows:

$$E_{ij}^s \equiv R_{ij} + Trans_{ij}. \quad (3)$$

The expenditures incurred by the municipality are identical to the amount of municipality R's own expenditures and the transfer from the budgets of a higher level. As a result of assessing the system, in a reduced form, on the basis of data on the State of Wisconsin's municipalities, there was obtained, as in a number of other similar studies, a weak dependence of the demand for local public benefits on the incomes of the population, and a significant positive dependence of the former on the amount of financial assistance from the budgets of a higher level.

In a number of works (see the review by *D.L. Rubinfeld (1987)*), considerable attention is paid to the correctness of the estimation of the demand for public benefits, and less attention is paid to the estimation of how strongly the allocation of financial assistance may influence the demand for and the supply of public benefits, and through what specific mechanisms this influence can be realized. The following sections will be concerned with some later models relatively different from the classical approach to the assessment of the expenditures of subnational budgets; in particular, considerable attention will be given to the problem of fiscal illusion, to the opportunistic behavior of regional authorities, and, as a result, to the emergence of soft budget constraints.

### ***R. Logan's Model***

In a number of works concerning the influence of financial assistance on the tax price and the volume of public benefits provided by local and regional authorities, consideration is given only to the behav-

ior of a region, while the behavior of the federal center is not analyzed. At the same time, it is assumed that the financial behavior of regional authorities is determined by the preferences of local authorities and the median voter, as well as by the budget limitations of the regions (Sphepsle 1979, Denzau, Mackay 1981). R. Logan<sup>56</sup> also analyzes the influence of financial assistance on the behavior of the median voter and the authorities at the regional level, but, by contrast with studies predominantly concentrated on regional expenditures, Logan has built a model describing the behavior of not only the median regional voter, but also that of the federal government, the donor of financial assistance.

The author assumes that there exists a certain voter, who is median both for the region where he or she is residing and for the country as a whole. The disposable income of this voter is determined by aggregate income minus the amount of federal and regional taxes paid to the budgets of corresponding levels. The median voter maximizes utility function which depends on the expenditures on the public benefits financed by both the central and regional government, and also on disposable income under a specified budget limitation:

$$\max_{E_1, E_2} L_t = U(E_1, E_2, Y_d) + \lambda \left[ Y - \theta_1(E_1 - A) - \theta_2(E_2 + A^T) - Y_d \right], (4)$$

where:

$E_1$  – regional government’s expenditures,

$\theta_2$  – share of federal taxes paid by the median voter,

$\theta_1$  – share of regional taxes paid by the median voter,

$A$  – amount of financial assistance received by the region under study,

$A^T$  – aggregate volume of financial assistance allocated by the central government,

$Y$  – aggregate revenue,

$Y_d$  – disposable revenue.

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<sup>56</sup> Robet R. Logan, *Journal of Political Economy*, 1986, vol. 94, No. 6.

Maximum utility level is achieved at the point described by the following conditions of first order:

$$\frac{U_1'}{U_2'} = \frac{\theta_1}{\theta_2}, \frac{U_1'}{U_Y'} = \theta_1, \frac{U_2'}{U_Y'} = \theta_2. \quad (5)$$

The relation in the left-hand part of the equation determines the marginal rate of substitution between federal and regional public goods, or the marginal norm for the replacement of a private benefit by a public benefit, while in the right-hand part there are the relative costs (or prices).

In absence of fiscal illusion, the allocation of financial assistance influences the expenditures of the median voter only through incomes, because it has no relation to prices. When financial assistance is allocated in amount  $A^T$ , when federal revenues are unchangeable, the median voter will pay additionally  $\theta_2 A^T$  of federal taxes and receive transfer  $\theta_1 A$ . Assume that  $\theta_1 A = \theta_2 A^T (1 + \gamma)$ , where  $\gamma$  is a certain parameter of the model. In an instance of a transfer of revenues,  $\gamma = 0$ , that is, the expenditures at both levels of government, do not change (the budget constraint and relative prices remain unchanged).

If  $\gamma > 0$ , that is, there exists certain redistribution in favor of the region, the allocation of financial assistance results in a fiscal illusion and a reduction in the tax price for the median voter, which leads toward growth in the regional budget expenditures. (The seemingly changed price of public benefits in an instance of financial assistance being allocated is termed "fiscal illusion" by Logan, as well as by other authors). As follows from the model, fiscal illusion may occur also in respect to the regional and federal government, because in an instance of a transfer of revenues the amounts of both federal and regional expenditures may also change. This will result in increased regional expenditures for the median voter, when financial assistance grows and federal expenditures are reduced.

The empirical presence of fiscal illusion for the median federal voter in respect to the public benefits provided by the central government has been studied by applying the following regression:

$$E_2 = \beta_0 + \beta_1 Y + \beta_2 A^T + \beta_3 U + \beta_4 D + v, \quad (6)$$

where  $\beta_2 = \beta_1 \gamma \theta_2$ . In absence of fiscal illusion  $\gamma = 0$ , consequently, the basic hypothesis is  $\beta_2 = 0$ ; in other words, the allocation of financial assistance has no influence on the central government's expenditures.

Resulting from the assessments performed in respect to the USA in the period of 1947–83, it was demonstrated that federal financial assistance correlated negatively with the federal government's expenditures. Moreover, an increase in the amount of financial assistance by 1 USD results in a fall in expenditures by more than 1 USD. As a result, Logan comes to the conclusion that the allocation of financial assistance to regional and local authorities may produce growth in expenditures in excess of the optimum level at the regional and local levels, and be accompanied by a fall in expenditures at the federal level.

A similar assessment was done in the study by Philip J. Grossman (1989)<sup>57</sup>. By building a theoretic model and empirically testing it, Hammes and Wills (1987)<sup>58</sup>, followed by Hewitt (1986)<sup>59</sup> and R. Logan (1986)<sup>60</sup>, showed that by allocating financial grants to lower-tier budgets, the central government aims at increasing its own tax base and reducing its own spending obligations.

### ***Moesen and Van Cauwenberge's Model***

Among the studies on the problem of soft budget constraints, one interesting work, by Moesen and Van Cauwenberge (2000), is noteworthy, where this problem is dealt with from the point of view of regional authorities' opportunities for making borrowings. Any financing other than through the collection of taxes results in a diminished tax price of public benefits, and, consequently, any grant or loan can be regarded

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<sup>57</sup> Grossman Philip J., 1989, Intergovernmental Grants and Grantor Government Own-Purpose Expenditure, *National Tax Journal* Vol. 42.

<sup>58</sup> Hammes, D.L., Wills D.T., 1987, Fiscal Illusion and the Grantor Government in Canada, *Economic Inquiry* Vol. 25.

<sup>59</sup> Hewitt, D., 1986, Fiscal Illusion from Grants and the Level of State and Federal Expenditures, *National Tax Journal*, Vol. 39.

<sup>60</sup> Robert R. Logan, *Journal of Political Economy*, 1986, vol. 94, No. 6.

as being aimed at softening the existing budget constraints. In order to provide substantiation for this statement, Niskanen’s model has been applied in the study (*Niskanen (1975), Niskanen (1996)*), where the selection of a specific output of public benefits is analyzed by means of plotting the curves of money values of utility and costs of the production of a certain volume of public benefit. Also, in the study by *Moesen and Van Cauwenberge (2000)*, it was suggested that regional governments have fewer opportunities for making borrowings than the central government, and so they are subject to more rigid budget constraints. As a result, regions must have fewer incentives for increasing their expenditures<sup>61</sup>. Thus, the more decentralized are expenditures, the lower, in the authors’ opinion, the expenditures of a country’s consolidated budget.

The influence of the degree of decentralization on the level of expenditures was assessed by applying the following regression:

$$L_i = a_0 + a_1GDP_i + a_2DECEN_i + u_i, \tag{7}$$

where:

$L_i$  – consolidated government expenditures (including federal, regional and local budgets), as % of GDP,

$GDP_i$  – GDP per capita in 1990 prices,

$DECEN_i$  – ratio of local budgets’ revenues proper (total revenues less received financial assistance and loans) to consolidated budget expenditures.

Based on assessments of a sample of countries, the conclusion was drawn that the higher is the share of subnational authorities’ expenditures in the general government’s expenditures (i.e. a high degree of fiscal decentralization), the lower will be the total amount of the general government’s expenditures in those countries. In the authors’ opinion, fiscal federalism, by providing fewer opportunities for regional authorities, as compared to the central government, to attract loans, results in more rigid budget constraints and thereby precludes the state system’s

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<sup>61</sup> Alongside this hypothesis, it is stated in this paper that the budget constraints imposed on regions become weaker as a result of grants having been received by them (at the same time, the authors note that the purpose of allocating grants in most cases is to promote the growth of expenditures).

growth in its size. This fact augments the classic hypothesis<sup>62</sup> that decentralization of the budget system makes it possible to create appropriate conditions for the development of fiscal competition between regions due to interregional migration, which results in an equilibrium with a relatively low level of taxation and effective budget expenditures.

**Model Dahlberg, Pettersson-Lidbom (2003)**

Estimates made in the study by *Dahlberg, Pettersson-Lidbom (2003)*, proceed from the fact that the expectations of subnational authorities with respect to financial aid are formed on the basis or respective own experience in the preceding year and the experience of neighboring regions. The authors review the following model linking financial behavior of regions with their expectations with respect to the provision of financial aid in the case of a crisis:

$$S_{it} = \beta_0 + \alpha B_{it}^e + X_{it} \beta + u_{it}, \tag{8}$$

where:

$S_{it}$  is the value, on the basis of which the financial behavior of subnational authorities is evaluated (for instance, the amount of regional debt),

$B_{it}^e$  indicates the presence or absence of expectations of aid from the national authorities,

$X_{it}$  is the vector of variables able to affect both  $S_{it}$ , and  $B_{it}^e$ .

Parameter  $\alpha$  in equation (1) determines to what degree the financial behavior of regional authorities depend on expectations of financial aid from the central government. In this connection, in order to determine the degree of hardness of budget constraints of regional authorities it is necessary to evaluate parameter  $\alpha$ . In the case the hypothesis that  $\alpha$  equals zero can not be rejected, it would be possible to make the conclusion that no problem of the soft budget constraints is present in regions.

The major problem encountered in the course of examination of equation (1) is that the expectations of financial aid in the case of emer-

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<sup>62</sup> See *Tiebout (1956), Oates (1972)*.

gence of a financial crisis ( $B_{it}^e$ ) can not be measured directly. In this connection, the authors of the model planned to evaluate the expectations of financial aid proceeding from the provision (or absence thereof) of financial aid by the region, or neighboring regions in the preceding period. It should be noted that in this case the variable indicating own experience is equal 1 if the region has such experience and be at zero otherwise.

The variable indicating the experience of neighboring regions ( $B_{it}^{e(c)}$ ) is determined in the following way:

$$B_{it}^{e(c)} = \bar{B}_{J,t-1} = \frac{1}{J} \sum_j B_{jt-1}, \quad (9)$$

where  $J$  is the number of neighboring regions, and  $B_{jt-1}$  is the indicator equal to 1 in the case region  $j$  received aid in period  $t-1$  and is equal to 0 otherwise.

Therefore, member  $\alpha B_{it}^e$  in equation (1) is replaced with  $\alpha^{(p)} B_{it}^{e(p)} + \alpha^{(c)} B_{it}^{e(c)}$ .

In order to evaluate the impact of the factors representing own experience and experience accumulated by other regions ( $\alpha^{(p)}$  и  $\alpha^{(c)}$ ) on the financial behavior of regions the indirect least square method is used to evaluate the following equations:

$$B_{it} = \pi_0 + \pi_1 B_{it-1} + \pi_2 \bar{B}_{J,t-1} + X_{it} \beta + X_{Jt} \delta + \varepsilon_{it}, \quad (10)$$

$$S_{it} = \theta_0 + \theta_1 B_{it-1} + \theta_2 \bar{B}_{J,t-1} + X_{it} \theta + X_{Jt} \varphi + \eta_{it}. \quad (11)$$

Here  $X_{it}$  is the variable representing observations characteristic of the concrete region, while  $X_{Jt}$  is the variable representing observations characteristic of the group of neighboring regions (as variables  $X_{it}$  and  $X_{Jt}$  there may be used, for instance, GRP of individual regions or groups of neighboring regions respectively).

The authors applied this model to determine the presence of soft budget constraints in 286 regions of Sweden in 1974 through 1992. The results demonstrate that the level of regional debt increases on the average by 6 to 10 per cent if the regional government expects financial aid from the central government basing on own experience, while the expectations of financial aid basing on the experiences of neighboring regions in the preceding period increase the regional debt by 25 to 30 per cent on the average.

### ***Model Rodden (2001)***

Evaluations presented in the paper by *Rodden (2001)* are based on the assumption that having no expectations of provision of financial aid from the central government in the case of a crisis, subnational governments decrease their expenditures in anticipation of decline in revenues. According to the author of the model, exactly this phenomenon (reduction of expenditures in the case of unpredictable drop in revenues) should characterize the hardness of budget constraints. In the Rodden model, there is studied how decisions taken by subnational authorities with respect to budgetary expenditures change depending on expected and unforeseen fluctuations in revenues, unemployment, and GDP. Evaluations were made for German regions.

In order to determine expected values of variables, the model uses forecasted values obtained on the basis of autoregression models. It should be noted that the differences between the actual and prognosticated values of variables are interpreted as sudden changes (shocks).

Basing on this data, there is evaluated the relationship between changes in budgetary expenditures of regions and expected values of budgetary revenues, unemployment, and GDP, as well as their shock changes. It is assumed that in the case of hard budget constraints subnational authorities should diminish their expenditures in the case of adverse shock changes in revenues, i.e. the coefficient of the variable characterizing the shock change in the regression of expenditures should be positive. Since German regions are vested with limited tax powers, in the Rodden model revenues were assumed to be given exogenously.



In order to evaluate the expected values of revenues, GDP, and unemployment, the following equations were evaluated in the framework of the model:

$$Rev_t = a_0 + a_{t-1}Rev_{t-1} + a_{t-2}Rev_{t-2} + b_{t-1}GDP_{t-1} + b_{t-2}GDP_{t-2} + c_{t-1}Unemp_{t-1} + a_{t-2}Unemp_{t-2}, \quad (12)$$

$$Unemp_t = d_0 + d_{t-1}Unemp_{t-1} + d_{t-2}Unemp_{t-2}, \quad (13)$$

$$GDP_e = g_0 + g_{e-1}GDP_{e-1} + g_{e-2}GDP_{e-2}, \quad (14)$$

where:

*Rev* are real per capita budgetary revenues of regions;

*Unemp* is the level of unemployment in regions;

*GDP* is the real per capita GDP in regions.

Evaluations of the explained variables in equations (4)–(6) are interpreted as their expected values.

In order to study the relationship between the expenditures of regions and sudden changes in their revenues, the following equation was evaluated in the framework of the model:

$$\begin{aligned} \Delta Exp_t = & c_0 + c_t^+ \cdot D_t^+ \cdot Rev_t^{shock} + c_t^- \cdot D_t^- \cdot Rev_t^{shock} + \\ & + u_t^{exp} \cdot \Delta Unemp_t^{exp} + u_t^{shock} \cdot Unemp_t^{shock} + \\ & + u_{t-1} \cdot Unemp_{t-1} + g_t^{exp} \cdot \Delta GDP_t^{exp} + g_t^{shock} \cdot GDP_t^{shock} + \\ & + g_{t-1} \cdot GDP_{t-1} + d_{t-1} \cdot D_t^{elect} + e_{t-1} \cdot \Delta Exp_{t-1} + e_{t-1} \cdot Exp_{t-1}, \end{aligned} \quad (15)$$

where

*Rev*, *Unemp* and *GDP* have been determined above;

*Exp* are real per capita expenditures of regions;

$\Delta$  is the increment over time (each year);

index  $^{exp}$  represents the expected value of the variable;

index  $^{shock}$  represents shock changes of the variable;

$D_t^+$  is the dummy variable equaling to 1 if the shock change in revenues is positive and zero otherwise;

$D_t^-$  is the dummy variable equaling to 1 if the shock change in revenues is negative and zero otherwise;

$D_t^{elect}$  is the dummy variable equaling to 1 if elections were held in period  $t$  and zero otherwise.

Rodden classifies German regions in two groups: the regions receiving additional (urgently allocated within a budget year) financial aid rather infrequently over the period of time under observation, and the

regions receiving additional financial aid rather frequently. Rodden defines the respective regions as “strong” and “weak.”

In the study, Rodden examines equation (8) for “weak” and “strong” regions separately and demonstrates that in the regression for “weak” regions coefficient  $c_t^+$  is positive, but statistically insignificant, while coefficient  $c_t^-$  is negative and statistically significant at 5 per cent level of confidence. This result indicates that “weak” regions increase their expenditures in reaction to the unforeseen decline in revenues, i.e. they borrow in the case of sudden financial difficulties<sup>63</sup>.

Evaluations of equation (8) for “strong” regions demonstrate that in the case of positive shock changes in their revenues, “strong” regions do not increase their expenditures (coefficient  $c_t^+$  is statistically insignificant), while in the case of sudden decline in revenues “strong” regions reduce their expenditures (coefficient  $c_t^-$  is positive and statistically significant at 1 per cent level of confidence). It should be noted that in the case real revenues decline by DM 100 per capita, real per capita revenues diminish by DM 56. This result is evidence that “strong” regions are reluctant to borrow financial resources in the case of difficulties.

Besides, Rodden has obtained the following results with respect to the impact of unemployment and GDP on changes in expenditures of regions. In the regression for “weak” regions, coefficients  $u_t^{exp}$ ,  $u_t^{shock}$  and  $u_{t-1}$  turn out to be insignificant. It means that there were found no relationships between changes in the level of unemployment (coefficients  $u_t^{exp}$  and  $u_t^{shock}$ ), and between the long term level of unemployment (coefficient  $u_{t-1}$ ) and the changes in expenditures of “weak” regions. In the regression for “strong” regions, coefficient  $u_t^{shock}$  was positive at 5 per cent confidence level. It means that “strong” regions increased their budgetary expenditures when facing unforeseen growth in the level of unemployment.

Coefficients  $g_t^{exp}$  and  $g_t^{shock}$  turned out to be positive and significant at 5 per cent level of confidence in the regressions characterizing both

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<sup>63</sup> In spite of the fact that in Russia regions with low fiscal capacities have practically no possibilities to rapidly make borrowings on the open market in order to finance their expenditures in the case of a shock, such regions still have an option to use external sources of financing of their budgetary expenditures at the expense of accumulation of their creditor indebtedness to the suppliers of services, labor remuneration arrears in the public sector, and additional financial aid from higher level budgets.

“strong” and “weak” regions. Proceeding from these results and the results of the analysis of the impact of unemployment on the changes in the expenditures borne by budgets, Rodden arrives to the conclusion that on the whole regional expenditures do not play a stabilizing role in the German economy, that is, the changes in the growth rate of GDP and unemployment as compared to other regions do not result in any changes in the regional budget expenditures.

The results of regressions for “strong” and “weak” regions demonstrate that expenditures borne by regions of both types increase at the times of elections.

Therefore, basing on the evaluations referred to above, it may be concluded that the expectations of additional financial aid from the central budget (measured by the frequency of its provision) positively affect the amount of borrowings in the cases of unforeseen decline in revenues. At the same time, the refraining from reduction of expenditures in an instance of an unforeseen reduction in revenues, which results from expectations of additional financial support, has no significant stabilizing effect on the regional economies; that is, the study’s results has not led to any conclusions in favor of the assumption that the level of budget expenditure might be associated with the growth rate of GDP or unemployment level.

### ***An Empirical Study of Soft Budget Constraints in Brazilian States***

In the paper of *Bevilaqua (2000)* there was carried out an analysis of the state of the Brazilian fiscal system aimed to demonstrate the presence of soft budget constraints of subnational authorities in 1991 through 1997. For this purpose, the author tested the hypothesis about a positive relationship between the financial aid provided to states in crisis situations and budgetary expenditures of states. According to the author, a positive relationship between these two values would be evidence of the fact that the states, which had received more substantial emergency financial aid in preceding crisis periods, spent more not fearing crises and expecting aid from the central government. For the purposes of the study, the author used the panel data for 27 Brazilian states collected over two periods: from 1991 to 1994 and from 1995 to 1998.

In the paper, there is evaluated the following equation:

$$Exp_t = c_0 + c_1GDP_t + c_2Tr_t^{const} + c_3Tr_t^{voluntary} + c_3Bailout_{t-1}, \quad (16)$$

where:

$Exp_t$  are per capita expenditures in the current period;

$GDP_t$  is per capita GDP of the state in the current period;

$Tr_t^{const}$  is per capita financial aid provided to the state in accordance with the Constitution in the current period;

$Tr_t^{voluntary}$  is per capita additional financial aid provided to the state in the current period;

$Bailout_{t-1}$  is per capita emergency aid provided to the state in the case of a crisis in the current period.

All data are in prices of 1998 and averaged for the period (i.e. budgetary expenditures borne in the period from 1991 to 1994 are used as the average of this period). The author analyzes three crises broking out in Brazil in 1989, 1993, and 1997. Therefore, at  $t=1$  (period from 1991 to 1994) the variable  $Bailout_{t-1}$  indicates the data on the emergency financial aid provided to the state in 1983, while at  $t=2$  (period from 1995 to 1998) the variable  $Bailout_{t-1}$  indicates the data on the emergency financial aid provided to the state in 1993.

Equation (8) was evaluated separately for the period from 1991 to 1994 and for the period from 1995 to 1998. Coefficient  $c_3$  turned out to be significant and positive for both periods, what is evidence supporting the hypothesis that the states, which had received more substantial emergency financial aid borne higher budgetary expenditures. This is evidence indicating the presence of soft budget constraints in Brazilian states. A more detailed discussion of the soft budget constraints of Brazilian subnational authorities, their origins and the ways of preventing their effects will follow later.

The preliminary results of reevaluations of these models in respect to Russia, which are presented in the Annex and are based on the Russian data of the years 1994–2003, have demonstrated that in Russian regions the problem of soft budget constraints is indeed of some significance: regions do not reduce their expenditures proper under conditions of negative revenue shocks, while the allocation of additional financial support in subsequent periods, all other conditions being equal, results in increased expenditures, which is an implication of dis-

honest budget policies being pursued by the regions. In Section 3, the specifications of models for verifying the presence of soft budget constraints are further refined by applying the results of the analysis of the theoretic models for and the trends in the development of interbudgetary relations in Russia.

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The above analysis of theoretical approaches to the analysis of the problems of behavior of economic agents under conditions of soft budget constraints has demonstrated that they may take decisions associated with high insolvency risks anticipating (or expecting) that they will be bailed out from such a situation by prior unannounced financial aid provided from outside. In some cases (for instance, where such agents are state owned enterprises, borrowers being the firms engaged in implementation of large investment projects, or regional governments providing public goods to voters residing in their territories) it is difficult to avoid the provision of additional, earlier unplanned financial aid. This circumstance has a rather serious impact on the behavior of such economic agents.

The theoretical research of the problem of soft budget constraints has started with an analysis of behavior of enterprises under planned economies, where the decisions concerning the amounts of output, as well as prices of goods and services formed in a centralized procedure. At the same time, the state took decisions concerning allocation of financial resources for implementation of investment projects.

The analysis of behavior of the state and enterprises under planned economy has demonstrated that under such conditions of economic operations it may become profitable for enterprises to implement inefficient projects, what might result in lower incentives for innovations and commodity shortages.

At the same time, the problem of soft budget constraints of enterprises may be pressing not only in an economic system not characterized by the total centralized planning. Thus, the high degree of centralization of the banking system, the existence of close ties between the state and the banking sector, and other factors may result in enterprises being provided with additional financial resources, which are not foreseen in the terms of a contract for the implementation of a project. This problem becomes specifically urgent because of the asymmetry of

information on the market, and the specifics of relations between owners and managers in the banking sector.

It should be noted that prevention of the soft budget constraints of enterprises primarily relates to the intensification of the competition in the banking sector, and reduction of unjustified interference of governmental agencies in market operations carried out by economic agents.

In spite of the fact that in its essence the problem of the soft budget constraints of subnational authorities is similar to the problem of the soft budget constraints of enterprises, the mechanisms of emergence, certain effects, and methods of prevention of softening of budget constraints of subnational authorities are somewhat different. For instance, in many cases the central authorities are unable to refuse financial aid to a subnational government, while prevention of soft budget constraints of regions is not related to more intensive competition in the banking sector.

The major avenues of research of the problem of soft budget constraints in the system of fiscal federalism are the following: determination of conditions triggering the emergence of the problem of soft budget constraints in interbudgetary relations, analysis of economic implications of the emergence of soft budget constraints, empirical methods of evaluation of the hardness of budget constraints, as well as the ways to prevent negative effects of soft budget constraints in interbudgetary relations.

In order to soften budget constraints, two conditions should be met:

1) Subnational authorities should have incentives to choose such a strategy of their behavior, which could result in provision of additional (unplanned) financial aid by the national authorities;

2) For the national authorities, it is optimal to deviate from the initially announced policy in the sphere of allocation of financial resources and provision of additional financial aid to subnational authorities in the case a region faces the threat of a financial crisis. Knowing that, subnational authorities expect such aid and these expectations have an impact on their behavior.

It should be noted that the existence of the second condition is the major problem of prevention of soft budget constraints of subnational authorities as due to their own preferences the national authorities are

unable to adhere to the declared principles of refraining from provision of additional financial aid aimed at the maintenance of solvency of sub-national authorities.

As it becomes clear from the essence of this problem, the problem of soft budget constraints is not a result of the direct choice of fiscal policies on the part of the national authorities (since the constraints emerge in the result of deviation from initially announced plans concerning the allocation of financial resources). Rather, the factors behind the emergence of this phenomenon are certain institutional specifics of the states with multilevel budgetary structures. Among such specifics there may be indicated the following:

- Vertical imbalance of the fiscal system.
- Presence of own revenue powers of subnational authorities.
- Structure of the system of interbudgetary transfers.
- Allocation of expenditure powers between the levels of government.
- Non-transparency of the budget process and budget reporting at the subnational level.
- Degree of autonomy of subnational authorities with respect to decisions concerning borrowings.
- Structure of federative state and current political objectives.
- Reputation of the national authorities.
- Asymmetry of information.

The major negative implications of soft budget constraints of regional authorities relate to the dishonest behavior of regional authorities, emergence of the fiscal illusion at the subnational level. In the situation of soft budget constraints (i.e. in expectation of additional financial aid from the national budget provided in the case of financial imbalances), the fiscal incentives for mobilization of own tax revenues sharply diminish. There are also possible negative macroeconomic effects.

In spite of the sufficiently thorough elaboration of the issues pertaining to the theoretical analysis of the problem of soft budget constraints of subnational authorities, it should be noted that empirical evaluation of the degree of hardness of budget constraints presents certain difficulties. Thus, in the course of the detailed analysis it is customary to assume that subnational authorities are under soft budget constraints if they take decisions on expenditures and borrowings proceeding not

from considerations of economic or social efficiency of such decisions *per se*, but more in expectation (or absence thereof) of provision of financial aid from the central government in the case they face financial difficulties.

Such a description of the major approach to the evaluation of budget constraints demonstrates that it is practically impossible to directly evaluate the degree of hardness of budget constraints of the authorities, since the major difficulty is to identify if subnational authorities have respective expectations. Due to this reason, for the purposes of empirical evaluation there are as a rule developed different indirect indicators of the expectations the authorities have.

Among such indicators there may be mentioned the frequency of provision of additional financial aid to the regions, whose behavior is under observation, as well as neighboring regions, the readiness to reduce budgetary expenditures in the cases of shock changes in the budgetary revenues, and the total amount of additional financial aid being distributed among regions.

## **1.2. Prevention of Soft Budget Constraints of Subnational Authorities in the Situation of Fiscal Decentralization: Country Experience**

In the first section of this study there has been demonstrated that the problems relating to the existence of soft budget constraints under fiscal federalism arise as a result of decentralization of financial powers; in this situation subnational authorities do not bear full responsibility for provision of public goods and making of additional borrowings while disburdening itself of the payment of a portion of costs.

In this subsection, for purposes of analyzing the problem of soft budget constraints as it exists in actual practice, as well as analyzing the potential methods for preventing the softening of budget constraints, we are going to review in more detail the experience of decentralization in different countries with developed, developing, and transition economies, as well as federative and unitary structures of government, from the viewpoint of the degree of hardness of budget constraints imposed on subnational authorities. So as to render our analysis more representative, we will analyze the experience of countries with a long record of federalism (USA and Canada), European countries with dif-



ferent government systems (Germany and Norway), the developing multilevel states with different policies being pursued by their respective governments (Argentina and Brazil), one country with a planned economy (China), and also two transition economies that differ in terms of the success they have achieved in the development of their systems of interbudgetary relations (Hungary and Ukraine).

*Interrelation between Political and Financial Institutions and the Problem of Soft Budget Constraints of Subnational Authorities*

Above, there have been analyzed the major prerequisites of the emergence of soft budget constraints in countries with multilevel structures of fiscal systems. In general, it has been demonstrated that the state system *per se* does not either facilitate or prevent the emergence of soft budget constraints of subnational authorities and the problems relating to it. The major prerequisite is the specifics of the structure of certain state institutions existing in the country, for instance, the political system, allocation of revenue and expenditure powers between the levels of the fiscal system, degree of the fiscal autonomy of subnational authorities, the level of imbalances in the fiscal system, existing constraints on borrowings, rules of allocation of financial aid. Besides, the presence of soft budget constraints at each given moment of time depends on the policies pursued by the national authorities in preceding periods.

Taking into account the factors listed above, in this section we will review the specifics of the institutional structure of interbudgetary relations in selected countries basing on the method suggested in *Rodden, Eskeland, Litvack (2003)*. Proceeding from the principles of the analysis carried out in the framework of that study, it may be assumed that the optimal structure of the institutions of intergovernmental relations is characterized by the following specifics:

- Precision and predictability of the system of allocation of interbudgetary transfers.
- Expenditure obligations of subnational authorities are met at the expense of own tax powers, not at the expense of transfers from the national authorities.
- Necessary degree of autonomy with respect to determination of expenditure obligations.

Traditionally, it is assumed that the efficient in terms of reallocation of resources amount of interbudgetary transfers provided from the national budget should be determined by the objective measurement of tax capacities and expenditure needs of subnational authorities<sup>64</sup>. In this case, interbudgetary transfers are used to achieve their main objectives, i.e. compensation of negative externalities and ironing out the inequality of subnational authorities. The problem of dishonest behavior arises where subnational authorities of some regions seek to increase own welfare at the expense of others. In the case dishonest behavior takes place, an efficient program of allocation of interbudgetary transfers should be determined on the basis of full information about the decisions taken by subnational authorities and the implications thereof. For instance, transfers to least secure regions for support of education should be calculated in proportion to the number of students and not be based on the actual level of budgetary expenditures for education.

However, soft budget constraints may result from yet another problem – high degree of dependency of subnational authorities on the funds transferred from higher level budgets (limited tax powers). Due to their limited tax powers, subnational authorities are unable to increase their fiscal revenues at the expense of taxpayers and lacking tools permitting them to rapidly mobilize revenues in the case of a crisis, they have to seek the support of the national authorities. It should be noted that the lack of flexibility with respect to the choice of revenue sources at the regional level results to the delegation of responsibility to the upper level of government. The pressure of voters and creditors in this case is fully translated to the central government, which is able to provide financial support. In this connection it should be noted that clear rules and tight criteria of the allocation of transfer remove the probability of provision of unplanned aid and facilitate the hardening of budget constraints.

Similarly to the transfer dependency, excessive national regulation of the rules and amounts pertaining to the provision of subnational public goods is a signal for politicians, voters, and creditors that the center is the guarantor of liabilities of subnational authorities. In this case, subnational authorities may be unable to ensure the adequate level of provision of public goods in a changing environment, what results in the

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<sup>64</sup> See: *Oates (1972)*, *Musgrave (1959)*.

expectations that the central government will engage in the subnational provision of public goods to voters and raises the probability of provision of additional financing in the case of financial difficulties.

As it has been mentioned in the preceding section, alongside with the structure of financial institutions political factors also influence the state of budget constraints of subnational authorities in a multilevel state. For instance, the national authorities may provide financial aid to a region with the aim to obtain the support of its voters at the next elections even in spite of the possible inefficiency of such aid. In their turn, subnational authorities may influence members of the representative body by using the means available to them in order to make an impact on preferences of voters, or, in the case the political system of a federation permits it, veto its undesirable decisions.

Therefore, the analysis of specifics of the structure of financial and political institutions results in the following:

Firstly, the costs of refusal to provide additional financial aid exceed the costs of unplanned financing from the national budget and the central government finds it optimal to cover some inefficient expenditures of subnational authorities at the expense of the national budget;

Secondly, subnational authorities turn out to be interested in the developing of a financial strategy eventually resulting in provision of financial aid from the national budget.

These conditions characterize the problem of soft budget constraints. In *Rodden, Eskeland, Litvack (2003)* it is noted that fiscal decisions of subnational authorities depend not only regional governments, but also on creditors, who grant them loans, regional voters, and owners of the means of production. Under certain conditions these persons may create a mechanism similar to a market, which may ensure support of hard budget constraints and forcing the government to limit its actions to the available financial resources without padding expenditures in anticipation of support from the national authorities.

For instance, financial discipline may be maintained due to competition on the credit market. Irresponsible financial behavior of subnational authorities increases the costs of obtaining of credits and limits access of subnational authorities to financial resources. Votes of the electorate create political competition and may support opposition candidates in the case the irresponsible behavior of regional governments bring

about negative results. Market of land and mobility of the factors of production exert pressure on the political process reflecting subnational debts via market prices. At the same time, the importance of these factors should not be overestimated as concerns the limitation of the degree of softness of budget constraints of subnational authorities. For instance, subnational authorities in coalition with creditors, voters, and owners of the factors of production may shift some of their expenditures and costs associated with repayment and servicing of the debt to residents of other regions (including provision of additional financial aid from the center). Therefore, the national authorities, which are responsible for both regulation of activities of subnational authorities, and provision of them with financial resources, all the same have the decisive impact on the state of budget constraints of regions.

### 1.2.1. United States of America<sup>65</sup>

Under decentralized fiscal powers, the increased role played by subnational authorities in the ensuring of provision of the most important public goods requires that special attention should be paid to the allocation of resources of the general government across the levels of government. In *Tiebout (1956)* it is assumed that the division of powers in the sphere of taxation and provision of public goods automatically results in the creation of an efficient tax system at the subnational level, as well as in the efficient level of provision of public goods. The main conditions for such an automatic achievement of the efficient equilibrium are mobile and well informed taxpayers, absence of externalities, as well as the competition for taxpayers among subnational authorities. *Inman (2003)* in his study of the federative system of the United States of America singled out the general institutional factors limiting the freedom of fiscal decisions of subnational authorities and softening the consequences of possible dishonest behavior on their part. These institutions characterize the system with hard budget constraints and are based on the following:

1. The national government represented by nationwide elected parties and the President, which facilitates the efficient reallocation of the national wealth (ensures social equality) and at the same time prevents

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<sup>65</sup> This section is based mainly on materials from the study by *Inman (2003)*.

the use of inefficient interbudgetary transfers or granting of tax privileges to individual subnational entities.

2. A developed banking system and fully integrated market of national capital, which are able to constrain economic consequences of subnational defaults within the limits of one subnational administrative territorial entity (state).

3. A developed market of subnational bonds with informed investors facilitates the development of local public services and formation of local budgets. As a result, economic consequences of inefficient fiscal decisions of subnational authorities are borne by the residents of the respective subnational entities.

Efficient national government and banking system, markets of capital and subnational borrowings are the necessary institutional conditions for efficient allocation of resources and production of public goods. As we are going to demonstrate later, in the case of weak political and market institutions there is necessary a regulatory policy preventing the taking of inefficient fiscal decisions at the subnational level. The regulating policy should include a gradual substitution of existing inefficient mechanisms with more efficient political and market institutions. The major rules governing fiscal decision making of subnational authorities should be enforced by judicial means, be not influenced by subnational authorities, and in some cases fixed in the Constitution.

The review of the US fiscal federalism stresses the importance of institutional conditions. As it will be demonstrated later, in absence of strong political parties or strong political position of the President acting as the managers of national finances, the subnational authorities of the United States have successfully used the mechanism of inefficient interbudgetary transfers, shifted some of their costs of provision of public goods on residents of other states, inefficiently reduced the tax burden.

However, the record of federalism in the USA demonstrates that in this country the authorities have rather successfully overcome the emergence of soft budget constraints of subnational authorities. A developed banking system, which has been in existence in this country at least from 1850, the nationally integrated capital market and the bankruptcy procedures (improved recently to better protect interests of investors) have successfully minimized the negative impacts resulting from possible defaults of subnational authorities. Due to this reason,

the national authorities, although concerned with financial difficulties faced by different states, do not strive to provide support to the respective authorities, what negatively affects the expectations of subnational authorities with respect to provision of additional resources from the federal budget in the case of financial difficulties.

Historically most poor administrative units of the United States were significantly scattered in terms of territory, therefore the national government uses individual targeted transfer programs in order to control and prevent abuses relating to the allocation of resources at the local level and do not have in place a national program of interbudgetary equalization in order to transfer funds to subnational budgets. At the same time, the weakness of land markets, which are unable to control deficits of subnational budgets, is compensated by the tough federal legislation, which includes certain rules governing the formation of budgets of all levels. In the situation of existence of these strong financial and political institutions, subnational governments of the USA function under hard budget constraints.

The studies of soft budget constraints in the USA may be classified in two large groups in terms of the topics of the research:

1. Existence of export of the tax burden and excessive public spending at the subnational level (pork-barrel spending).
2. Shifting of budget deficit on other levels of government.

Let us in more detail review the record of development of interbudgetary relations in the USA from the standpoint of the degree of hardness of budget constraints of subnational authorities. Prior to the review, it should be noted that in this country recipients of financial resources from the federal budget are governments of both states and municipal entities, therefore there will be analyzed both levels of subnational authorities.

### **Export of the Tax Burden and Excessive Budgetary Expenditures of States and Municipalities (Pork-barrel Spending)**

In the course of an analysis of interbudgetary relations in the USA it should be taken into account that the US Constitution vests rather broad powers in subnational authorities. For instance, the only significant limitation of tax polices of subnational authorities in the USA is the prohibition of all forms of taxation of imports and exports of goods in a

state<sup>66</sup>. As for the rest, state governments have powers to introduce any generally accepted taxes. Due to this reason, state governments have repeatedly attempted to reduce the tax burden on state residents and shift it on residents of other states. Nevertheless, a significant constraint on the export of tax burden is the high mobility of the population: empirical studies demonstrate that in the country at large the movement of taxpayers is directed from states introducing high taxes to the states with low taxes<sup>67</sup>.

At the same time there is evidence that taxes on nonresidents have been imposed with the aim of cross subsidizing of public services rendered to state residents<sup>68</sup>. As a result, there was observed an excess of the amounts of provided public goods over the social optimum – according to conservative estimates due to the export of tax burden the excess of budgetary expenditures borne by states above the optimal level of 1970s and 1980s makes 3 to 5 cents per 1 dollar<sup>69</sup>. The main mechanism of the export of the tax burden on the state is capital taxes.

Similarly to tax powers, the US federal legislation does not impose substantial limitations on the types and amounts of budgetary expenditures of subnational authorities (the only exceptions are the prohibition to issue money and maintenance of own armed forces). As the result, not taking into account the spheres exclusively in responsibility of the federal government, state budgets finance the bulk of production of public goods. It should be noted that about 20 per cent of state expenditures for these purposes are financed at the expense of grants provided from the federal budget<sup>70</sup>. An analysis carried out in *Inman (1989)* demonstrated that an important criterion of provision of federal grants is political interests of parliament members and lobbying of interests of specific states and municipalities at the federal level, while the allocation of grants from the federal budget well fits in the map of electoral districts. According to this research, about 17 cents of each dollar of federal grants are inefficient expenditures in terms of soft budget con-

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<sup>66</sup> See: *Inman (2001)*.

<sup>67</sup> See: *Wilson (1999)*.

<sup>68</sup> See: *Ladd (1975), Kolstad, Wolak (1983)*.

<sup>69</sup> See: *Wildasin (1989), Ladd (1975)*.

<sup>70</sup> See: *Inman (2003)*.

straints and represents a form of shifting of some expenditure borne by subnational authorities on the federal level of government.

At the same time, in the USA the degree of shifting of costs of subnational authorities on higher level budgets, as it has been noted above, significantly depends on the current political situation. Thus, after inauguration of the Reagan administration the total amount of federal grants to subnational authorities declined by 20 per cent<sup>71</sup>. Therefore, in the USA there is observed a scheme of the allocation of interbudgetary transfers which is also characteristic of many other federative states: the parliament strives to increase the amount of funds allocated via grants among subnational budgets, while the executive branch puts caps on the decisions taken by the parliament<sup>72</sup>.

### **Shifting of Costs Associated with Financing of Budget Deficit of Subnational Authorities on Other Levels of Government**

In the history of federative relations in the USA there may be singled out four main episodes, basing on which an analysis of provision of support to subnational authorities facing financial difficulties should be carried out. Let us discuss these episodes in detail.

#### ***1. Crisis of States' Solvency in 1840***

In 1840, 8 US states (Arkansas, Illinois, Indiana, Louisiana, Maryland, Michigan, Mississippi, and Pennsylvania) and one territory (Florida) declared that they had difficulties to settle their debt obligations. All states applied to the federal government for financial aid, however, the federal government refused to provide any support. At that time, the costs of such a decision of the federal government were relatively low: firstly, major creditors of subnational authorities were European companies and individuals<sup>73</sup>, secondly, the bulk of the national creditors was formed by tycoons of industry and banking, not favored by the President's administration<sup>74</sup>.

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<sup>71</sup> See: *Inman (2001)*.

<sup>72</sup> See: *Arnold (1979), Inman, Fitts (1992), Stewart (1989)*.

<sup>73</sup> See: *Wallis (1998)*.

<sup>74</sup> See: *Schlesinger (1945)*.



This decision had an extremely strong impact on the whole further development of the system of fiscal federalism and subnational finances in the USA due to the following reasons:

a) The federal authorities had for the first time stiffly denied aid to subnational authorities at the time of a financial crisis. In the absence of federal support some states fully settled their obligations (Pennsylvania and Maryland), some could settle only a part of their obligations (Arkansas, Illinois, Indiana, Louisiana, and Michigan), while Mississippi and Florida defaulted on their obligations.

b) At the moment of the crisis the regulatory role played by the market of subnational bonds became clear. The states, which had settled their obligations, were soon able to return to the market of subnational borrowings without the risk addition to the interest rate. Other states either could borrow at a rate taking into account the risk premium, or (those defaulted) were denied access to this market for 20 years<sup>75</sup>.

c) Witnessing the consequences of the financial crisis and their impact on the terms of access of these states to the market of borrowings, other states had launched the process of adoption of legal instruments aimed to prevent possible defaults and there were applied balanced budget rules. At present, such rules are adopted in all states with the exception of Vermont<sup>76</sup>.

Therefore, the subnational financial crisis of 1840 resulted in the hardening of budget constraints and realization of the importance of balanced fiscal policies at the subnational level.

## ***2. Crisis of Southern States' Solvency in the 1870s***

After the defeat in the Civil War, the states supporting the Confederacy were placed under control of military commanders. The confederates were prohibited to participate in elections; therefore the parliaments of the Southern States were composed of former slaves and residents of the Northern States sent by the federal authorities to run the Southern States (carpetbaggers). Both these categories had proved to be unready to govern states. In the period after the transfer of power to newly created bodies of civil administration, the low level of

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<sup>75</sup> See: *English (1996)*.

<sup>76</sup> See: *Bohn, Inman (1996)*.

competence of civil authorities resulted in slack financial discipline in a number of Southern States and rapid accumulation of indebtedness. (Florida, Louisiana, North and South Carolina)<sup>77</sup>.

By the mid-1870s, the supporters of the Confederacy were returned voting rights and there were elected new governments, which refused to meet the obligations taken by the former authorities. This decision was taken without expectations of federal aid, but even in the case it was required, some researchers doubt if it were provided arguing that<sup>78</sup>:

First, the Congress at that time was composed of representatives of the Northern States, who disfavored the authorities of the Southern States;

Second, similarly to 1840 the majority of the creditors of the Southern States were European investors;

Third, due to the fact that there was in place the market of subnational borrowings investors voluntarily assumed risks of default of the Southern States – while in the early 1870s the interest rates of bonds issued in New York and Ohio were at 5 to 6 per cent p. a., the rate of Louisiana bonds made 10 to 15 per cent, South Carolina – 20 to 30 per cent, and North Carolina – 15 to 35 per cent<sup>79</sup>.

As a result, the next wave of crises caused by slack financial discipline and bad management of public finances at the level of states, as well as the reaction of the federal authorities to these crises, have demonstrated that the US federal government was not inclined to provide additional financial support to subnational authorities. Perhaps this fact, and the reaction of other states to the crisis (they continued to introduce the balanced budget rules, other limitations and principles of finance management) resulted in the absence of large scale solvency crises in the future; however, the situations of soft budget constraints of subnational authorities are characterized by financial crises in municipalities reviewed below.

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<sup>77</sup> See: *Ratchford (1941)*.

<sup>78</sup> See: *Ratchford (1941)*.

<sup>79</sup> See: *Ibid.*

### 3. *Municipal Defaults in 1930s*

As the motor industry developed and processes of urbanization intensified in the 1920s, in the USA there sharply increased budgetary expenditures for urban infrastructure and construction of motor roads, what resulted in growth in the amounts of borrowings made by the largest urban municipalities. At the same time, the main security for municipal borrowings was revenues from taxation of real estate, which was the principal financial resource of municipal authorities.

Since the beginning of the Great Depression in 1932, there had been observed two processes having a sharp negative effect on the state of municipal finances: a drop in the market value of real estate resulting in a fall of tax revenues, and a growth in social expenditures of the budgets, which was caused by declining household incomes. First, large municipalities attempted to refinance their debts via new borrowings, however, the economic crisis proved to be protracted, what resulted in defaults – by 1937 default was declared on the obligations of 14 per cent of counties and 12 per cent of large cities<sup>80</sup>.

This insolvency crisis had significantly differed for the previous ones. First, it was not localized in several states; second, the crisis was not caused exclusively by lack of financial discipline and existence of corruption at the local level; third, European investors did not dominate among the creditors of municipalities. Due to these reasons, the federal authorities decided to provide aid to municipalities so they could settle their overdue obligations; however this support was not provided on a large scale and was conditional: aid was provided on condition that there should be implemented a number of measures aimed at the restoration of solvency, besides, there were introduced limitations on financial autonomy of municipalities via creation of state supervisory boards, which carried out monitoring of fiscal decisions taken by municipalities. Therefore, the provided financial support was not literally additional financial aid, since the authorities receiving assistance had to bear significant costs; as a result, no serious softening of budget constraints of subnational authorities<sup>81</sup>.

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<sup>80</sup> See: *Hempel (1971)*.

<sup>81</sup> See: *O'Connell (1993)*.

In connection with the solvency crises in the 1930s, it is interesting to follow the history of the development of bankruptcy legislation in respect to municipalities in the USA. As early as 1934, the Congress discussed a law concerning bankruptcy of municipalities (the *Municipal Bankruptcy Act (MBA)*). Having been recognized as contrary to the US Constitution, the draft law was later rejected, and then approved in its amended form in 1937. Since then, MBA has been amended many times, and presently its text is incorporated as the chapter on the settlement of debts of municipalities within the bankruptcy section of the United States Code<sup>82</sup>.

The adoption, in 1937, of a federal law on bankruptcy of municipal bodies of authority provided solutions to many problems. As municipalities, in contrast to individuals or private corporations, cannot fully terminate their activity and liquidate all their property in order to satisfy the claims of their creditors, the fundamental goal of legislation on municipal bankruptcy consists in ensuring adequate protection to insolvent bodies of authority, making it possible for them to restructure their debts in such a way that they may continue to provide the population with the necessary utilities and social services.

In actual practice, the initiation of a federal bankruptcy procedure in an instance of slight financial difficulties is not desirable for municipalities, because it will inevitably damage their image and have a negative effect on their credit rating. Moreover, financial troubles contribute to the strengthening of the political oppositions, which may result in a loss of control of municipal officials over their municipalities<sup>83</sup>.

Nevertheless, from the time when the federal bankruptcy procedure was first introduced in 1937 and until 1991, a total of 452 petitions in bankruptcy were filed, in a majority of cases by district school boards and public utilities systems (power and water supply, etc.).

Municipal authorities, when filing a petition in bankruptcy in accordance with the federal law, intend to achieve two main goals:

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<sup>82</sup> Amdursky R., C.Gillette. *Municipal debt finance law: Theory and Practice*. – Boston, 1998.

<sup>83</sup> S. Dobnia. Rynok gorodskikh obligatsionnykh zaimov i ego dal'neishye perspektivy. (The market for municipal bond loans and its further prospects). // Rynok tsennykh bumag (The Securities market), 1999, No. 19 P. 58–61.

- firstly, to obtain an automatically granted suspension in the repayment of their debts for a period during which their creditors would be unable to put forth any additional claims to their municipal debtor, or to its officials, or to make claims to the municipality's accounts receivable, including taxes paid by the population;
- secondly, to take advantage of the established procedure and of the exclusive power to develop a plan of debt restructuring, whereby the interest rate on a debt may be changed, or the schedule of its repayment, or the sources of payment, or a pledge of property, or other terms of debt settlement. These rules are applied, among other things, to the liabilities in respect to municipal bonds, and in some instances, to liabilities that are not directly related to a municipality's debts but which do aggravate its financial situation, – e.g., its participation in collective agreements with municipal employees, or in annuity programs.

A municipality, when willing to resort to a bankruptcy procedure within the framework of the federal law, must obtain, or make an attempt to obtain, the consent of at least a certain majority of its creditors. At the same time, under the federal law, a municipality's creditors cannot, on their own, force it to file a petition in bankruptcy, or to submit their own plan of reorganization, or to demand that an administrator be appointed, or to make decisions as to the sale of municipal property or the redistribution of proceeds from municipal property.

Thus, the sole purpose of the federal law on bankruptcy is to make provisions as to the procedure within the framework of which municipalities may restructure their debts. Being protected by the federal law on bankruptcy, an insolvent municipality remains free to exercise its current activity, including in respect to issues related to planning and executing budget expenditures, taxation, borrowings, issue of municipal securities and operations involving municipal property.

It is believed that, since a municipality is a body of authority whose activity is based on the principles of democracy, any limitations imposed on its current activity, as well as any appointment other than with its consent, in an instance of bankruptcy, of an administrator by a federal court for purposes of disposing of the municipality's property, will represent an interference with democratic governance and can be treated as a violation of citizens' political rights.

#### ***4. Municipal Defaults in 1970s through 1980s***

In order to analyze the degree of hardness of budget constraints of subnational authorities at present, there should be carried out a comparative analysis of the reaction of higher level authorities to the financial crisis in three municipal entities – Bridgeport, Connecticut (1991), New York (1975), and Philadelphia (1990).

The most interesting case is the city of New York, which applied for the support of the federal authorities and the state government in 1975, at the moment of an acute financial crisis and massive budget deficit (the aggregate amount of the short term debt to be repaid made about one third of the yearly budget expenditures). In reaction to this appeal, the state government made an early payment of grants earmarked for the municipality (without providing additional aid) and established a special corporation to make borrowings on behalf of the municipality on security of tax revenues. The federal government at first refused to provide aid.

In spite of the reforms implemented in the municipality, which permitted to reduce budgetary expenditures and improve financial management, the level of indebtedness remained extremely high, what did not permit to refinance the debt at acceptable interest rates. Moreover, the financial crisis in New York was characterized by negative external effects reflected in a growth in interest rates on bonds issued by large US cities<sup>84</sup>. As a result, the federal government approved the granting of a loan to the city of New York at the rate 1 point above the FRS discount rate, what was almost two times below the market interest rate, at which the municipality could borrow resources on the open market. In quantitative terms, this aid was insignificant – even if to see the difference in interest rates as aid, the total amount of the aid made about 3.5 per cent of the aggregate deficit of the municipal budget. Therefore, even in the exceptional case of New York the federal government corroborated its position as concerned the limitation of the scale of unplanned financial support to subnational budgets.

The case of the town of Bridgeport is interesting by the fact that the authorities of this municipality went to the law asking to declare the town bankrupt due to high values of its obligations and current deficit.

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<sup>84</sup> See: *Smith, Booth (1985), Browne, Syron (1979)*.

In the case the town was declared insolvent, it would become possible to restructure its obligation and achieve certain lightening of the tax burden. However after an analysis of financial flows, which demonstrated positive prospects of the state of the town budget, the court ruled that the town could not be declared insolvent. On the whole, out of 15 insolvency claims made by municipalities in the period from 1980 to 1991, in only 4 cases the rulings were positive<sup>85</sup>.

Insolvency of the city of Philadelphia resulted in the provision of financial aid by the state of Pennsylvania, where the municipality was situated. This support was provided in the form of creation of a special agency (Pennsylvania Intergovernmental Cooperation Authority), which should receive a portion of tax revenues of the municipal budget, and which was authorized to make borrowings on behalf of the city. Municipal authorities bore no relation to the foundation of this body and had no their representative in the agency. Meanwhile, the main condition of provision of support from the state was the approval of budgetary decisions of municipal authorities on the part of the agency.

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Therefore, our analysis of interbudgetary relations in the USA has demonstrated that the long time tradition of fiscal federalism in this country was not to provide unplanned additional financial aid to subnational authorities in the case they encounter financial difficulties. The review of state solvency crises shows that in the modern US history there have been no precedents of provision of additional aid to states. At the same time, the specifics of the structure of the tax and budgetary systems permit subnational authorities both to shift the costs associated with the provision of public goods on residents of other regions, and receive additional financing from higher level budgets with the aim to unreasonably increase their budgetary expenditures.

Our analysis of the practices of management of municipal finances demonstrates that state governments and the federal authorities pursue less tight policies with respect to municipalities; however, the reluctance to allocate additional support is reflected, first, in the fewness of the cases of provision of such support, second, in the forms of the provision thereof (as a rule, the aid is not provided as additional grants), and, third, in condi-

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<sup>85</sup> See: *Lewis (1994)*.

tionality of additional support (such support has been always provided on condition of joint participation, what results in the fact that municipal authorities receiving aid lose some of their fiscal powers).

These observations permit to characterize the budget constraints on subnational authorities as being sufficiently hard.

### 1.2.2. Canada

The Canadian record in the area of fiscal federalism is particularly interesting from the perspective of the impact the combination of political, economic and administrative factors have on the national system interbudgetary relations<sup>86</sup>. The budget relationship between the federal government and provincial governments rest upon three basic principles<sup>87</sup>:

- 1) Since 1967 there has existed the interbudgetary equalization system according to which budget of provinces whose per capital fiscal capacity is lower than the average (i.e. the standard one which is computed basing on the data on 5 representative provinces) level are eligible for the federal equalization transfer. The transfer is allocated according to the formula set by the federal law.
- 2) All the provinces receive the Canadian Health and Social Transfer. The transfer is allocated partly in the monetary equivalent and in part – in the form of tax transfer, i.e by reducing the federal tax rates and granting the provinces with a possibility to raise rates of their own taxes on the analogous base. Formally, the transfer resources are targeted and they are aimed at generating incentives for provinces to fund their programs in the area of healthcare, higher education, provision of social aid and social services (in compliance with the 1867 Constitution, these particular of competence are fixed with provinces). However, the provincial governments de-facto enjoy a greater freedom in decision making with respect to directions of spending thus acquired funds.
- 3) In compliance with the Constitution, tax powers are split between the federation and provinces by means of distribution of tax bases and kinds of taxes that the federal and regional authorities have a

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<sup>86</sup> See the analysis of budget constraints in the conditions of the Canadian federation in: *Rodden (2000), Dillinger, Perry, Webb (1999)*.

<sup>87</sup> See: *Bird, Tassonyi (2003)*.



right to introduce. Such a distribution implies various interpretations, which results in disputes between the levels of government on the possibility of levying these or those taxes. Nowadays, the main revenues to the federal budgets are formed by those from the personal income tax, corporate profit tax, and the tax on goods and services, while the provinces' budget revenues are ensured by revenues from the personal income tax, sales tax, real estate taxation (local budgets), as well as non-tax revenues from investment, natural resources, and fees for provision of some services. Besides the tax and non-tax revenues, some provinces enjoy a greater proportion of the federal transfer.

Let us consider basic features of the institutional structure of the Canadian federalism that affect the state of budget constraints of provincial and municipal authorities.

### **Budget Constraints on the Provincial Level**

Provincial governments make decisions on attraction of borrowed funds regardless of the federal government, with roughly as much as nearly half of such resources falling on the foreign capital markets<sup>88</sup>. Hence, the provinces' budget expenditures on debt servicing and repayment find themselves dependent on the federal government's moves with respect to the exchange rate and interest rate policies, while the provinces' financial problems can affect the exchange rate and, consequently, the federal budget<sup>89</sup>. Some researchers believed that because of this particular reason, the federal budget appeared closely related to the subnational authorities' budget policies<sup>90</sup>, while the federal government's refusal of aid from the national budget in the event of financial problems is unacceptable<sup>91</sup>. On the other hand, it can be assumed that should the debt amount grows, the assessment of the subnational authorities' solvency falls, which is why costs of obtaining credits grow, which ultimately results in contraction of the subnational debt<sup>92</sup>.

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<sup>88</sup> See: *Vigneault (2003)*.

<sup>89</sup> See: *Shah (1998)*.

<sup>90</sup> See: *Harris (1993)*.

<sup>91</sup> See: *Bruce (1993)*.

<sup>92</sup> See: *Boothe (1993)*.

As long as the allocation of aid by the federal authorities to the Canadian provincial governments that face financial problems is concerned, it is necessary to refer to the financial crisis of the 1930s. At the time, two provinces – that is, Alberta and Saskatchewan encountered financial hardships. With a new government in office in Alberta, its relationship with the federal government became very tense- the federal government abolished some local statutes, while the provincial government refused to take part in some federal programs<sup>93</sup>. Such complexities were coupled with the financial crisis in the province which ultimately resulted in its 1936 default on 1/3 of its aggregate debt on the provincial bonds. By contrast, the neighboring Saskatchewan that likewise experienced the same problems at the time enjoyed the federal support – the federal government acquired the stock of the province's bonds at a price considerably greater than the market<sup>94</sup>. Alberta had been in the state of default until 1945, when the federal government provided financial aid for the sake of implementation of the Canada's public debt restructuring program and restoring the nation's solvency in the international financial markets<sup>95</sup>.

Thus, despite the fact that a combination of control on the part of election process and market constraints secures a certain match between the provinces' budget expenditures and revenues, the federal authorities' actions create the basis for softening the provinces' budget constraints. The post-World War II record of financial relationship between the federal and provincial authorities proved the trend. More specifically, in 1957, they entered in the so-called "stabilization agreement", which consequently was approved in 1967 in a form close to the contemporary one. The agreement implied the creation of a working system of interbudgetary equalization. Quintessentially, the agreement reads that should the provinces' revenues from sources accounted in the computation of equalizing transfers fall vis-à-vis the prior year, the province becomes eligible for a compensatory stabilization transfer from the federation<sup>96</sup>.

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<sup>93</sup> For more details, see: *Boothe (1995)*.

<sup>94</sup> See: *Bird, Tassonyi (2003)*.

<sup>95</sup> See: *Ascah (1998)*.

<sup>96</sup> See: *Perry (1997)*.

The first instance of the use of the right was registered in 1987, when Alberta requested a stabilization transfer to compensate for the fall of its revenues from the taxation of extraction of carbohydrates. Later, in the period of recession of the 1990s, some other provinces likewise have recourse to the right and in late 1990s the federal authorities paid some CAD 1.2 bln. in such transfers<sup>97</sup>. However, speaking of the impact compensation transfers have on the level of strictness of budget constraints, it is worthwhile noting that the process of provision of the compensation transfers cannot be called fully non-objective and discretionary, for, first, there are legal procedures of its computation basing on the method of representative tax rates and, second, this particular mechanism is envisaged mostly for financially sustainable provinces that do not receive equalization transfers, thus it is aimed at increasing the fairness of the interbudgetary equalization system for such provinces.

So, the integrity of political and market constraints for the federal and provincial authorities leads to the situation in which, despite a partial hedge of subnational budgets from insolvency by means of the system of interbudgetary equalization, overall, subnational governments pursue a sound budgetary policy. Canada has long abandoned the practice of allocation of an unforeseen complementary financial support of provinces from the federal budget (as provinces form municipalities, there no budget relations between the federal government and municipal authorities in the country). Representatives of provincial interests are not present in the legislative body and the practice of inter-provincial support is extremely loose, which results in hardening budget constraints. A sound and economic fiscal behavior forms an institutional standard amid the Canadian subnational administrators and efficient and long-term strategy of political parties at the regional and federal elections.

### **Budget Constraints on the Municipal level**

In Canada, municipalities are not subject to the federal law. They are established by the provincial authorities' decisions and operate in the conditions of a tight hierarchic control on their part and under a great

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<sup>97</sup> See: *ibid.*

transfer dependence on the provincial budgets. Meanwhile, despite the fact that the municipalities' responsibilities are strictly set, it is the mechanism of hierarchic control that blocks the formation of soft budget constraints<sup>98</sup>. In this respect, introducing strict financial criteria of municipalities' operations (the ban on the current budget deficit, centralized attraction of borrowings, restrictions of their tax powers, among other measures), provincial authorities appear more prudent than the federal government in terms of securing the financial discipline at the respective lower level. On the other hand, the current constraints on the municipalities' fiscal operations block the rise of competition between them and have an adverse impact on the efficiency of municipal finance.

It is worthwhile to begin the review of the contemporary record of provision of an extraordinary financial aid to the Canadian municipalities from the analysis of the financial crisis of the 1930s. By the time, like in the US, the urbanization processes in Canada had led to the boost in investment in the urban infrastructure. The investment was made by means of attraction of borrowed capital secured by incomes from the overvalued real estate, the prices for which collapsed after the crisis burst out. By mid 1903s the municipalities defaulted on the amount roughly accounting for 10% of the aggregate value of their debt<sup>99</sup>. While different provinces undertook various measures, as dictated by their respective territories, practically all the provinces considerably tightened the regulation of municipal authorities' financial operations (which is still in force). At the level of provinces there were established special bodies on municipal affairs that monitored municipalities' operations and bore responsibility for the implementation of anti-crisis programs. In a number of cases, the defaulted municipalities were compelled to merge with other ones for the sake of integration of their tax bases and raising additional; revenues to repay the debt<sup>100</sup>. This notwithstanding, practically in all the provinces, in the event of a municipal default the superior government's support did not imply provision of financial resources, but organization of negotiations with creditors, design of debt

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<sup>98</sup> See: *Bird, Chen (1998)*.

<sup>99</sup> See: *Buck (1949)*.

<sup>100</sup> See: *Struthers (1991)*.

restructuring schemes and enhancement of efficiency of public finance management on the municipal level<sup>101</sup>.

Thus, steered to a great extent by the municipal debt crisis of the 1930s, at the level of provinces by today there has emerged a system of regulation of municipal authorities' fiscal powers. Highly centralized, the system ensures a necessary degree of strictness of budget constraints. Despite the growing volume of municipal budget spending on infrastructure and the growth in volumes of financial aid to municipalities from the provinces' budgets, researchers have not seen recently violations of the financial discipline on the municipal level<sup>102</sup>. This became possible due to the targeted nature of transfers, with municipal authorities being agents in charge of distribution of the province's budget funds. As well, the situation is such, because municipal authorities do not have possibilities for attracting borrowings without prior consent of the province's government<sup>103</sup>.

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In all, the Canadian system of budgetary relations between different tiers of government, together with political, market and administrative factors, form the Canadian authorities' fiscal discipline both at the level of provinces and municipalities. On the one hand, due to political reasons, the provinces appear fairly independent in their decision making, while the previous experience of the federal authorities' action pattern under financial crisis today does not provide any grounds to provincial authorities, should they face financial problems, to count on their additional financial support other than the one provided for by the current law. On the other hand, there are no restrictions in the country on a provision of such a support. Though the last instances of financial crisis on the provincial level were noted relatively a long time ago – in the mid 20th century, they nonetheless resulted in the federal center providing support to provinces. However, most researchers tend to believe that the country manage to retain the necessary degree of strictness of budget constraints on the provinces level, for underlying the functioning

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<sup>101</sup> See: *Tassonyi (1994), Tassonyi (1997)*.

<sup>102</sup> See: *Bird, Chen (1998), Bird, Slack (1993)*.

<sup>103</sup> See: *Amborski (1998)*.

of the Canadian federation are formal and informal agreements that do not provide for a considerable softening of budget constraints for its provinces in the conditions of the contemporary political structure of the country.

The record of regulation of municipal finance demonstrates that after the series of municipal defaults in the 1930s the level of the municipal authorities' independence was reduced substantially, which made it practically impossible for them to seriously breach the fiscal discipline beyond the provincial governments' control.

### *1.2.3. The Federative Republic of Germany*

While exploring the background of the German federalism, D. Rodden<sup>104</sup> found that the country's "financial constitution" by itself forms a source of soft budget constraints of its subnational authorities. It derives from the federal government's critical mission – that is, to ensure uniform (and high) living standards throughout the country. To pursue this goal the government redistributes resources and incomes and guarantees an equal level of public services delivery nationwide.

The German pattern of division of fiscal and expenditure powers between the federal center, lands (aka Laender) and communities (municipal entities) determines the regions' budget sufficiency. However, the budget sufficiency to a far greater degree than due to the legal division of powers is determined resulting from the vertical and horizontal interbudgetary equalization between the Laender.

The vertical budget equalization implies two aspects: the division of tax revenues between levels of the budgetary system and provision by the federal center of financial aid to subnational budgets. The structure of the vertical distribution of taxes in Germany is stipulated in its Constitution.

The German inter-Laender horizontal equalization mechanism fixed in the Constitution and a special statute on financial equalization is to adjust the vertical distribution of taxes for the sake of reducing the remaining regional differences in per capita budget revenues. The horizontal redistribution in Germany is made by Laender with a high budget sufficiency transferring a part of their tax revenues to a special fund

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<sup>104</sup> See: *Rodden (2003)*.

whose resources are spent on provision of support to Laender with a low budget sufficiency.

Should such tax revenues prove to be insufficient to cover budget expenditures on the subnational level, the weaker, in financial terms, Laender may receive additional federal transfers and use them at their discretion. A special compensation from the federal budget is also provided in the event the federal center's certain measures entail financial problems (for instance, erection of military compounds or federal agencies' offices). By themselves, subsidies are not as interesting for a researcher as standards of redistribution of the Laender's revenues under the horizontal equalization are. While formally this mechanism is aimed at just mitigation of differences that may arise resulting from the vertical redistribution, as a result of the horizontal redistribution the weaker Laender may enjoy a greater level of revenues than a stronger one. In the circumstances, the Laender's incentives to an efficient policy that could ensure mobilization of revenues within their borders appear undermined<sup>105</sup>.

The constitutional provisions do not link the division of powers in the taxation area to the division of powers in the area of public goods delivery, thus giving a rise to the expenditure autonomy under a limited tax autonomy. In contrast with the abovementioned US and Canadian arrangements, practically all the substantial powers associated with the public goods delivery (healthcare, education, social policy) are not fixed exclusively with a sole level of power. Rather, they are dispersed among a few levels of power.

While analyzing issues of the functioning of the German federalism associated with the existence of the subnational authorities' soft budget constraints, it is worthwhile noting that Germany, as a federative state, does not have such a long background as the US or Canada. That's said, the structure of its federative system establishes grounds for the rise of the subnational authorities' soft budget constraints<sup>106</sup>. First, in view of the aforementioned peculiarities of the allocation of powers associated with the public goods delivery it is very hard to identify which

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<sup>105</sup> See: *Huber & Lichtblau (1998)*.

<sup>106</sup> See: *Rodden (1999b)* "Creating a More Perfect Union: Electoral Incentives and the Reform of Federal Systems", paper presented at the annual meeting of the Midwest Political Science Association, Chicago, IL, April 16, 1999.

tier of power is responsible for provision of a certain specific public good (or, in other words, whether there are grounds for financing these or those subnational authorities' budget expenditures at the expense of a superior budget's resources). Second, under the constrained fiscal autonomy the subnational authorities do not enjoy freedom of action with regard to selection of sources of financing of their budget expenditures. As a result, in a crisis situation, they consider it possible to apply to the federal center for an extraordinary aid either because they believe it is responsible for provision of a number of services funded from subnational budgets, or because limiting the Laender's tax autonomy, the federal center does not allow them seizing on an opportunity to mobilize budget revenues at the expense of their internal sources.

Another source of the softening the subnational authorities' budget constraints in Germany is associated with the attraction of borrowed resources by the Laender. It should be noted that the subnational authorities' autonomy in attraction of borrowed capital appears greater than their tax autonomy, with the bulk of borrowings being attracted from the bond markets which can be explained by relatively lower costs for the borrower. There is no hierarchic control in the German system of federalism which would limit the respective decisions of the subnational administrative units. The law on federative relations and its interpretation in the court of law requires maintenance of equality between the jurisdictions, precluding, at the same time, the federal center's control gears from functioning. Apart from the national capital markets, the German subnational authorities have no restrictions in attracting capital on the international markets as well as loans from the BundesBank. The fact that the federal government holds a control stake in the latter implicitly suggests the existence of a guarantee from the federal government of solving a crisis, should it arise.

Mechanisms that encourage the rise of soft budget constraints at the subnational level of government in Germany manifested themselves during the recent financial crisis in Bremen and Saarland Laender. These regions have recently been the biggest recipients of the federal financial aid (except for a special aid allocated to German eastern Laender), albeit prior to the economic crisis of the 1970 Bremen had not received equalization payments but was their sources for other Laender. However, the financial state of the noted regions deteriorated



in the 1980s, while despite a high dependence of the equalization transfers both regional governments continued to increase their budget spending and financed their budget deficit by means of borrowing.

In the circumstances, political constraints of the volume of attracted borrowings had no effect – being highly dependent on the federal government and equalizing transfers from other Laender, the Bremen and Saarland authorities enjoyed the local voters' support and accused the federal government and other regional government of failure to honor their obligations on financing the Laender with a low budget sufficiency in the frame of the interbudgetary equalization program. Furthermore, when the Saarland authorities broke the restriction imposed on the debt cap as per the Constitution of the Laend of Saarland<sup>107</sup>, they accused the federal government of underfinancing the federal Laend which had resulted in breaking the restriction<sup>108</sup>.

The financial hardships of the two lands in question had become evident by mid-1980s, which is why their authorities filed a lawsuit demanding to recognize the imperativeness of allocation of an additional financial support from the federal budget. The court verdict recognized the possibility for using complementary federal transfers to provide aid to Laender in a complex financial state, but the ruling did not contain any reference to the mandatory nature of such decisions. Such a verdict, nonetheless, enabled the Bremen and Saarland authorities to hope for the federal support and it discouraged them from seeking ways to increase the efficiency of public finance at their respective level. In parallel with that, the land authorities continued to file claims to the national Constitutional Court requesting recognition of a mandatory federal support to Laender in a crisis situation. In 1992 the Constitutional Court announced its verdict in favor of the Laender and, consequently, in 1994 Bremen and Saarland began to receive a complementary aid<sup>109</sup>.

The financial support proved to be sufficient to balance the regions' budgets, however the subsidized lands refused to undertake steps to lower the level of the debt burden and restructure their budget expendi-

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<sup>107</sup> The Constitution of Saarland read that the volume of attracted borrowings should not exceed the volume of capital expenditures of the budget of the federal *Laend*.

<sup>108</sup> See: *Rodden (2003)*.

<sup>109</sup> "Bund fordert Lander zur Mitfinanzierung auf", *Handelsblatt*, March 3, 1998.

tures. More than that, by 1998 the regional authorities had argued that the size of the complementary financial aid was insufficient due to the fall in their tax revenues over late 1990s which had not been accounted in the course of its computation<sup>110</sup>.

The above examples witness that in addition to financial costs associated to support of federal Laender in the state of financial crisis, provision of such a support can trigger more serious adverse consequences in the long run. First, the unconditional allocation of not provided by the law additional funds for the support of Bremen and Saarland not only failed to improve the situation there but as well did not cause a modification of the subsidized authorities' budget policies and implementation of much-needed reforms to boost the efficiency of the public sector's functioning. Second, the example of support of Bremen and Saarland can have an adverse effect on the other federal Laender budget policies, for they may realize that an adoption of unpopular measures in the area of public finance restructuring can be substituted by another strategy – that is demands for complementary financing from the federal budgets and shifting the costs arising due to an inefficient financial management and increase of budget expenditures on residents of other Laender.

So, the absence of control gears, the statutes and provisions of the national Constitution, as well as the court stand on the issue result in a considerable mitigation of soft budget constraints in the system of German federalism. However, as the EU member, Germany may encounter an external constraint, as an excessive budget financing of some Laender (for in addition to Bremen and Saarland, the complementary financial aid is also allocated to the eastern Laender) can result in Germany violating the Maastricht criteria<sup>111</sup>.

The review above witnesses that while implying cooperation between different levels of government in joint resolution of numerous problems and the excessive participation of the federal authorities on regulation of tax issues on the federal level on the subnational level, on the one hand, and suggesting the subnational authorities' independence in the

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<sup>110</sup> See: "Streit um Hilfen für das Saarland und Bremen", *Frankfurter Allgemeine Zeitung*, Feb. 25, 1998.

<sup>111</sup> See: *Organisation for Economic Co-operation and Development. 1998. OECD Economic Surveys, 1997–1998: Germany. Paris: OECD.*

expenditure and attraction of borrowings areas, on the other, the German system of cooperative federalism generates the possibility (if not the obligation) for provision of an extraordinary complementary financial support to the federal Laender governments. That said, soft budget constraints facing the subnational authorities not just exist but result in negative effects associated with excessive budgetary expenditures and debt accumulation.

#### 1.2.4. Norway

The Scandinavian model of fiscal federalism is far from the traditional approaches practiced by the competitive federalism<sup>112</sup> that suggests local taxation and production of public goods, mobility of voters, capital and production factors. In contrast to the decentralized economy wherein subnational units of the state form an integral part of the national sector and play the role of an independent supplier of basic socially significant public goods, the Scandinavian model of state represents the system of administrative federalism. It bears the following major features<sup>113</sup>:

- Subnational authorities are responsible for provision of services in the social security and support area, with expenditures on production of other public goods accounting for a relatively small proportion of their expenditures;
- The population's mobility is low;
- The financing of local budgets is centralized, with a clear prevalence of the central government's grants (a. 40% of revenues) and regulation of local taxation.

As a result, after delegation the respective powers, the subnational authorities appear the center's agents rather than independent bodies of power. This allows a successful maintenance of the balanced budget at all the tiers of government, as the centralized financing and financial control form the core elements of the financial discipline. Since 1979 all the subnational levels of government have used the maximum possible personal income tax rate. In the circumstances, given the absence of

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<sup>112</sup> See: *Tiebout (1956), Musgrave (1959), Oates (1972)*.

<sup>113</sup> See: *Rattso (2003)*.

the impact of the local government on the tax base, the respective revenues play the role of subsidy<sup>114</sup>.

At the beginning of every financial year the national parliament considers envisaged budget revenues of the national and subnational authorities and the amount of transfers. As well, the parliament sets the maximum personal income tax rate, within the limits of which private individuals' incomes are taxed on the local level. The subnational authorities form local budgets with account of the conditions set by the parliament, being aware, however, that the statute on local budgets reads that current and interest revenues of local budgets must be financed from the current revenues. Once finally approved by local authorities, the local budgets are subject to further approval by the superior bodies of power. If the subnational authorities have failed to observe with rule of the absence of the operational deficit, the budget approval may not happen. If, nonetheless, an operational budget deficit not stipulated in the statute arises in the process of execution of the budget, its financing can be postponed for next two years for all the municipalities and counties or for four year, providing the central government's special permission. Similarly, the local authorities' decisions on attraction borrowings likewise are subject to the central government's approval<sup>115</sup>.

Overall, the Norwegian system of federalism avoids grave challenges associated with the local authorities' budget deficit or debt, and the built-in constraints prove to be fairly effective. The financial control and procedures of formation of subnational budgets oblige one to carry out additional investment from the actual remains of his own funds. While the centralized financing coupled with the decentralized production of public goods encourages the opportunist behavior, as it will be shown below, the Norwegian system does not encounter serious problems and consequences of an indecent behavior.

Because of serious constraints imposed on the budgetary policy and attraction of borrowings, the possibility for a full-scale debt crisis on the municipal level is unlikely in the country. Nevertheless, if we consider the adverse effects produced by soft budget constraints on subnational authorities' strategic behavior for the sake of the discretionary grant,

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<sup>114</sup> See: *ibid.*

<sup>115</sup> See: *Borge (1996)*.

basing on the data on the Norwegian municipalities in the 1970, the research by *Fevolden, Sorensen (1983)* showed that high costs of their debt servicing and repayment, as a rule, caused the receipt of discretionary grants. However, along with the allocation of such grants, the central government was introducing an increasingly stricter control over their decisions and by mid-1980s eliminated the need in discretionary grants to municipalities with a complex situation associated with the debt servicing and repayment.

Another form of the Norwegian subnational authorities' strategic behavior was associated with the allocation of targeted transfers from the national budget to finance the production of specific public goods. The most typical example of such a behavior is the financing of healthcare (accounting for over 50% of the local budgets' expenditures) by means of targeted grants from the central budget. The central government declared new universal guarantees of provision of medical assistance and allocation of special transfers to local budgets to create incentives to reactivate the healthcare services delivery on the local level. That, however, has led to the opposite – seeking additional funding and accentuating the need in external financing, the local authorities vigorously began financing other kinds of public goods, which resulted in greater deficit of medical institutions, which in turn form the pretext for them to demand to increase the central financing<sup>116</sup>.

Despite this last example of budget constraints being softened in an instance of financing of medical services, on the basis of the above analysis it can be concluded that the level of toughness of budget constraints of the Norwegian subnational authorities is sufficiently high, because of the following reasons<sup>117</sup>:

- 1) As both the center and administrative units have on hand complete information of economic conditions in the frame of which the efficient functioning of the system is possible, should the subnational authorities apply to the center to help solve a local crisis by additional earmarking, the central government is fully aware of the ori-

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<sup>116</sup> For more details, see: *Carlsen (1995)*.

<sup>117</sup> For more details, see: *Borge, L-E., J. Rattso (1998a), Reforming a centralized system of local government financing: Norway, in J. Rattso (ed.), Fiscal Federalism and State-Local Finance: The Scandinavian Approach, Cheltenham: Edward Elgar.*

gins of the crisis – whether it was caused by an exogenous shock, or abuses.

- 2) The opportunist behavior of local political leaders appears extremely risky under the pre-set political system. The presence of representatives of the Ministry for Local Self-Governance in each region makes the process of negotiations on provision of an additional financial support extremely complex and overextended in time.

#### *1.2.5. China*

Decentralization of the nation's economic and budgetary policy has constituted a critical component of the Chinese reforms since 1978. The country's budgetary system comprises 5 levels of government – that is, the national one, the levels of provinces, municipalities, counties and urban governance, respectively. Let us consider the problem of soft budget constraints in the financial relationship between the center and provinces.

The problem of budget constraints in the country is further aggravated by the existing system of distribution of subsidies and loans, and the taxation system and the pricing policy. The rigidly centralized fiscal regime had been in place until 1980. At the time, the center regulated all kinds of tax and non-tax revenues, while provinces' expenditures were coordinated with and financed by the national government. In the circumstances, the provinces found themselves lacking independence in the budgetary decision-making and pursuance of their own budget policies. In 1980, the noted regime was replaced by a system of contracts between the center and provinces. The new pattern of relations suggested delegation of all the tax collection powers to the latter, while provinces were bound to transfer fixed amounts of revenues to the central budget, with the amounts being computed according to a special formula. In numerous instances, the surplus amounts over the set revenue transfer rates received by the provinces were kept, thus creating extrabudgetary funds. The rise of such funds derailed the center's control over the general government expenditures, thus enabling the sub-national authorities to freely exercise control over a huge volume of

public resources including those resulting from the national tax collection<sup>118</sup>.

In 1994, the national government introduced a new tax system which was aimed at strengthening and facilitating the introduction of macro-economic stabilization programs, ensuring regional equality and an efficient level of production of public goods. The reform objectives were<sup>119</sup>:

- 1) simplification of the tax system by decreasing the number of taxes, tax rates, and benefits;
- 2) giving a boost to budget revenues;
- 3) increase in the proportion of budget revenues to the central budget in the revenues to the consolidated budget;
- 4) transition to a more transparent and objective system of sharing budget revenues between the levels of the budget system.

Under the new system tax powers, as well as tax collection powers were split between the national and subnational authorities. The new system of sharing tax mandates, however, did not cancel the effect of the earlier concluded contracts on provinces transferring revenues to the national budget or receiving subsidies from it. It was specifically provided that should the provinces' budgets suffer losses from the introduction of the new tax system, they were eligible for compensation by means of the national government's special transfers<sup>120</sup>. Such a complex multi-channel system of distribution of tax revenues and inter-budgetary transfers considerably complicated control over subnational finance and encouraged the rise of incentives to the subnational authorities' opportunist behavior aimed at milking additional resources from the national budget.

It should also be noted that until 1995 China's budget deficit had been able to be financed from the Bank of China's loans, while since 1995 the rule of balanced budget came into effect, with only traditional instruments, including domestic and external borrowings being the only allowed means to finance the nation's budget deficit.

Speaking of the problem of the Chinese subnational authorities' budget constraints, it should be noted that due to the specificity of the

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<sup>118</sup> For more details, see: *Bahl, Wallich (1992)*.

<sup>119</sup> See: *Wang (1997)*.

<sup>120</sup> See: *Jin, Zou (2003)*.

structure of the country's economic system, the provinces' budgets earmark subsidies to public companies thus compensating them for their losses caused by the planned economy and regulated prices. In some cases, the provincial authorities carry out such subsidizing in the form of direct budget expenditures, while extension of guarantees against loans disbursed to such enterprises and provision of tax benefits form less explicit forms of subsidizing<sup>121</sup>. The public companies in turn are bound to maintain the employment level in the economy, secure provision of healthcare and educational services, and contribute to social assistance and pension plans. Once the central budget releases a transfer to a given province's budget, it takes the form of a subsidy to the enterprise<sup>122</sup>. With such a volume of subsidizing the problem of soft budget constraints becomes a pressing one both to the subnational authorities and enterprises themselves, and it takes the classical, as depicted by Y. Kornai, form.

As far as the problem of soft budget constraints facing the Chinese subnational authorities is concerned, it should be noted that the distribution of financial resources between the provinces' budgets have long been carrying out without any formal procedures, but basing on the negotiations and conciliation of the necessary volumes of financing for the next financial year<sup>123</sup>. After the beginning of reforms and the government's first attempts to introduce procedures of distribution of tax mandates and interbudgetary transfers, specifics of the planned economy and the public enterprise' need in subsidizing created barriers to hardening of the budget constraints.

In general terms, the subnational authorities responded as follows<sup>124</sup>:

- by extending their own tax base by diminishing tax payments transferred to the central budget;
- transferring resources from the budget to extrabudgetary funds and spending the public enterprises' extrabudgetary resources on provision of public goods;
- boosting the volumes of external and domestic borrowings;

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<sup>121</sup> See: *Steinfeld (1999)*.

<sup>122</sup> See: *Lall, Hofman (1995)*.

<sup>123</sup> See: *Agarwala (1992)*.

<sup>124</sup> See: *Jin, Zou (2003)*.



- extension of provision of tax benefits and creation of free economic zones.

By utilizing the noted mechanisms, the Chinese subnational authorities ensured receipt of additional funds from the central budget. In the absence of a single system of interbudgetary equalization and taking into account of the practice of identification of the volume of financial support by means of negotiations, one can argue that with account to the specificity of the country's economic system, the problem of imposition of soft budget constraints on its subnational authorities poses a very urgent challenge. Specifically, the relations between the noted authorities and public enterprises owned by them deserve a special attention – while, on the one hand, the subnational authorities exercises functions of tax authorities towards such enterprises, being their owners, on the other hand. As a result, it is fairly hard to distinguish commercial companies' funds and public finance, which forms an additional aspect of the problem of soft budget constraints in China.

#### *1.2.6. Brazil*

Brazil can be considered a developing country with one of the most decentralized public finance systems. In the mid-1990s, the country's subnational authorities delivered a. 60% of the aggregate volume of public goods funded from the consolidated budget<sup>125</sup>. In contrast to other emerging economies, the Brazilian subnational authorities have their own sources to finance the public goods delivery that fall within their purview.

Brazil is a federative state, whose fundamentals were laid in the 1988 Constitution. The budget system comprises budgets of the country's 26 states, approximately 5,000 municipalities and 1 federal district. The Constitution sets exclusive spheres of competence for the federal government and local self-governance bodies, with other spheres of competence either fall under the exclusive mandate of the states, or are attributed by the Constitution to the area of joint jurisdiction wherein the federation sets standards and general framework of the legal regulation of the goods delivery, while authorities of the states are responsible for their immediate delivery<sup>126</sup>. Meanwhile, the latter authorities enjoy a

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<sup>125</sup> See: *Ter-Minassian (1997)*.

<sup>126</sup> See: *Shah (1991)*.

broad tax autonomy: more specifically, the states' powers include the VAT collection (whose rate and base are subject to the federal authorities' competence), regulation and collection of fuel excises, real estate tax, and the collection of corporate income and personal income taxes at a rate at 5 p.p. greater than the federal one<sup>127</sup>. The system of inter-budgetary transfers plays a critical role in the interbudgetary relations. Interestingly, transfers from the federal budget are allocated both to the states and municipal entities' budgets. The transfers are granted to the subnational authorities in the form of non-targeted grants as per the Constitution. Such grants are allocated in the frame of sharing of tax revenues between budgets of different levels. They are also allocated in the form of targeted grants, particularly, under the conditions of co-financing. It must be noted that a substantial element of the Brazilian system of interbudgetary transfers is discretion grants that imply no objective methodology of their allocation – they are granted basing on results of negotiations between the states and municipalities, on the one hand, and the federal government, on the other such transfers currently account for over 20% of the overall volume of the federal financial aid to the subnational budgets). Subnational authorities also are in possession of fairly ample powers on attraction domestic and external borrowings. At this point, it should be noted that despite the federal law sets limits on the volume and structure of borrowings, they are general and, in many ways, mere recommendations, which, as it will be shown below, would lead to serious debt crises at the subnational level<sup>128</sup>.

Various researchers note that the Brazilian federative system generates all the necessary prerequisites for the rise of soft budget constraints at the subnational level<sup>129</sup>. It seems problematic to harden the states' budget constraints, at least, because of two reasons: first, the Constitution limits the possibility for the federal government to intervene in fiscal decisions made at the states' level, and, second, Brazil's government structure results in the federal government representing a coalition of regional groups of interest. The integrity of the factors makes the task of introduction of restrictions onto the states and municipal entities' opportunistic behavior a very complicated enterprise.

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<sup>127</sup> See: *Ter-Minassian (1997)*.

<sup>128</sup> See: *Dillinger, Webb (1998)*.

<sup>129</sup> See, for example, *Rodden (2003)*, *Ames (1995)*, *Oliviera (1998)*.

A special attention should be paid to the state of the market for the subnational authorities' borrowings and the influence the central government's policy exerts on it. As noted above, formally, the central government has possibilities for limiting the independence of regional governments with respect to borrowed capital, however, because of political reasons, most decisions in this particular area appear either ineffective, or they are plain recommendations. As a result, both borrowers and creditors on the domestic market are enchanted by the idea of an implicit guarantee the federal government issues under the state governments' borrowings<sup>130</sup>.

### **Subnational Debt Crises in Brazil and their Consequences**

The recent history of the Brazilian federation has demonstrated three crisis episodes associated with the public debt. The rise in the volume of the states' aggregate debt from 1% of GDP in the 1960s up to 20% in the 1990s<sup>131</sup> found itself in concomitance with a series of crises each of which resulted in a considerable softening of the subnational authorities' budget constraints and their shifting the responsibility for debt repayment to the superior level of government.

The first debt crisis at the subnational level was triggered by the international debt crisis of the 1980s. Having faced hardships while refinancing their external borrowings in the conditions of constraints imposed by the federal fixed exchange rate policy, the states found themselves unable to service their external debt. After long-lasting negotiations, by 1989 the federal authorities agreed to convert outstanding debt servicing payments and the body of the debt the states owed to external creditors into the states' debt before the federal Treasury, which, in its turn, assumed their relationship with the creditors. The second debt crisis was generated by the states' debt before the domestic creditor – that is the Federal Housing Savings Bank. Later, in 1993, the debt was likewise converted into their debt to the Federal Treasury. In both cases, the debt conversion was accompanied by its restructuring for the term of 20 years with a certain grace period<sup>132</sup>.

The above decisions by the federal government to extend support to the subnational governments have had ultimately negative effect on

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<sup>130</sup> See: *Dillinger (1997)*.

<sup>131</sup> See: *Oliviera (1998)*.

<sup>132</sup> See: *Dillinger, Webb (1998)*.

their fiscal decisions. A drastically dropped net current value of the states' obligations on the debt servicing ignited the boost of borrowings on the subnational level. The federal government's decision on the debt restructuring contributed to the fall in the state government's responsibility, for the lowered obligations enabled them to attract new borrowings, leaving for their successors the mission of coping with the consequences. Furthermore, a frequent restructuring of the regional debts solidified the creditors' belief in the federal government as a source of implicit guarantees under the states' loans<sup>133</sup>.

The consequences of the provision of an extraordinary support in the form of more aggressive borrowings at the subnational level entailed a new crisis in the mid-1990s, when a tight credit and monetary policy had resulted in a lower inflation rate, growth in real revenues to the states' budgets and the rise in interest rates in real terms. In that situation, the states faced problems with their debt servicing, with four of them, namely, So Paulo, Rio de Janeiro, Minas Gerais and Rio Grande de Sol, applying for help to the federal government. Most concerned that the states' default on their obligations would batter the domestic market, the federal government proposed a plan of restructuring, according to which the states' obligations were subject to a swap for the Federal Treasury bonds. Under the arrangement, the state obligations were transferred to the portfolio of the Central Bank which issued its bonds worth the respective amount and gave them to the states. Thus the states not only escaped a default, but even diminish their debt servicing obligations.

Along with the complexities associated with the debt servicing, the Brazilian states in mid-1990s faced the crisis fueled by their failure to honor their current budget obligations, which manifested itself in an accumulation of accounts payable before recipients of budgetary funds at the subnational level. As a result, in 1995 the federal Parliament approved a special program that implied revision of two credit lines to the states – to pay their obligations before recipients of budgetary funds and repayment of obligations on the states' short-term loans. The loans were formally disbursed against the condition of implementation of the public finance management reform, undertaking measures to contract tax arrears, etc., but the federal government had no effective levers to

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<sup>133</sup> See: *Dillinger (1997)*.

maintain control over fulfillment of the measures, and the loans were de-facto disbursed without any conditions.

All the measures ultimately resulted in an actual federalization of the subnational authorities' obligations. The three crises, including the one associated with the failure to honor current obligations before recipients of budget funds, by late 1990s the federal authorities assumed the states' debt to their creditors worth a total of USD 120 bln.<sup>134</sup> Thus, Brazil demonstrates the most evident adverse consequences of soft budget constraints – an extraordinary financial support resulted in decision making on the states' level that was dictated by expectations of such a support in the future and which manifested itself in an irresponsible expansion of borrowings and inefficient spending of budget funds.

The concentration of problems in the fiscal federalism area, as well as challenges generated by the domestic economic crisis, created incentives to reform implementation. The reform was launched between late 1990s and early 2000s<sup>135</sup>. First, the government imposes restrictions on the central bank's operations on swapping the states' obligations for its own securities. Second, the government capped the states' budget expenditures on labor compensations – failure to follow the restrictions results in cutting down the amount of transfers from the federal budget. Third, the new law granted the president with the powers to set marginal borrowing volumes on all the levels of government, the breaking of which entails the ban on attraction of domestic and external borrowings. Fourth, the new law introduced uniform requirements to accounting and reporting forms on all the levels of the budgetary system. Fifth, the judicial system and agencies were granted with the earlier absent powers to apply sanctions, should the regional and local authorities violate the budgetary law. Sixth, the current federal law unequivocally prohibits provision of an extraordinary financial aid to states in the event financial complexities arise there.

Today, there is insufficient information to assess the reform outcomes, however, basing on the analysis of the Brazil's record of inter-budgetary relations, one needs to note that an extraordinary softness of budget constraints for its subnational authorities has resulted in negative consequences for the efficiency of its budget policy and the budget

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<sup>134</sup> See: *Rodden (2003)*.

<sup>135</sup> See: *Almeida (2000)*, *Dillinger (2000)*.

system as a whole. The boost of public expenditures on the regional level and accumulation of a huge public debt on the federal one became a direct effect from the federal authorities' consistent decisions on provision of unforeseen financial support to regional authorities in the situation of financial crisis. Furthermore, Brazil's example exposes the importance of the sharing between levels of government in a federative state of both powers on the public goods delivery and regulation of taxation and responsibility for decisions made.

### *1.2.7. Argentina*

The history of development of interbudgetary relations in Argentina constitutes an interesting example of a successful implementation of economic reforms whose integral part was the budgetary reform that considerably hardened the subnational authorities' budget constraints. As long as the government structure is concerned, it should be noted that Argentina is a federative state formed by 23 provinces and the capital city of Buenos Aires. By contrast to Brazil, the political regime in the country has been far more severe – not to mention two coups d'état occurred since mid-20th century, the federal authorities several times would dismiss heads of provinces and introduced the direct presidential ruling there<sup>136</sup>.

The country's Constitution of 1853 originally provided for a possibility for the federal government to introduce just taxes on foreign trade. Some later adopted amendments allowed the federal government to introduce direct and, more recently, indirect taxes. Thus, introducing their own taxes, the country's federal government competes with provinces for revenue sources<sup>137</sup>. As revenues from the federal taxes prevail in the revenues to the consolidated budget, the principal revenue sources of provinces became revenues from shared taxes. The system of sharing tax revenues was adopted in the 1930s and in its improved form it has survived until nowadays. A part of federal taxes is distributed in the form of transfers between the provinces' budgets, providing the distribution should be approved by a federal law subject to all the prov-

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<sup>136</sup> See: *Webb (2003)*.

<sup>137</sup> See: *Murphy (1995)*.

inces' consent<sup>138</sup>. As concerns expenditure mandates, the Constitution and the national law strictly divide them between the levels of power.

Under the military junta (1976–1983), the distribution of transfers at the expense of tax sharing was carried out under the military administration's pressure. After the transition to democracy, the political situation did not allow passing law on distribution of transfers and financial resources were distributed discretionary<sup>139</sup>. With the new cabinet in office in 1987, it succeeded in passing a federal law on distributing 99% of the resources between provinces according to a uniform formula. The provinces' budgets until now have found themselves in a serious dependence on federal transfers, for the latter form as much as a. 60% of their budget revenues.

Notwithstanding the introduction of the transfer distribution formula, in the 1980s, it was inflationary tax that formed the main sources of the federal and regional authorities' revenues. Until 1991 the budget deficit on the province level was funded by means of the regional governments' borrowings from state-owned banks, with the national bank consequently accounting their debt. The federal authorities thus passed a share of their seignorage to the subnational level. In the circumstances soft budget constraints appeared characteristic both of the subnational and national authorities. By contrast to the other reviewed countries, if in trouble, the subnational authorities of Argentina counted on the federal ones' support in the form of loans from the national bank<sup>140</sup>.

By 1989 the national economy had entered the period of hyperinflation that determined the inability of the state to collect tax revenues. The start of hyperinflation compelled the government to carry out reforms to reach macroeconomic stabilization.

On reaching the macroeconomic stabilization, the provinces' debt appeared insignificantly small, as it depreciated due to hyperinflation. In parallel with that, the federal government was creating incentives to abandon the deficit financing of budget expenditures by means of condition-based transfers. As a result, in late 1990s the subnational debt showed no considerable rise, which was additionally determined by the

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<sup>138</sup> See: *Garman, Haggard, Willis (1996)*.

<sup>139</sup> See: *World Bank (1990)*.

<sup>140</sup> See: *Peralto-Ramos (1992)*.

1993 statute that banned payments by the federal government on the provinces' behalf<sup>141</sup>.

The 1994 Mexican crisis battered the state of Argentina's public finance. The fall of budget revenues on all the levels of the country's budget system led to its search of ways to finance the budget deficit by the subnational authorities (the national government was involved in the IMF and World Bank anti-crisis programs). In the first post-crisis years, the provinces responded to the fall in budget revenues by growth of borrowings that took the following forms<sup>142</sup>:

- soaring accounts payable by budget expenditures;
- executing the budget on expenditures with the use of promissory notes that were consequently accepted as an off-set of tax obligations;
- obtaining banking loans against transfers from the federal budget as collateral.

However, the federal government continued to pursue the policy aimed at hardening budget constraints. More specifically, it exercised control over the fulfillment of loan agreements with banks – the federal transfers were made payable to the provinces less their obligations on debt servicing and repayment. Such measures generated confidence in the uncompromising stance of federal government with respect to its refusal of additional support of the subnational authorities. The latter were ultimately compelled to implement reforms and undertake measures to improve the financial situation, which allowed most of them to get out of the crisis situation by 1997<sup>143</sup>.

The case of Argentina evidences that adoption of a consistent action plan in the sphere of hardening of budget constraints can be fruitful in a relatively short-term perspective. Accustomed to operate in the conditions of extremely soft budget constraints, its provincial authorities fairly quickly adjusted themselves to new, hard budget constraints. The hardening of budget constraints in the country resulted both in changes of the provincial governments' behavioral strategies and created incentives to implementation of the much-needed budget policy reforms on the subnational level.

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<sup>141</sup> See: *Sanguinetti (1999)*.

<sup>142</sup> See: *Gibson (1997)*.

<sup>143</sup> See: *Jones, Sanguinetti, Tommasi (1997)*.



### 1.2.8. Hungary

Whilst considering the record of building the system of interbudgetary relations in transitional economies, a particular attention should be paid to Hungary. In Hungary, the decentralization of the public administration and public finance system was coupled by an efficient policy on hardening the subnational authorities' budget constraints.

It is possible to single out three critical elements of the country's institutional development that determine the degree of hardness of budget constraints that face the subnational authorities:

- a) the system of interbudgetary relations;
- b) the system of political incentives and its impact on the subnational authorities' modus operandi;
- c) the system of capital markets and its role in identification of the sub-national authorities' budget constraints.

Hungary is a unitary state, with a structure of government that comprises 19 counties, 23 cities that enjoy the same status, and a. 3,200 municipalities<sup>144</sup>.

The subnational (local) governments run relatively small budget expenditures that in late 1990s accounted for some 22% of the aggregate expenditures of the nation's consolidated budget. In a compulsory mode, the following mandates were assigned to local authorities: communal services, local transport and road net, primary education, public safety, fire brigades, etc. Pre-setting standards and minimal levels of provision of local services, the national law in some areas restricts the local administrations' autonomy in decision-making on some issues of local significance<sup>145</sup>. At the same time, the local administrations try to exercise a greater number of functions vis-à-vis their compulsory set mandates, as it creates grounds to claim for an additional financial support from the central budget.

In Hungary, the main revenue source (up to 90%) of the subnational budgets is transfers the central budget allocates in the form of grants or deductions from national taxes. Among the deductions from the central government's tax revenues, the principal role in the formation of local budget revenues is being played by the deductions from the personal

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<sup>144</sup> See: *Wetzel, Papp (2003)*.

<sup>145</sup> See: *Pal-Kovacs (1998)*.

income tax and the tax on means of transportation<sup>146</sup>. Despite the existence of a limited list of local taxes, the subnational administrations fail to seize on all the opportunities for introduction of local taxes, as the national tax rates appear relatively high. In conjunction with this, political costs of introduction of new taxes, particularly due to their negligible revenues, considerably overweight benefits from their introduction. Given that, the local administrations enjoyed the opportunity to collect relatively high budget revenues from sales and lease of municipal properties and considered it more rational to exploit their political resources to ensure a greater volume of grants from the federal budget, rather than to boost their own tax revenues<sup>147</sup>.

The central government's grants that account for some 70% of local budget revenues comprise the following instruments<sup>148</sup>:

- standard-rated grants allocated according to a formula and basing on a set of standards of financing of budget services and provided on the targeted basis;
- targeted grants allocated from both the central government's budget (in the centralized manner) and those of individual agencies;
- investment grants aimed at financing capital investments on the subnational level and assigned on the basis of open tenders;
- grants to cover deficit of local budgets that are aimed at supporting local budgets, should their budget obligations considerably exceed budget revenues.

The bulk of the grants is formed by standard-rated ones, however, a part of transfers and particularly grants designated for coverage of the budget deficit considerably soften the municipalities' budget constraints and can affect the behavior of both their recipients and all the subnational authorities. As evidenced by research, local authorities build their behavioral strategy in such a way, so that while increasing their obligations or refusing to undertake measures on mobilization of budget revenues, to shift the financial responsibility for such decisions onto the central budget resources<sup>149</sup>.

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<sup>146</sup> See: *Fox (1998)*.

<sup>147</sup> See: *Davey, Peteri (1998)*.

<sup>148</sup> See: *Fox (1998)*.

<sup>149</sup> See: *World Bank (1999b)*.

While discussing the regulation of the Hungarian subnational authorities' borrowings, it should be noted that the national law contains a number of restrictions on the marginal volume of borrowings. However, it is the law on municipal bankruptcy that is far more pivotal for the state of the subnational authorities' budget constraints. The law lays the full responsibility for a possible default on attracted borrowings on the local authorities. Since its enactment in 1995, the level of newly attracted by local authorities borrowings fell twice<sup>150</sup>.

The law generated two main effects:

First, the introduced restrictions on attraction of borrowings computed exclusively in relation to the municipalities' own funds create incentives for local authorities to mobilize their own tax revenues, which for some municipalities is associated with great costs and in some cases entails the strengthening of public control over municipal finance and refusal of new borrowings<sup>151</sup>.

Second, a strict procedure of bankruptcy stipulated in the law evidences that in the event of default, the municipal authorities hold responsible for paying off the outstanding debt<sup>152</sup>, which can take two forms:

- the national authorities can help them in their negotiations on the debt restructuring in the event the local administration agrees to implement a municipal finance restructuring program and debt repayment under an external supervision;
- in the event of refusal, the creditors' claims are satisfied at the expense of sales of the municipal entity's assets.

The practice of municipal defaults in the aftermath of the enforcement of the law showed that the bankruptcy cases were successfully settled without the national authorities' financial interventions, which has led to a further hardening of the budget constraints<sup>153</sup>.

As long as political factors are concerned, it is worthwhile noting that like in many transitional countries; Hungary saw its political system change together with the economic transformation. The existence of a great number of small subjects of public administration, the local ad-

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<sup>150</sup> See: *Polackova Bixi, Papp, Schick (1999)*.

<sup>151</sup> See: *Wetzel, Papp (2003)*.

<sup>152</sup> See: *Inman (1999)*.

<sup>153</sup> See: *Wetzel, Papp (2003)*.

ministrations' mandates set by the law but not containing politically important functions do not allow them to exert a substantial political influence on the central government, which lowers the probability of an extraordinary additional support from the national budget in the event they encounter financial hardships on their respective level. In addition, the identification of main characteristics of the system of interbudgetary relations falls within the purview of the national government and Parliament, while representatives of local administrations do not contribute to the process.

Thus, the Hungarian practice of fiscal federalism displays mechanisms of hardening budget constraints in a transitional economy. Whilst passing laws on an early stage of decentralization, the national government provided for sanctions to follow after local administrations' excessive expenditures or assuming excessive obligations. Getting back to the aforementioned three elements of the formation of the system of budget constraints, it should be noted that:

- a) such a system does not generate incentives to harden budget constraints – the existence of ineffective grants aimed at financing a budget deficit, the absence of a link between taxation on the local level and provision of local public goods contributes to the local authorities developing the behavioral strategy aimed at milking the national budget for additional resources;
- b) the Hungarian country-specific political system, by contrast, helps promote harder budget constraints, as a great number of small municipalities with limited powers appear incapable to exercise pressure on the national government for the sake of receiving additional financial support in the event financial problems arise;
- c) a regulation of the market for subnational borrowings leads to establishment of hard constraints with respect to attraction of borrowed funds.

It should be noted that notwithstanding the fact that the system of interbudgetary relations generates incentives to form soft budget constraints, bankruptcy procedures of municipal authorities do not help shape expectations of provision of a national support in the event of crisis. At this point, both the formal presence of tight procedures in the law and their enforcement appear especially important. As the national government delegated a considerable part of its mandate with respect

to decision making in the municipal bankruptcy area to the third party – that is, the judicial system and external managers, the successful implementation of the Hungarian law highlights the importance of establishment of functioning basic institutions (an independent judicial system in particular) for the hardening of budget constraints of subnational authorities.

### *1.2.9. Ukraine*

An important characteristic of transitional economies is a low degree of decentralization of public governance in the conditions of the changing financial and economic culture, and macroeconomic and political system. At this point, it should be noted that the efficiency of the decentralization process suggests the existence of institutional conditions of its implementation – for instance, the subnational authorities' fiscal autonomy and their responsibility for provision of public goods to others. Regretfully, at the early stages of the transition from the planned economy to the market economic system not all the institutions can be established in a short period of time, which in many instances determines the softening of the subnational authorities' budget constraints.

In addition to the central government, the structure of the Ukrainian government (given that the country is a unitary state) comprises 27 regions, 490 districts, 447 municipalities and a great number of villages and settlements. The size of the Ukrainian subnational budgets is impressive – in late 1990s, their expenditures accounted for some 14.5% of the nation's GDP, or 38.1% of its consolidated budget<sup>154</sup>. Today, Ukraine has no budget deficit on the subnational level, but the absence of the budget deficit arises in the event of the cash-based accounting. If one compares the budget obligations inclusive of accounts payable to recipients of budget funds the subnational budget deficit would make up a greater amount, as the bulk of accounts payable is concentrated on the subnational level.

The Ukrainian government so far has been unsuccessful with utilizing mechanisms of hardening budget constraints. O'Connell, Wetzel (2003) emphasizes an unclear division of responsibility and expenditures between the levels of government. The uncertainty in the area of interbudgetary relations concerns both the division of the responsibility

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<sup>154</sup> See: *Government Financial Statistics, Washington: IMF, 2003.*

for social goods and services and the allocation of executive and legislative functions. The decentralized government's budgets are regulated by the Law on local government and other statutes, including the Law on the budget system and tax system, the Law on local fees and duties, among others. A special tax sharing and the amount of equalization transfers are approved by the annual Law on the state budget.

Some provisions that regulate the distribution of public goods are stipulated in the Constitution. For example, its certain articles guarantee a free pre-university education and free medical services delivery. However, the local authorities have not been always in possession of financial resources necessary to ensure the declared level of public goods. This leads to debt accumulation, mostly in the form of wage arrears to the public sector employees and pensioners. Private individuals and companies continue to operate on the assumption that the central government will cover local debts. Such expectations are not groundless due to political costs associated with wage and pension arrears.

The poor demarcation of expenditure mandates between levels of the budget system exemplified by Ukraine appears characteristic of the post-Soviet zone on the whole. While the national authorities, on the one hand, are keen to delegate responsibility for provision of basic public goods to lower levels of a budget system, they are equally anxious to retain their powers on regulation the provision of public goods on the other hand. In Ukraine, the actual division of expenditure powers is the result of negotiations and a long-standing practice. However, the country has seen the spread of the practice of delegating powers from one level of government to another without allocation of financing<sup>155</sup>.

It should be noted the Ukrainian national law delegates to the subnational level powers on organization of provision of critical socially significant public services that have great positive externalities – that is, education, healthcare, etc. Such a practice by itself entails the softening of the subnational authorities' budget constraints. On the one hand, they are bound to exercise the delegated mandate, while on the other, being aware that a regular provision of the services is extremely important to the national authorities, regions and municipalities can refer to the lack of own resources and demand for additional financing from the superior budget.

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<sup>155</sup> See: *O'Connell, Wetzel (2003)*.

Whilst considering the system of assignment of tax revenues between levels of government, it should be noted that the bulk of the subnational authorities' tax revenues (a. 80%) is formed by deductions from shared taxes, with deductions rates being differentiated depending on a given region or municipality in the absence of any formal methodology of differentiation. Roughly as much as 15% of tax revenues are accrued to the subnational budgets in the form of fixed tax revenues, while the rest of them is formed by their own tax revenues. Up to 20% of the Ukrainian subnational administrative-territorial entities' budget revenues is formed by transfers from the central budget, while the law does not provide for a formal methodology of their assignment<sup>156</sup>.

It is notable that the Ukrainian system of interbudgetary relations forms a sufficient number of prerequisites for the softening of regions and municipalities' budget constraints:

- the existence of unfunded mandates;
- an unclear division of powers;
- the unpredictable system of interbudgetary transfers.

The above integrity of factors puts the subnational authorities in a position in which their spending is carried out in an assumption that any of their expenditures would be covered by resources from the federal budget, with the volume of such financing being the fruit of their negotiations with the national authorities. Under such arrangements, the system of budgets provision as well does not generate incentives for the subnational authorities' responsible behavior, as an increment in revenues to any budget may be withdrawn through diminishing of the transfer or the tax revenues deduction rate.

The analysis of the system of political structure of the pattern of relationship between the levels of government has shown that a clear assignment of mandates between levels of government forms a critical condition of hard budget constraints. Meanwhile, the Ukrainian system of interbudgetary relations suggests two types of the government bodies' responsibility: namely, first, vertical responsibility under which a lower level of executive power is under control of a superior one up to the level of the presidential power, and, second, the responsibility before voters that they raise their voice against elected bodies of power.

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<sup>156</sup> See: *O'Connell, Wetzel (2003)*.

In consideration of the system of regulation of borrowings, one should pay attention to the fact that the process of attraction of borrowed capital by the subnational administrative-territorial entities is not accompanied by requirements to securing such borrowings, nor there is a demand for auditing the borrower's state of finance or disclosure of information before creditors. Plus, there is no law on the legal regulation of the situation in the event the subnational authority's insolvency or bankruptcy.

The 1998 default of the city of Odessa on its municipal bonds can be regarded as an event that exposed systemic problems in the area of regulation of subnational borrowings and capital markets in Ukraine. The city technically defaulted on its bonds with 1-year maturity, which had been issued to finance a number of the city infrastructure objects. After the announcement of the default, the city declared that it would honor its obligations only to the group of creditors represented by private individuals. It should be noted that the terms of the bonded loan had raised concerns from the very beginning, as the forecasted expenditures on the debt servicing and repayment as of the moment of issuance accounted for 50% of the city's planned budget revenues and were to be repaid within a short period of time.

The national authorities opted for refraining from interference with the situation and kept themselves away from an additional support to the city budget. However, the city authorities argued that the default was generated by unforeseen circumstances caused by the dismissal of the city mayor by the central government. The new administration ultimately refused to recognize obligations on the loan, while the previous one argued that had it stayed in power, the debt would have been paid. The loose judicial system and the absence of legal regulation of the market for borrowings did not allow solving the problem in the court of law.

Thus, from the formal perspective, the subnational level had no complementary financial support to the city in financial trouble, however it cannot be argued that the city administration suffered considerable costs due to the failure to honor its obligations. It can also be argued that the loose institutional environment created by the national law, as well as the absence of legal regulation, actually allowed the indebted city not to honor its obligations. Such steps of the national au-



thorities can be regarded as a latent form of support that considerably softens budget constraints on lower levels of government.

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The above analysis of specifics of the country-specific examples of structure of the fiscal federalism system from the perspective of the state of their subnational authorities' budget constraints allows to note that the hardness or softness of the noted budget constraints is determined by the degree of decentralization of public governance. The effects from decentralization – such as the rise in efficiency of an economy as a whole, division of responsibility between levels of government, improvement of the quality of public administration, depend on social, cultural and institutional specifics of a given country and, in some cases, its regions.

Given the advantages of decentralization, the fiscal and political division of responsibility between levels of government is pregnant with the problem of soft budget constraints. That is why analysis of lessons of decentralization appears extremely important, as it can provide the idea of main characteristics of the system of inerbudgetary relations necessary to ensure this or that outcome from the perspective of subnational budget constraints.

The analysis of the structure of the country-specific fiscal federalism systems highlights on two substantially different mechanisms of ensuring the financial discipline, that is, market and hierarchic ones. The system of relationship between different levels of government can function both in the absence of the hierarchic mechanism, if such a system is characterized by the absence of negative externalities, when the central government's powers are limited, or it does not exercise pressure on its lower levels while focusing on the national policy objectives. Thus, the US record of federalism shows that the federal government has been fairly successful in resisting the challenge of soft budget constraints. The US history and past experiences facilitate the federal government's mission of hardening budget constraints, for with account of the history of the central government's behavior, subnational authorities have no serious expectations of an additional support from the budget. In addition, the US states are mostly fairly large, which helps solve the task of division of responsibilities and allocation of financial support.

Whilst considering overseas experiences in the fiscal federalism area, one should take into account the difference between such a state, as USA that emerged historically as a federation and has never been a centralized state, and, for instance, Hungary where attempts to introduce decentralization were made after a long phase of centralized governance. Another example shows that, in contrast to the US, the German Constitution mirrors the federal government's great ambitions – the main statutes guarantee provision of an equal level of social guarantees in all the constituent members of the federation. The legal provisions by themselves generate motivations for opportunist behavior of the subnational authorities. In addition to the Constitution, the existence of small jurisdictions with a limited tax autonomy compels the federal government to take part in forming their budgets, thus inveigling it into solving the subnational authorities' financial challenges.

Norway, as a highly centralized state, has rather successfully resisted the challenge of stiff budget constraints by regulating and controlling its subnational authorities' fiscal decisions. However, like the US practice, the Scandinavian model of hierarchy often appears unacceptable to other nations.

As evidenced by many countries' experiences, involved in the regulation of fiscal decisions on the subnational levels, the central government should thus help promote market mechanisms and refrain from resisting the growth of their role. Should the center lack political power, the critical role in regulating the national financial flows should be assigned to institutional mechanisms of hardening budget constraints, such as the market control over borrowings, in particular, and the attraction of loans by the authorities. The US states and Canadian provinces exemplify the cases of ensuring the financial discipline by means of market mechanisms. They enjoy a wide-scale fiscal autonomy and a great part of their budgets is formed by taxation, with the tax base and tax rates being set on the local level. Furthermore, the US and Canadian subnational authorities attract additional resources on the competitive capital markets and they are not restricted by the federal center. However, the existence of financial problems diminishes the assessment of the local authorities' solvency, which entails greater costs of attraction of borrowed resources, which in turn forms a natural constraint to attraction of new borrowings. Meanwhile, both the govern-

ment bodies and voters have practically no expectations of support from the national budget, as historically, such expectations have not ever been justified, while mechanisms of receiving an additional financing appear extremely risky, from the political perspective.

Hence, the subnational authorities' financial discipline can be ensured by market mechanisms only providing creditors, residents and owners of capital are confident that the center does not hold responsibility for the local authorities' financial decisions. The overseas experiences show that the formation of the idea of the functioning of the interbudgetary relations system in the event of a financial crisis is a long process with ambiguous results. Thus, many US states voluntarily assumes a number of constraints in the budget policy area, which do not allow the emergence of serious financial complexities that would require an external interference. However, the assumption of such constraints was caused primarily by the pressure on the part of voters and creditors in the course of a long practice of financial management, and not by the center's legal requirements or a policy aimed at hardening the budget constraints.

That is why, while considering the Canadian or the US experiences, one should take into account the fact that originally, prior to the formation of a single federative state, the provinces and states had been administrative jurisdictions that enjoyed the fiscal autonomy in full. By contrast, established by their initiative, the federal government found its powers delegated by its constituent members substantially limited. In most countries worldwide, the decentralization processes took an opposite path – that is, the central government delegating its powers to subnational authorities. This predetermines both a different structure of allocation of powers and different relations between the levels of government.

More specifically, the constitutionally fixed allocation of tax and expenditure obligations in such federations as the US and Canada displays a great difference from an analogous structure in newly decentralized states. Thus in the countries that underwent decentralization processes in late 20th century the division of expenditure and revenue powers was made in accordance with both requirements of economic efficiency and the concept of social state – the refusal of a serious decentralization of taxation powers, the central government maintaining

powers in the area of regulation of standards of provision of critical social services, the spreading of the practice of spheres of joint competence, and abroad use of various kinds of interbudgetary transfers. By contrast, in the “old” federations, the spheres of responsibility both in the area of public goods provision and the one of taxation have been defined strictly, while their modification is a very labor-consuming process that often require amending a constitution.

Thus, due to the above structure of assignment of expenditure and revenue powers, decentralized states are often characterized by a vertical financial imbalance, when at the national level there exists a surplus of state revenue over state expenditure (without financial support), while at the subnational level there is a surplus of expenditure over revenue. This, in its turn, blocks an efficient functioning of the market mechanism for the establishment of necessary constraints. This occurs because the existence of the vertical imbalance of the budget system for creditors, voters and authorities themselves (providing the authorities have a behavioral strategy of their own) can mean that a superior government holds responsibility for the provision of subnational budgets with revenues and, consequently, that it is a guarantor of consequences of fiscal decisions made at the subnational level.

However, the above considerations do not mean that all countries with the decentralized budget system a priori appear less efficient from the perspective of budget constraints of their subnational authorities vis-à-vis the historical federations represented by the US and Canada. On the one hand, the structure of assignment of tax and expenditure powers in the countries forms a source of an additional inefficiency, while on the other, the countries with newly decentralized budget systems adverse effects form an unclear allocation of powers and the vertical imbalance of the budget system may be remedied by means of a sound financial policy of their national authorities.

Thus, the above analysis shows that the vertical imbalance of the budget system does not automatically entail the rise of soft budget constraints. In Norway and Hungary, for example, where interbudgetary transfers form a major source of formation of subnational budgets, the subnational authorities’ budget constraints are effectively hardened by pursuing a responsible policy on the national level and establishing a mechanism of hierarchic control over the regions. By contrast, the ab-

sence of the mechanism and existence of the vertical imbalance, together with free conditions of receipt of credits by subnational authorities result in soft budget constraints of the subnational authorities, as it happened in Ukraine, Brazil and Argentina.

The analysis of international experiences of regulation of interbudgetary relations demonstrates that given other conditions being equal, the imbalanced (vertically or horizontally) budget system encourages a vigorous use of interbudgetary transfers for the sake of interbudgetary regulation. If so, as noted above, the subnational authorities' dependence on transfers can generate expectations of provision of an extraordinary support, should they face budgetary problems. However an inter-regional redistribution of resources by the central government and a high dependence of subnational budgets on transfers by themselves do not mean the existence of soft budget constraints. Foreign experiences show that clearly defined and predictable procedures of receipt of transfers do not have an adverse impact on an economy as a whole. Should transfers appear conditioned by strictly stipulated in the law reasons and providing they are not subject of political bargaining, there exist fewer expectations of an additional financing out of the national budget.

To exemplify the statement, one can cite the aforementioned German fiscal federalism model that rests upon strict procedures of receipt of interbudgetary transfers. However, the constitutional provision implies that among the federal authorities' guarantees there is the pledge to support equal minimum living standards throughout the country, particularly by providing a financial support. In the court, such a provision was interpreted as the federal government's responsibility to earmark an additional financial aid to the constituent members of the federation, should they face budget problems within their respective territory, regardless of what were the reasons behind the problems. Ukraine exemplifies the case of political bargains that affect allocation of transfers, for without procedures of distribution of resources of the national budget between regions, the amounts of transfers have been subject of manipulations. Analogously, discretionary transfers and political deals in Brazil have undermined fundamentals of the financial discipline on all the tiers of government, while in China, bilateral deals between local authorities and the central government under the country-specific pat-

tern of “fiscal agreements” likewise entailed the problem of soft budget constraints.

As evidenced by the above examples, the efficient functioning of market mechanism is in many ways dependent on the political structure of a state. In the event the subnational authorities are incapable of curbing unemployment and financing arrears on public goods, they can exercise pressure via their representatives in legislature. If the latter’s decisions rest upon results of a multilateral bargaining, the acuteness of the problem of soft budget constraints would not fall, as exemplified by the Brazilian political system. In Brazil, the central government constitutes a coalition of entities of interest<sup>6</sup>, and their majority passes decisions on support to subnational authorities. This can be mitigated and counterbalanced by an articulated stance of the country’s president and a party behind him.

The degree of hardness of budget constraints does not exclusively depend on the national authorities’ tough policy in the interbudgetary relations area – it is equally dependent on their measures in the area of control over the subnational authorities’ operations, as in Hungary, for example. In the country, at the initial stage of transition, local authorities operated under the constantly growing budget deficit. In some municipalities it evolved into the financial crisis and, being in need of aid from the national budget, their authorities pressed the central government thus compelling it to introduce hard constraints in the area of subnational budget expenditures and borrowings. Nowadays, the national finance ministry executes the supervision over the formation of local budgets and exercises the ex ante control over their expenditures<sup>157</sup>.

The case of the Scandinavian federalism is analogous to the Hungarian fiscal reform outcome – that is, the local authorities found themselves strongly dependent on transfers, while the center hardens

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<sup>157</sup> It should be noted that such control undoubtedly constitute a measure that constrains the subnational authorities’ fiscal independence, thus does not allowing them to fully capitalize on advantages offered by the decentralized budgetary system. However, as evidenced by the record of fiscal decentralization, in the case of the vertically imbalanced budget system and providing the existence of the nationwide social guarantees and other institutional specifics of the budget system, it is the existence of hierarchic control that can effectively resist the subnational authorities’ opportunist behavior in the conditions of softening their budget constraints generated by such a scheme of the structure of interbudgetary relations.

budget constraints by setting procedures of decision-making in the fiscal area at the subnational level. However, the local authorities enjoy some freedom with respect to regulation of budget revenues, but the central government exercise regulation of their budget policies. While the problem of soft budget constraints has not been finally resolved in the model frame, the central government has successfully eliminated its acute forms of its manifestation.

With all its indisputable advantages, the existence of the central government's control over budget policy derails efficiency of the market mechanism of hardening budget constraints. As a guarantor for local authorities, the central government exert an implicit influence on the creditors and voters' reaction to the subnational authorities' fiscal decisions. The control of a superior tier of government limits the subnational authorities' autonomy, thus devaluing decentralization benefits. For instance, as evidenced by the above analysis, in all the cases of centralized regulation of the budget policy, the subnational authorities' incentives to improving the quality of public goods delivery were lowering. By contrast, some nations (Norway and Argentina in particular) have successfully combined the hierarchic and market mechanisms. For instance, the center's control was maintained in concomitance with the requirement to fully disclose information and conduct of auditing, which helped creditors and voters assess the local authorities' performance. Such regulations and restrictions of receiving borrowed capital forced the local authorities to boost their tax revenues and control the public goods delivery costs. From the perspective of combination of the mechanisms, the central government's actions should involve regulations and administrative procedures, thus encouraging creditors, voters or other market agents to monitor the subnational authorities fiscal decisions.

Thus, the above analysis of the overseas backgrounds of interbudgetary relations from the perspective of the level of hardness of the subnational authorities' budget constraints allows conclusions as follows:

1. Hard budget constraints for subnational authorities can be secured in two ways: by imposing market constraints on the subnational authorities' fiscal behavior and by means of hierarchic control mechanisms. The application of either mechanism depends on many reasons: the federations established through integration of

independent states or provinces prefer market mechanisms, while the states wherein decentralization processes have been launched relatively recently find it more efficient to employ control mechanisms or their combination with hierarchic control mechanisms.

2. The hardening of budget constraints in the absence of a strict control over the subnational authorities' budget policies is determined mostly by the previous record of relationship between the national and subnational budgets in the period of financial hardships, rather than the legislative base. The hard budget constraints facing the US and Canadian subnational authorities to a significant degree were caused by a long history of declining a direct financial support to the subnational authorities. In contrast, the Brazil's record shows that in the case of regional representation in the legislative bodies even a formal approval of hard principles of financial relations between the national and subnational authorities may not lead to harder budget constraints, as such a decision may be modified in the future.
3. Ensuring the subnational authorities' financial compliance poses one of the most critical problems that arise under decentralization of a budget system. Creating market constraints for the subnational authorities' opportunist behavior is a time-consuming enterprise, which is why any decentralization (particularly in the conditions of vertical imbalances characteristic of most contemporary states with a multilevel budget structure) should be accompanied by, first, introduction of strict procedures of allocation of financial resources between subnational budgets, and, second, introduction of procedures of attraction of borrowed resources.

In light of the above, a special attention should be paid to such a source of borrowings as the accumulation by budgets of accounts payable. In contrast to attraction of resources on capital markets, the accumulation of accounts payable takes place beyond the framework of established procedures. The subnational authorities are keen to accumulate accounts payable particularly in the area of financing the kinds of public goods the responsibility for the regulation and provision of which fully or in part falls on the national authorities. Given other conditions being equal, this increases the probability of provision of an additional financial support aimed at liquidation of accounts payable.



1. The authorities' behavior in the period of financial crisis appears a critical indicator of their intentions to harden budget constraints on all the levels of the budgetary system. The national government's intent to harden budget constraints does not necessarily manifest itself in an ultimate refusal of provision a support to the subnational authorities. An essential element of the hardening of budget constraints is pursuance such a policy which would allow shifting costs of decisions on expansion of the public goods delivery through the expansion of borrowings on the authorities that make such decisions. To exemplify the above, suffice it to cite the US record of supporting municipalities – the US federal administration provided support to municipal authorities against their embarking on a number of painful measures in the area of reforming the municipal finance management system.
2. Given other conditions being equal, decentralization should be accompanied by the transfer of the responsibility for the respective fiscal decisions onto the subnational authorities. The example of Ukraine and China whose subnational authorities play the role of agents of the national authorities in terms of the public goods delivery evidences that retaining instruments of interbudgetary regulation characteristic of the unitary state (or, de-facto, the estimate-based financing of subnational authorities) entails the risk of making ungrounded decisions in the area of public goods delivery.
3. The composition of the political system of power in a country seriously affects the state of budget constraints. The integrity of the political system, the absence of coalitional groups and mechanisms of hierarchic bargaining over allocation of resources between government bodies helps the government to resist the subnational authorities' opportunist behavior.
4. In addition to the conclusion of the necessity of decentralization being coupled with the introduction of efficient mechanisms of hierarchic control over the subnational authorities' performance in the fiscal area, it should be noted that simple mechanisms of fiscal hierarchy – that is, centralized allocation of borrowed funds (without attracting bank loans and borrowings on the open market), capped loans, control over expenditure decisions, among others, are not applicable to large, as well as multilevel federations. The

presence of a great number of influential subnational administrative-territorial jurisdictions formed by a great number of independent lower-level ones, not only lowers possibilities for setting universal constraints for all the subnational entities, but complicates a complete shifting of responsibility for fiscal decisions onto the subnational level, as decisions made by authorities at a yet lower level can contradict those of subnational authorities of an intermediate level. Political influence of large jurisdictions on the decision-making process at the central level, the general national idea of undesirability of financial crises in large and very populated regions considerably complicates pursuance of a consistent policy aimed at hardening budget constraints.

## **2. A Theoretic Analysis of Soft Budget Constraints for Regional Authorities in Russia**

This chapter deals with the problem's basic outlines, the prerequisites and structures of the models of soft budget constraints for regional authorities, as well as demonstrates the results of an analysis of different models of the behaviors of the federal center and regional authorities, and the conditions for and the consequences of the emergence of soft budget constraints.

### **2.1. The Prerequisites for the Emergence of Soft Budget Constraints for Subnational Authorities in the Russian Federation**

#### *The System of Interbudgetary Relations in Russia prior to the Year 2000*

In several of our studies, the development of the Russian fiscal federalism system in the 1990s was discussed in detail<sup>158</sup>. It should be noted that the development of the system of interbudgetary relations was progressing against the backdrop of the collapsing administrative system of the Soviet era, which had been characterized by a rigid unitary budget hierarchy.

The reforms of the early 1990s, generally directed toward the decentralization of existing relations, resulted in the creation of such a system of distribution of powers between the levels of state authority, reflected in the Constitution, under which the federal authorities still had numerous opportunities for influencing the exact content of the powers enjoyed by the federal, regional and local authorities.

The resulting flexibility of the federative system had, as its consequence, the effects that were clearly conflicting. On the one hand, there existed unreasonably favorable conditions for some of the Federation's subjects in terms of taxes and budget, and on the other, resulting from

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<sup>158</sup> See, e.g., *Ekonomika perekhodnogo perioda (Ocherki ekonomicheskoi politiki post-kommunisticheskoi Rossii, 1998–2002) (The economy in transition (Overviews of the economic policy of post-communist Russia, 1998–2002))*. – M.: Delo, 2003, pp. 231–272.

the refusal to dramatically lower budget expenditures; a considerable portion of budgetary liabilities was shifted onto regional and local budgets. On the one hand, there had been laid the foundations of a tax system consisting of federal, regional and local taxes, while on the other, the budgetary system as it had emerged was making it possible to regularly redistribute cash flows between the budgets of different levels by means of imposing tax rules for the redistribution of tax revenues and financial assistance. On the one hand, federal legislation was ensuring a formal budgetary independence of subnational authorities, and on the other, numerous violations of the federal budget and tax legislation were occurring in some subjects of the Federation, often resulting in a disruption of the country's single economic space.

As a consequence, the contradictions inherent in the new budgetary organization resulted in the lack of responsibility of subnational authorities for providing social benefits to the population. Firstly, a substantial percentage of the budget liabilities delegated to the subnational level was in the form of federal mandates, that is, the federal authorities maintained their powers to regulate the quantitative parameters of granting social benefits. Secondly, the absence of formal rules for distributing revenues between the budgetary system's levels, coupled with the availability of opportunities for negotiating additional funding from the federal authorities, was not contributing to the creation of rigid budget constraints or incentives for improving the efficiency of the system for granting social benefits at the regional and local levels.

Meanwhile, this course of events was largely due to the realities existing in the early 1990s. When analyzing the then existing system of tax and budget relations between the levels of state authority, it is necessary to bear in mind that the Russian budgetary system had for a long time been a component of the highly centralized budgetary system of the Soviet Union, whose national economy was characterized by an extremely high degree of GDP redistribution through the state budget, which resulted in an intensive inter-territorial redistribution of budget resources in face of virtually complete absence of any autonomy of subnational authorities (especially those within the RSFSR), both in terms of taxation and in terms of regulating the amounts of social bene-

fits and determining the level of budget expenditures<sup>159</sup>. Accordingly, the essence of interbudgetary relations was to coordinate the budgets with the bodies of authority of a higher level, in order for them to be subsequently approved, as well as to coordinate the distribution of revenues between the budgets and / or the amount of subsidies to be received.

The main obstacle in the way of the successful development of federative relations became the lack of will to implement any fundamental budget reform, which became apparent in the 1990s. The overall volume of spending obligations of the budgets of all levels was obviously higher than the budgetary system's capacities in terms of revenues. A substantial portion of its spending obligations existed in the form of non-financed federal mandates, that is, they were imposed, by federal laws, on subnational authorities, without any corresponding sources of financing having been determined. This situation, when the necessary amount of expenditures to be borne by subnational authorities was being established by the federal authorities, resulted in lowering responsibility for budget-related decisions on the part of regional and local authorities. When spending obligations were in excess of revenue capacities, the formalized methodology for distributing financial assistance, formally introduced in 1994, was not achieving its goals, because while interbudgetary transfers were being distributed, the most important factor for the regions was the possibility to coordinate the initial parameters – primarily in the sphere of spending obligations subject to financing – with the federal authorities.

Resulting was a system of interbudgetary relations as it had emerged by the late 1990s, formally based on the constitutionally consolidated principles of autonomy of regional and local authorities within the spheres of their competence (including in respect of the issues of tax and budget policies). However, in actual practice this system was, for one thing, extraordinarily centralized, which was reflected in the relations between the federal authorities and those regions that were heavily dependent upon the resources coming from the federal budget, and for another, the powers in respect of those subjects of the Federa-

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<sup>159</sup> Sinelnikov-Muryliov S. G. *Buidzhetnyi krizis v Rossii: 1985–1995 gody*. (The budget crisis in Russia: 1985–1995). – M.: Evrasia, 1995.

tion, primarily, that had high budget sufficiency were decentralized to an unjustifiable degree.

As for the preconditions for the emergence of the problem of soft budget constraints existing at that time, it can be suggested that, in view of the lack not only of any formalized rules for distributing resources among regional budgets, but also, and quite often, of an approved law on the federal budget as of the beginning of a financial year, this problem was extremely acute. The existence of accumulated accounts payable in the budget sphere, as well as the distribution of budget loans, subventions and subsidies without any system whatsoever, were influencing quite negatively the degree of responsibility of subnational authorities for efficient provision of social benefits.

### ***The Main Reforms in the Sphere of Fiscal Federalism in the Years 1999–2004***

Speaking of the measures implemented in the period since the year 1999 that could influence to a certain extent the status of regional authorities in terms of budget constraints, it should be noted that the first legislative measures aimed at improving interbudgetary relations were taken as early as during the preparation of the draft law on the 1999 federal budget. These measures took the form, predominantly, of attempts to make a transition to a new methodology for distributing the resources of the Federal Fund for the Financial Support to the Regions (FFFSR), as well as of a redistribution of tax revenues between the federal and regional budgets (in 1999, the redistribution of revenues from the value added tax began to be shifted toward the federal budget, whereto from 1 April onward in that year, 85% of the said tax revenues were transferred, or by 10 percent points more than prior to that date).

The new methodology for distributing transfers (or dotations aimed at the equalization of minimum budget sufficiency) was based on a fundamentally new approach – that of equalizing the tax capacities of the Federation's subjects with due regard to their expenditure requirements. The goal of developing a new methodology was to envisage that the main portion of the transfers be distinguished in proportion to the average per capita deviation of the tax capacities of the Federation's subjects from the country's average, with the index of interregional differentiation in the volumes and the cost of expenditures on regional social benefits across the Russian Federation to be taken into account. In

this connection, the new approach implied that the initial data on the revenues and expenditures of regional budgets were no more to be coordinated with the regions, and instead were to be based on the data in statistic reports openly published by the Goskomstat, the Ministry on Taxes and Levies, the Ministry of Finance, and other government departments.

In absence of an appropriate political situation that could have favored a reduction in non-financed federal mandates, a solution to the problem represented by the need to coordinate the absolute figures of forecasted expenditures and revenues in a coming year's regional budgets was finally found (it should be remembered that it was this problem which prevented the transfer distribution mechanism, introduced in 1994, from efficient functioning). It was decided that the amount of transfers due to the regions was to be based on relative indices demonstrating the ratios of expenditure requirements, costs of social benefits, and tax capacities. In other words, the new methodology was based on the assumption that the federal budget's resources should be allocated not in order to cover the requirements for additional expenditures (calculated in absolute indices), but in proportion to a certain calculated value characterizing the intensity of the need for financial assistance, as compared to the country's average.

With this purpose in mind, the following notions were introduced into the process of computing the amounts of financial assistance:

- "budget expenditure index" reflecting the interregional differentiations in the cost and volume of the budgetary services being rendered, based on indirect factors determining the needs for specific types of social benefits in different regions, that are associated with interregional differences in the population's age structures, as well as in geographic and climatic conditions, etc.;
- "tax potential index", reflecting the interregional ratios of potential tax revenues of regional budgets, with due regard to the sectoral structure of the value added generated in a given region, on condition that the country's average tax burden (or effective tax rate) is applied.

It should be admitted that the Government has succeeded in finding an efficient form of interaction with representatives of the regions' legislative authorities and other bodies of power, for otherwise the reform in question would be impossible to implement, or its

in question would be impossible to implement, or its implementation would be exceptionally difficult. The problem represented by the need to alter, when necessary, the amounts of financial assistance calculated on the basis of the declared principles while a draft law on the federal budget is being considered by parliament (which is not forbidden by existing legislation), was solved by means of establishing a standing task force consisting of representatives of the State Duma, the Council of the Federation, the Government, the RF President's Administration, and various ministries and departments. After the decisions in question have been approved at the task force's level, the proposals put forth by the Ministry of Finance are then approved by the Federal Assembly in a more peaceful atmosphere and without substantial changes.

The coming in force, from 1 January 2000, of the Budgetary Code of the Russian Federation resulted in a somewhat better organization of the body of federal budgetary legislation; however, from the point of view of interbudgetary relations the new legislative act did not result in any fundamental changes in their regulation. Thus, as of the moment of its coming in force the Budgetary Code did not contain any provisions as to the proportional distribution of tax revenues between the bodies of authority of different levels (they, as before, were to be approved by several different legislative acts, among which the laws on a next year's federal budget, the laws on specific taxes, and other laws should be mentioned). Also, the Code failed to consolidate the principles of the interaction between different levels of state authority in respect to the financing of the powers being delegated, the distribution of financial assistance, and other significant components of the tax-budget federalism system.

Chapter 16 of the Budgetary Code, entitled "Interbudgetary Relations", in effect almost entirely dealt with one aspect of interbudgetary relations – that of financial assistance provided to the lower levels of the budgetary system, as well as with the ways of determining the general principles of interaction between budgets of different levels. At the same time, the Budgetary Code, as well as the previously existing legislation, did not outline any transparent mechanisms for determining the procedures for interaction between bodies of authority and administration on issues of financing their spending liabilities. The Chapter "Interbudgetary Relations" contained no provisions determining the princi-



ples for distributing interbudgetary transfers based on formal and transparent criteria, as it had been envisaged by the Concept of Reforming Interbudgetary Relations<sup>160</sup>. Article 135, stating the general principles for distributing subsidies designed to equalize the budget sufficiency of the Federation's subjects, has never been enacted, because it envisaged that the amounts of financial assistance to be allocated were to be determined on the basis of financial expenditure norms and the minimum social standards established by the State. Instead, the law on the enactment of the Budgetary Code stated that the procedure of granting and calculating the said expenditures was to be determined by the law on the federal budget for a coming financial year.

This situation existed due to a number of different causes. Firstly, by the moment when the Budgetary Code was being considered by the State Duma (1997–1998), no single concept of reforms in the budget federalism sphere had been developed, which could have been offered in the form of a draft law. Secondly, any radical reforming of interbudgetary relations by means of introducing amendments to the Budgetary Code during the year preceding the coming in force of the Budgetary Code, which would have involved the abandonment of non-financed mandates, transition to long-term consolidation of the distribution of tax revenues, and formalization of the distribution of interbudgetary transfers, was unadvisable both for political reasons (in view of the approaching elections) and for some other reasons as well, among which the future tax reform can be pointed out, which in itself was a serious step on the way toward improving the efficiency of interbudgetary relations.

The changed political situation in 2000 made it possible to start dealing with the problem represented by the existing differences in the budgetary status of the Federation's subjects. As already mentioned earlier, in the early 1990s, for several reasons, the agreements concerning the division of matters of jurisdiction between the federal authorities and the Federation's subjects were concluded, which in some instances envisaged special terms for distributing tax revenues between the federal and regional budgets; and by the years 1999–2000

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<sup>160</sup> See The Concept of Reforming Interbudgetary Relations in the Russian Federation in 1999–2001 (approved by Decree of the RF Government of 30.07.1998 No. 862).

these terms had come to contradict the principles for revenue distribution established by federal budget and tax legislations.

Due to the enactment, in 1999, of Federal Law No. 119-FZ “On the principles and procedure for delimitating matters of jurisdiction and powers between the bodies of state authority of the Russian Federation and the bodies of state authority of subjects of the Russian Federation”, the problem of the contradictory nature of certain provisions included in the agreements concerning the division of matters of jurisdiction between the RF bodies of state authority and the bodies of state authority of RF subjects has become far less important than before. According to Item 1 of Article 3 of this Law, “federal constitutional laws and federal laws, as well as constitutions, charters, laws and other normative legal acts of RF subjects, treaties and agreements shall not transfer, exclude or otherwise distribute the matters of RF jurisdiction and matters of joint jurisdiction established by the RF Constitution”. In this connection, in accordance with Article 32 of this Law, “the treaties and agreements, which had been in force on the Russian Federation’s territory prior to its coming in force, shall be brought in conformity with this Federal Law within three years from the day of its coming in force” (Item 2). The said three-year period expired in 2002, while the federal authorities had taken no steps in order to amend the terms of the concluded treaties and agreements, therefore the said provisions in those treaties and agreements became null and void automatically.

However, in respect to some subjects of the Federation, certain measures were implemented with the purpose of compensating for the losses incurred as a result of the expiry of agreements concerning the division of powers and matters of jurisdiction. In particular, the most favorable terms in respect to regional budgets were present in the budget agreements annexed to the treaties with the Republics of Tatarstan and Bashkortostan – the regions which, in the early 1990s, represented the greatest threat to the Russian Federation’s integrity. In order to compensate for the losses of revenues suffered by the budgets of those regions, substantial resources have been allocated from the federal budget from the year 2001 onward in the form of federal target programs for regional development (for example, in the law on the 2004 federal budget, the allocation of an amount in excess of 11 billion roubles (or 0.06% of GDP) to those regions was envisaged).

In the summer of 2003, within the framework of the reform aimed at dividing powers and matters of jurisdiction (for more details, see below), the State Duma approved, and the President signed Federal Law No. 95-FZ "On making amendments to the Federal Law "On the general principles of the organization of the legislative (representative) and executive bodies of state authority of subjects of the Russian Federation". This law envisages that a new procedure for concluding agreements concerning the division of powers and matters of jurisdiction be introduced. In particular, in Article 26.7 of the new version of the Law "On the general principles ..." it is stated that agreements between the federal and regional authorities concerning the division of powers, which are to establish principles of the division of powers that differ from the principles thereof established by federal legislation, can be concluded only in those instances when such agreements are necessitated by the specific economic and geographic features of a given subject of the Russian Federation. In this connection, for an agreement concerning the division of powers to come in force, it is mandatory for it to be approved in the form of a federal law, whereas the period of such an agreement cannot exceed ten years.

In addition to the growing equalization of subjects of the Russian Federation in the budget sphere, which resulted from agreements concerning the division of powers and matters of jurisdiction, during the period under study (the second phase of the reform of interbudgetary relations) the principles for distributing transfers from the FFSR continued to be further improved. In 2000 the amounts of transfers for the first time were calculated entirely on the basis of a new methodology, with a minimum impact of various transitional provisions taking into account the payments of financial assistance and other indices pertaining to the previous years.

An important event in the second phase of the reform of interbudgetary relations was the attempt, in the law on the 2001 federal budget, to provide a solution to the problem of non-financed federal mandates: thus, the Compensation Fund was established as part of the federal budget, the subventions and subsidies from which were initially allocated to finance the expenditures of regional budgets on the child support benefits to citizens granted by the State, as well as the expenditures associated with granting the privileges envisaged by the Federal

Law “On state support to disabled persons in the Russian Federation”. The immediate reason for creating the Compensation Fund became the centralization, in the federal budget, of revenues from the value added tax (in 1999–2000, only 85% of the value added tax collected on the territory of each of the Federation’s subjects was transferred to the federal budget, and from the year 2001 onward, alongside the enactment of Chapter 21 of the Tax Code, the transition to the transfers in full of the VAT revenues to the federal budget was completed).

The choice of the said two federal mandates (initially, it had been planned that the expenditures of the budgets of the Federation’s subjects on implementing the Law “On the veterans” also be included in this list) was conditioned by two circumstances: firstly, federal legislation directly stated that the transferred benefits and privileges be paid, and did not allow regional authorities to accumulate arrears of these items of budget expenditures (in those regions where arrears of child support benefits did exist, the legal suits of the recipients of these benefits against regional authorities were always satisfied), and secondly, the expenditures on financing these benefits and privileges constitute the main portion of the direct expenditures in the budgets of the Federation’s subjects allocated to the execution of the federal mandates, as envisaged by federal legislation.

In 2002 the policy of switching over federal mandates to financing through targeted financial assistance from the Compensation Fund was continued. From that year onward, subventions from the Compensation Fund are allocated to the implementation of the Law of the Russian Federation “On the status of Heroes of the Soviet Union, Heroes of the Russian Federation and Holders of all classes of the Order of Labor Glory”, as well as subsidies to the compensation for the cost of utilities and communications services to military personnel, the personnel of the militia, the internal security bodies, the tax police, and customs officials; subsidies to compensate for the costs of utilities, communications services, urban and suburban public transportation fares to citizens who had suffered the radiation impact resulting from the disasters on Chernobyl Nuclear Power Plant, the Industrial Amalgamation “Maiak” and nuclear tests at Semipalatinsk Testing Area; also, the subvention to the implementation of the Law of the Russian Federation “On rehabilitation of victims of political repressions”. However, the main bulk (or 88%) of the

Compensation Fund's resources was constituted by subsidies and subventions intended for the implementation of the Law "On social protection of disabled persons..." and the financing of child support benefits.

It should be noted that the resources of the Compensation Fund are distributed between the budgets of the Federation's subjects in the form of two types of financial assistance – subventions (as subventions, the compensations for the payments of child support benefits are allocated) and subsidies (as subsidies, the funds needed for implementing the Federal Law "On social protection of disabled persons in the Russian Federation" are allocated). The fundamental difference between these two types of targeted financial assistance is associated with the mechanism for utilizing the funds received by the budgets of the Federation's subjects: in accordance with the Budgetary Code, subventions are budget funds allocated to a budget of another level within the Russian Federation's budget system, or to a juridical person gratis or on an irrevocable basis for the execution of certain target expenditures, while subsidies are budget funds transferred to a budget of another level within the Russian Federation's budget system, or to a physical or juridical person on the conditions of shared funding of target expenditures. That is, the Federation's subjects allocate the resources received from the Compensation Fund in full to the payment of state benefits to citizens with children at a base level, while utilizing their own resources only for increasing the amounts of benefits above the base level. However, the resources distributed in the form of subsidies from the Compensation Fund are transferred to the recipients for joint financing of their own budget expenditures on the implementation of the Law "On social protection of disabled persons in the Russian Federation"; there also exist sources of financing for such expenditures other than the Compensation Fund. Thus, the resources of the Compensation Fund compensate in full for the budget expenditures of the Federation's subjects allocated to the payment of state benefits to citizens with children, and in part – for the implementation of the Federal Law "On social protection of disabled persons in the Russian Federation".

At the same time, despite the creation of the Compensation Fund, in the year 2001 one could not speak of a complete resolution of the problem associated with non-financed federal mandates. Strictly speaking, the principle of financing in full of the expenditures of regional and local

budgets resulting from the decisions made by the federal authorities has been complied with only in respect to only one federal mandate – that of child support benefits. All the other expenditures, even those declared as being financed from the Compensation Fund, were subject to financing by means of subsidies, that is, the expenditures on the implementation of the corresponding federal laws were covered less than in full. In this connection, the issue concerning one of the largest federal spending mandates – that of the unified tariff scale for payment of labor of workers of the budget sphere – still had not become properly regulated. The transfer of resources to regional budgets for financing the regularly increased wages and salaries in the budget sphere in accordance with upward indices was effectuated on the basis of discretionary decisions of the Ministry of Finance and the Government, often in the form of budget loans and / or prolongation of such loans.

For one thing, such a situation is unacceptable in a state whose government has declared that subnational budgets are to be independent. For another, this situation arose due to a number of objective circumstances. Firstly, the adoption, by the federal authorities, of the obligations to finance all the federal spending mandates established by legislation, required that substantial expenditures were to be allocated for these purposes (the total volume of non-financed mandates was estimated, as of the late 1990s, as being equal to more than 15% of GDP<sup>161</sup>, while the overall volume of financial assistance to regional budgets, according to the results of the year 2004 (or to 2.4% of GDP), as reported by the Ministry of Finance, amounted to approximately 340 billion roubles), which was higher than the actual capacities of the federal budget even when tax revenues are rather highly centralized. Secondly, there existed no mechanisms for estimating and financing spending mandates. Obviously, in the event the federal budget assumed the obligations to finance spending mandates, it was necessary to implement a system for estimating the amount of the expenditures in subnational budgets necessary for financing the spending mandates, checking the

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<sup>161</sup> See “Analiz urovnia zhizni i differentsiatsii dokhodov v regionakh Rossii pri razrabotke adresnykh program sotsial'noi pomoshchi naseleniiu” (“An analysis of the living standards and differentiation of incomes in Russia’s regions while developing targeted programs of social aid to the population”). – M.: Konsortsium po voprosam prikladnykh ekonomicheskikh issledovaniy (The Consortium on Issues of Applied Studies in Economics), 2001.

targeted character of the allocated resources (the then existing system of financing transport fares and utilities costs was making it difficult to single out the expenditures allocated to social privileges), and to generally determine the principles for the interactions between budgets of different levels pertaining to the fulfillment of their obligations within the framework of spending mandates.

In 2004, within the framework of the activity of the commission for the division of powers, a decision was made that the system spending mandates should be abolished to a maximum possible degree. Resulting was the decision that produced a strong response in Russia's society – the adoption, in 2004, of legislation aimed at the liquidation of non-backed mandated (the so-called “monetization of privileges”), which was closely associated with the later development of interbudget relations from the year 2005 onward. For this purpose, 155 existing laws concerning privileges were amended. Besides, the 41<sup>st</sup> law was abolished, that had declared the establishment of privileges which had never been financed in actual practice.

From 1 January 2005, money subsidies were to replace the right to a free use of the city and suburban transport, free supply of medications and free spa treatment. All privileged persons were subdivided into the federal and regional categories, that is, those citizens whose privileges were to be determined by the federal authorities and to be financed, accordingly, from the federal budget, and those whose privileges and the financing thereof were to be the prerogative of regional authorities. At the same time, in order to soften the potential negative effects of the reform, in the 2005 federal budget law, considerable resources from the fund for co-financing of social expenditures were earmarked for the assistance to the Federation's subjects in their financing of their obligations to privileged persons. Thus, 12.7 billion roubles were allocated to the social support of the aforesaid categories of citizens, or 55 % of the fund for co-financing of social expenditures. As for the fund's size, it was dramatically increased, as compared to its size in 2004 (from 6 to 23 billion roubles)<sup>162</sup>.

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<sup>162</sup> For more details, see I. Trunin, A. Katamadze, V. Nazarov. *Mezhbiudzhethnye otnosheniia i subnatsional'nye finansy (Interbudget relations and subnational finances) / "Rossiiskaia ekonomika v 2004 godu: tendentsii i perspektivy" (Russian Economy: Trends and Prospects)*. – M.: IET, 2005, pp. 75–146, [www.iet.ru](http://www.iet.ru).

While speaking of a general estimation of the system of distributing federal financial assistance between the budgets of the Federation's subjects as it had developed by 2005 it should be noted that the reforms that had been implemented failed to produce any fundamental changes in the system of distributing financial resources, although they did create the necessary preconditions for such changes. The most formalized part of financial assistance – the dotations from the Federal Fund for the Financial Support of the Regions – remains, as before, not the sole channel for non-target (equalizing) support from the federal center to the Russian regions. Beside the FFFSR's resources, the federal budgets' current expenditures are being covered also by other dotations, by the funds being transferred within the framework of mutual settlements, and by federal budget loans (which are formally reimbursable, but with no restrictions on the period of extension of such loans established by existing legislation). The formalization and objectification of the processes of distributing the main types of federal financial support to the regions must be carried out simultaneously with the reduction of the funds being transferred through non-formalized channels. It is noteworthy that while shortly after the 1998 financial crisis the share of the funds being distributed on a non-formalized basis became dramatically reduced, from the year 2001 onward this index has been gradually going up.

All the other forms of financial support, as well as the budget loans to cover cash gaps, which were performing a similar function, were developed and distributed without any distinctly defined methodological procedures (with the exception of a small part of the dotations to support the measures designed to ensure a proper balance of the budgets of the Federation's subjects).

A characteristic feature of the year 2003, since it was the year when the elections to the State Duma took place, became amendments to the law on the federal budget, which were approved in July and November<sup>163</sup> and resulted in a very dramatic redistribution of financial resources in favor of certain territories, as compared to the initially approved budget plan. After the November amendments, the law on the

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<sup>163</sup> See Federal Law No. 121-FZ of 7 July 2003 "On making amendments to the FL "On the 2003 federal budget" and Federal Law No. 150-FZ of 11 November 2003 "On making amendments to the FL "On the 2003 federal budget".

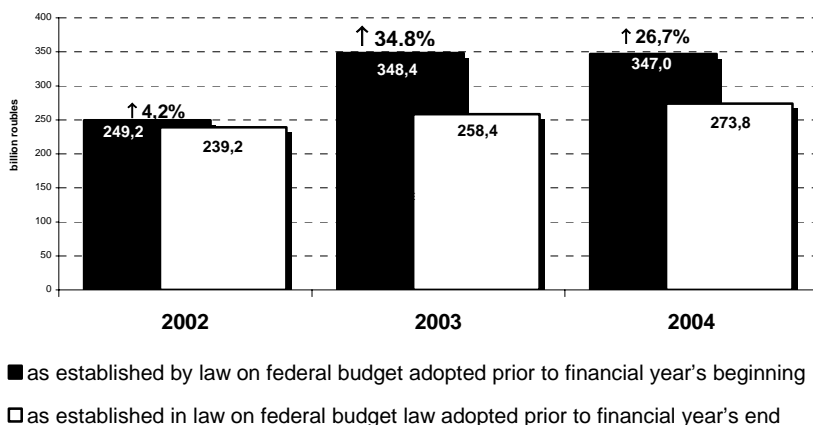


2003 federal budget envisaged that 80 billion roubles more was to be transferred to the federation's subjects on a reimbursable basis (or by 30% more than it had been intended in accordance with the law's wording as it had been approved in late 2002. It should be noted that such amendments have become routine practice in the last three years, which raises certain doubts as to the efficiency of the reforming undertaken in the sphere of redistribution of financial assistance to the regions.

The problem associated with the annual revision of the budget law and the increases in the amounts of money to be transferred to the regional budgets consists not only in the fact that the amounts additionally allocated are not distributable in accordance with the formalized procedure on which the preparation of the law on the federal budget for each year is based. The annually increased amount of financial assistance, as compared to the initially declared amounts, as well as the lack of preliminarily known rules for distributing these additional funds, result in considerably softened budget constraints for subnational authorities. If regional authorities expect in advance that the financial resources allocated to the regions are going to be increased, in absence of any formal rules for their distribution, this will produce a negative effect on the efficiency of the provision of public benefits on their respective territories. In particular, if regional authorities assume that, when distributing additional financial assistance, the federal authorities will be guided not by objective indices of a region's tax capacities and expenditure requirements, as when distributing the transfers from the Federal Fund for the Financial Support of the Regions, but by such indices of their needs as arrears of wages and salaries, accumulated accounts payable in the housing and utilities sectors, this is not going to promote appropriate measures designed to improve the efficiency of budget expenditures and implement reform in the public sector.

In 2004, this practice continued. Throughout the year, legislative acts concerning amendments to be made to the law on the federal budget were adopted for allocating the additional revenues received by the federal budget, including with the purpose of increasing the expenditures under the financial assistance items. *Fig. 1* demonstrates the data that reveal the difference between the volumes of financial assistance to the regions as established by the law on the federal budget,

which was adopted by parliament and signed by the President shortly before the financial year's beginning, and the volumes of financial assistance as stated in the law on the federal budget being in force as of the end of the financial year, that is, with taking in account all the amendments introduced to that law during the year.



*Fig. 1.* Growth in the amount of financial assistance to the regions, as established in the budget law adopted prior to a financial year's end, in comparison with the amount established by the law on the federal budget adopted prior to the financial year's beginning

*Source:* Laws on the 2002, 2003 and 2004 federal budgets, in different versions, and the authors' calculations.

As is seen from *Fig. 2*, in the years 2003 and 2004 there was a substantial growth in additional financial funds allocated in excess of the volumes envisaged in the initial versions of the laws on the federal budget. While the law on the 2002 federal budget envisioned, in late 2002, that the amount to be allocated in excess of the volumes approved for the distribution among the Federation's subjects prior to the financial year's beginning was to be only by 4.2% larger than initially stated, by the results of the year 2003 this index went up to 34.8%, and by the results of 2004 – to 26.7% of the amount envisaged in the law on the federal budget.

Several circumstances were responsible for the emergence of this phenomenon. Firstly, the quality of financial planning could have been insufficient, and so at a year's beginning the regions' financial needs were not assessed in full. Secondly, it is quite probable that the federal authorities were deliberately leaving considerable financial resources at their own disposal, to be distributed during a financial year among those regions which were in need of additional funding due to certain economic and (or) political reasons. Thirdly, this situation arose because the federal budget's revenues and expenditures were planned on the basis of a conservative forecast of the external economic situation, while favorable developments on the international raw materials markets resulted in considerable surplus revenues, a part of which was then distributed between the regions in the form of financial assistance.

No matter what its potential causes might be (it is most likely that all the three assumptions are true), the existing situation creates very negative incentives for regional authorities in their development and pursuit of an efficient budget policy. The situation when the federal authorities, while allocating financial resources, do not comply with their own previously declared principles and provide additional assistance to regions with financial troubles, leads to the conclusion that the problem of soft budget constraints in Russia's budgetary system is not losing its prominence.

In actual practice this means that several types of negative effects can be seen in a situation when regional authorities have every reason to expect additional financial assistance, in excess of that initially declared.

Firstly, regional authorities may take increased risks both when implementing budget programs and when making borrowings.

Secondly, high probability of receiving additional financing makes it possible for regional authorities to take additional obligations in the form of accounts payable, as well as to abstain from implementing measures designed to improve the efficiency of a region's budget expenditures.

Thirdly, knowing from previous years' experience a tentative set of indices, on the basis of which the federal authorities are going to distribute additional financial assistance between regions, regional authorities may influence these indices' values (e. g., a region's level of

accounts payable, arrears of salaries and wages in the budget sector, budgetary institutions' arrears of payments for utilities, etc.). As a result, the decision to grant additional financial assistance, which, at a first glance, may seem beneficial to a region's population, may lead to consequences of a negative effect not only for the populations of specific regions, but for the whole nation as well (from the point of view of its public finance). In this connection, the probability of such effects increases if additional financial assistance is granted repeatedly.

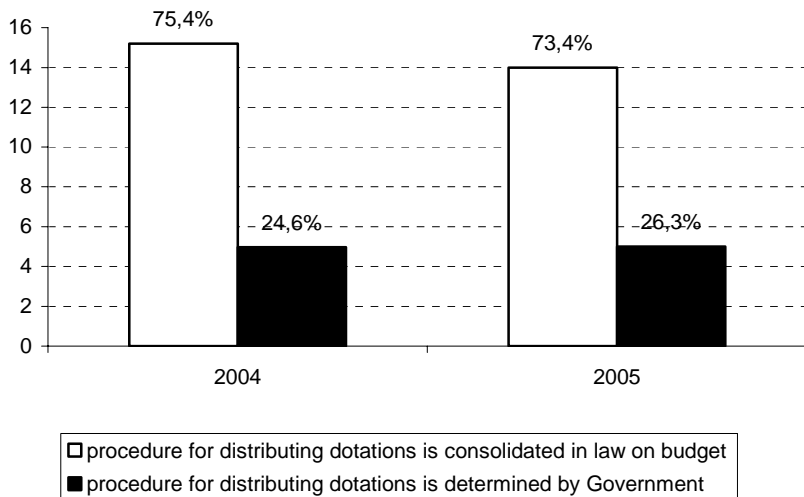
The factors contributing to soft budget constraints for Russian regional authorities are not limited only to the increasing of the total volume of financial assistance envisaged by the law on the federal budget. The volume of financial resources, the total amount of which is declared prior to the beginning of a financial year, is still very high; however, the powers of decision-making concerning a specific methodology to be applied in their distribution are delegated to the government, which makes these decisions in the course of a financial year. As a result, regional authorities have no information whatever as to how specific funds are going to be distributed, which creates stimuli for the imposition of soft budget constraints, as well as for regional authorities to make efforts for increasing the amount of additional financial assistance.

Thus, in 2004, approximately 25% of the funds allocated to the equalizing dotations to the regional budgets was distributed on the basis of documents other than the law on the federal budget: the dotations to the budgets of the Federation's subjects to support the measures aimed at achieving well-balanced budgets of RF subjects in the amount in excess of 15 billion roubles (or 0.09% of GDP) were distributed in accordance with Annex 36 to the law on the federal budget, while the procedure for and the amounts of the dotations to the budgets of RF subjects to support the measures aimed at achieving well-balanced budgets of subjects of the Russian in the amount of 4.965 billion roubles (or one-third of the amount specified above) were determined by the Government of the Russian Federation.

The creation of such reserves, the procedure for the use of which is not clearly determined at a financial year's beginning, may have a negative impact also on the fiscal behavior of regional authorities (in the form of attempts to receive the as yet undistributed financial resources of the

center, instead of optimizing the use of their own financial resources), as well as on the control of the distribution and utilization of these funds.

The same practice persists in the year 2005. *Fig. 2* demonstrates the changing amounts of dotations aimed at stabilizing the regional budgets, based on the methodology established for the distribution of these funds and as determined by the Government.



*Fig. 2.* The changing volumes and percentages of dotations for stabilizing the regional budgets, distributed as established by the distribution methodology and as determined by the Government (billion roubles)

*Source:* Ministry of Finance of the Russian Federation, and the authors' calculations.

As is seen from the data in *Fig. 2*, both the share and volume of dotations to the regional budgets, the procedure for which is determined by the Government, were significant in 2004, as well as in 2005. The share of these funds constitutes approximately one-fourth of the total volume of dotations to support a proper balance of the regional budgets.

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By way of summing up the discussion of the characteristic features of the Russian system of interbudgetary relations, which influence the decision-making in the sphere of tax and budget policies at the subnational level, it should be noted that there are sufficient grounds to believe that there does exist the problem of soft budget constraints in relations between the federal and regional authorities.

In the period prior to the onset of budget federalism reforms (1999–2000) the preconditions for the emergence of the problem of soft budget constraints appeared due to the lack of any scheme, consolidated in federal legislation, for relations between the federal and regional budgets characterized by a minimum degree of hardness. The federal authorities' inclination to support regions in the state of a crisis, the granting of financial support to the federation's subjects with sufficient political influence, the availability of vast financial resources distributed among the regions on a discretionary basis – all this was creating incentives for dishonest behavior on the part of regional authorities for purposes of obtaining additional financial resources from the federal budget.

Since the onset of budget reform, the situation associated with the distribution of financial assistance between the Federation's subjects began to improve. Formalized methodologies were adopted for the distribution of interbudgetary transfers, and the results of the calculations based thereof are reflected in the annual laws on the federal budget. This was to result in fewer opportunities for manipulating in the sphere of budget policy at the regional level for purposes of obtaining additional financing.

At the same time, two major circumstances are making it impossible to draw any definite conclusion as to a substantial reduction in the acuteness of the problem of soft budget constraints for Russian regional authorities. Firstly, in order to gain the political support of the population of some regions for the party in power, the federal authorities, in anticipation of elections, transferred additional financial resources to those regions. Secondly, the availability of a large bulk of additional revenues in the federal budget (for several past years, budget projections were based on forecasted prices of hydrocarbon raw materials, which turned out to be lower than the actual prices) makes it possible for the federal authorities to allocate to the Federa-

tion's subjects, several times during a financial year, additional financial resources, while no rules have been established for their distribution.

As a result, it can be concluded that the preconditions for the emergence of the problem of soft budget constraints being for Russian regional authorities have existed in the Russian Federation throughout the whole period since the onset of economic reforming. Below, based on our analysis, some approaches will be suggested to a theoretic study on the conditions for the emergence of and the consequences of the existence of soft budget constraints in Russia's regions, and in the next chapter we will attempt to empirically test some of the hypotheses.

## **2.2. Model of Soft Budget Constraints for Regional Authorities in Russia**

In this section, the problem of soft budget constraints for Russian regional authorities is analysed as the conditions and consequences of receipt by Subjects of Russian Federation of discretionary (not provided for by budget projections) financial assistance from the federal budget. Such assistance can be spent on financing of additional expenditures of regional budgets<sup>164</sup>. The basic hypothesis is that the 1990s and, perhaps, later, saw the presence of soft budget constraints in the relationship between the federal center and regions. Soft budget constraints are understood below, as a rule, as a provision by the federal center of some extra financial assistance as a result of the regional authorities' budgetary policies.

We also assume that the existence of the regional authorities' soft budget constraints is determined by a situation when the federal center has to remedy a part of Russian regions' socio-economic problems and compensate for their greater expenditures by means of equalization grants and discretionary financial assistance. Accordingly, regions were diligently capitalized on such conditions and pursuing not quite scrupulous budgetary policies in a hope to get an additional financial assistance.

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<sup>164</sup> In this particular case we understand additional expenditures of regional budgets in a broad sense – that is, they are either an increase in expenditures through financing an additional provision of public goods, or as a repayment of budget arrears on already extended, but not as yet paid for public goods and services.

### *Modeling the Regional Authorities' Behavior*

As far as the structure of the system of interbudgetary relations on the whole and the problem of soft budget constraints that regional authorities face are concerned, the specificity of the Russian situation lies in particular in an increase on the regional and municipal levels in budget arrears to the population and enterprises that supply public goods as a means of financing the respective expenditures.

Whilst considering budget arrears as one of the ways to finance the public goods delivery, one should note that this particular means differs from the traditional borrowing from a third party<sup>165</sup>, as the borrowings are made de-facto from producers and consumers of public goods. This happens in parallel with a fall in the welfare level of a certain circle of voters that credit the budget, which has an adverse effect on the utility rate of regional authorities<sup>166</sup>. Accordingly, we assume below that a rise in the volume of budget arrears enables one to boost expenditures on financing public goods, regional authorities display negative attitude to the growth in budget arrears, as accumulation of the debt in the form of wage arrears to budget employees, as well as budget debts and those of public (municipal) enterprises before suppliers of communal services, construction companies, etc. results in a lower support of regional authorities by voters. Similarly to *Kadochnikov, Sinelnikov-Murylev, Trounin (2002)*, we assume that a rise in expenditures on financing public goods leads to the growth of utility of a representative consumer in the region and, accordingly, to the growth in utility of regional authorities. That is, the utility function of regional authorities in  $i$ -

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<sup>165</sup> Less debts on transfers to the population and wages in the budgetary sphere, budgetary budget arrears are formed by borrowings from the third parties – that is, suppliers of public goods. By contrast with regular borrowings, this particular kind of borrowings appear compulsory from the creditor's perspective.

<sup>166</sup> From the perspective of relationship between regional and federal authorities, as well as the state of the budget in the medium run budget arrears as a means of financing the public goods delivery does bear some similarity with regular borrowings. Should budgetary funds fall considerably short of debt repaying, regional authorities have grounds to apply to the federal ones for extending an additional financial assistance. Meanwhile, if the regional authorities have accumulated considerable obligations with regard to the debt repayment can exert only an indirect influence on the voters preferences with respect to the composition of the regional and federal governments, an accumulation of budget arrears, particularly, before the population directly entails a fall in the level of support to both the federal and regional governments.



region ( $i$  changes from 1 to N) over some tim period (say, a year) takes the following form:

$$u_i = u_i^{RC} (E_i^+, D_i^-) \rightarrow \max_{E_i, D_i}, \quad (17)$$

where

$u_i^{RC}$  – the regional authorities utility function in  $i$ - region that reflects

the representative consumer’s references,  $\frac{\partial^2 u_i^{RC} (E_i, D_i)}{\partial E_i^2} < 0,$

$$\frac{\partial^2 u_i^{RC} (E_i, D_i)}{\partial D_i^2} < 0;$$

$E_i$  – volume of budget expenditures in  $i$ -region;

$D_i$  – volume of budget arrears in  $i$ -region (as of the end of the period in question).

In the system of interbudgetary relations, one suggests the existence of discretionary transfers for the sake of financing the regional authorities’ additional expenditures<sup>167</sup>. It can be suggested that while allocating an additional financial assistance to the regions, the center pursues the purpose of moving to the public welfare optimum whose characteristics that form elements of the center’s utility function are volumes of private and public goods provided by the national and sub-national authorities and the magnitude of employment on the regional level of such and method of financing of production of public goods as the boosting of budget arrears by a given region.

Given the above, the budget constraints the regional authorities face takes the following form:

$$\begin{aligned} E_i &\leq T_i + D_i + G_i \\ E_i &\geq 0, T_i \geq 0, D_i \geq 0, G_i \geq 0. \end{aligned} \quad (18)$$

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<sup>167</sup> While analyzing the phenomena, we will suggest that the regions’ capabilities in terms of public goods delivery have been equalized using the system of a regular financial assistance (allocated with account of differentiation of tax capacity and expenditure needs).

where  $G_i$  – volume of the discretionary federal financial assistance in  $i$ -region (theoretically, it may well happen that the below equilibrium and optimal values of expenditures and budget arrears will be attainable under zero values of the federal financial assistance, however, in the course of the analysis below, we assume that such situations do not arise),

$T_i$  – budget revenues, including tax revenues and the federal financial assistance allocated according to certain procedures (equalizing transfers) in  $i$ -region<sup>168</sup>.

Thus, the overall amount of revenues to the regional budget should satisfy the budget constraints; we also assume that it may not exceed the sum of own revenues of the regional budget, grants received and the value of budget arrears<sup>169</sup>.

Naturally, it is assumed that expenditures of and tax revenues of the regional budget, the amount of budget arrears and the amount of the grant are not negative, i.e. we exclude the possibility of negative revenues, tax revenues (net extension of subsidies to the private sector), negative grants (assuming that the federal center collects its tax revenues on its own), and negative budget arrears (less forward payments for public goods delivered).

In the conditions when tax revenues to the federal budget are fixed and the amount of the grant is also a constant and pre-set value, equilibrium values of expenditures and budget arrears in static model (17)–(18) proceed from the first-order conditions – that is, equilibrium of the marginal utility from the increase in expenditures on public goods and decline in budget arrears budget arrears.

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<sup>168</sup> For simplicity, let us assume that tax revenues are exogenously pre-set and they do not depend on the size of expenditures of the regional budget, budget arrears and allocated financial assistance.

<sup>169</sup> The model framework does not suggest other ways of financing expenditures, such as, for instance, non-tax revenues, borrowings, etc., nor a constant increase in budget arrears over several periods. That is why it is suggested that budget arrears make up zero as of the beginning of a given period and they grow up to  $Di$  as of the end of the period. In a multi-period model, the budget constraint should comprise an increment in budget arrears over the period, while the utility function – both the increment and level of budget arrears that characterize the volume of the accumulated debt. These situations do not differ in this model and we consider solely the budget arrears accumulated over a given period.

This model allows tracking down a softening of budget constraints – that is, once the center provides financial assistance to regional authorities, it results in the situation in which expenditures of the regional budget can grow beyond the boundaries of its own tax revenues<sup>170</sup>.

A more complex for studying class of situations of soft budget constraints are the cases when the amount of financial assistance provided by the federal center is identified under the impact of decisions the region takes in the budgetary policy area. Thus, if the region, while decreasing the taxation level (thus increasing the degree of consumption of public goods) can force the center to increase financial assistance to it, there emerges the situation of the presence of negative fiscal incentives for regional authorities (see, for example, *Aizenman (1994)*, *Dahlberg, Pettersson-Lidbom (2003)*).

Similarly, if the region boosts its budgetary expenditures (volumes of the public goods delivery) over its own revenues by increasing budget arrears and hopes they will be repaid by means of federal transfer, it thus affects the center's decisions on granting it with financial assistance, thus giving a rise to the situation of soft budget constraints.

As shown above, the region's behavior in this case is similar to that of an enterprise that hopes that if financial hardships occur, the bank that credits it or the government that supports it will rush to rescue it (see, for instance *Kornai (1989)*, *Qian, Xu (1993)*), or the bank's behavior when it hopes for the central bank's help in the event of crisis (*Dewatripont, Maskin (1995)*), or the behavior of an insured individual under which risks of the post-contract indecent behavior arise (the classical "moral hazard" problem), etc.

One can note various, associated with a given policy in the regional expenditures area, mechanisms of the region's influence on the center's decisions on allocation of financial assistance. The common feature of all these mechanisms is that while boosting (decreasing) the

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<sup>170</sup> This effect can be characterized more accurately as follows: once a region receives financial assistance from the center, which depends on the regional budgetary expenditures or budget arrears, the cost of public goods delivery decreases (the federal government to some degree co-finance each ruble of the expenditures). Accordingly, while making decision on the volume of production of public goods, the regional authorities take into consideration the fact that taxpayers would not cover in full the volume of costs of the production of public goods. In this case, such a result becomes possible thanks to financing the expenditures out of external sources.

volume of the public goods delivery in the region, the increase (or decrease) of the regional budgetary expenditures at the same time gives a rise to some phenomena negatively perceived by the central government which is compelled to undertake measures to compensate for them. Such mechanisms are: the regions' failure to deliver to their local residents a necessary volume of public goods or transfers for which the center *de-jure* or *de-facto* holds responsible (wages to budget employees, housing and communal services), provision of public goods at the expense of increasing the regional debt with a consequent rise of a default or its threat, provision of public goods at the expense of growing budget arrears which mutates into outstanding debt and redemption of which requires the federal center's interference, launch the construction of capital objects without necessary resources available, but in a hope for the federal center's support in the heyday of the construction cycle, among others.

Below we will focus on the situation in which the region can influence the center's decision on allocation to it an discretionary financial assistance by means of boosting the volume of public goods provided to the population that are funded through accumulation of budget arrears before producers of the goods, including budgetary institutions, wage arrears to civil servants and debts on transfers to the population. Meanwhile, the region can hope that the federal center will react to the growing debt by increasing the volume of the allocated grant, as the volume of the accumulated debt exerts an adverse influence on the center's utility function. The latter is explained by a decline in the level of the support of the federal center by the population of regions with a great level of budget arrears and, accordingly, unstable socio-economic situation.

To further analyze the regional authorities' decisions, let us cite the formulation of the problem of regional authorities (17)–(18) under hard budget constraints (the amount of financial assistance from the federal government is pre-set) for *i*-region:

$$u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \text{ for } \forall i = 1..N \tag{19}$$

$$E_i \leq T_i + D_i .$$

It is not hard to note that under regular assumptions the following correlation for equilibrium values of expenditures and budget arrears is true for the utility function (the marginal utility in the region from the rise in regional expenditures appears equal to marginal utility from contraction of budget arrears:

$$\frac{\partial u_i^{RC}(E_i, D_i)}{\partial E_i} = - \frac{\partial u_i^{RC}(E_i, D_i)}{\partial D_i} \text{ для } \forall i = 1..N . \quad (20)$$

Whilst considering below models of interaction between the regional authorities and the federal center, we will employ additional prerequisites of what the regional authorities are driven by and according to which information they make their choices in the conditions of certainty or uncertainty. We subsequently assume that in our model there are  $n$  regions each of which has the utility function of (17) kind and budget constraint of (18) kind. Accordingly, in the model framework we will study into some possible mechanisms of their interaction with the federal center whose behavioral model is given below.

In this paper, we assume that the regional authorities' utility function, on the one hand, reflects the representative consumer preferences, the increase of utility of whom is ensured by growing expenditures on production of public goods and lowering of taxes (increase in consumption of private goods). On the other hand, the regional authorities' preferences can appear different from those of the representative consumer, because the regional bureaucracy's own interests. By the same token, the regional authorities' preferences can also take into account other factors, such as a possible increase of the budget volume, and/or budget arrears for the sake of extracting a grant from the federal center, etc. This means that the utility function of the regional authorities can differ from that of the representative consumer both by the list of arguments and the functional form of dependence. In addition to the utility function of the representative consumer, below we will also consider the regional authorities' utility function that appears different from the representative consumer's preferences – that is, the utility function of the regional authorities that enjoys a greater marginal utility from execution of the regional budget expenditures (see: *Niskanen (1968)*).

Accordingly, while conducting the analysis of the regional government's mission of type (19) we will consider below two different sub-missions:

1. The regional authorities' utility function reflects the representative consumer's preferences (its maximization matches the maximization of the public welfare in the region);
2. The regional authorities' utility function reflects the representative consumer's preferences, however, in addition, the regional bureaucracy is keen to boost the regional budget, as per Niskanen's hypothesis<sup>171</sup>. For such a function the marginal utility of expenditures is greater than in the former case.

We will denote the respective modifications of utility functions as follows:

$$1. u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \tag{21}$$

$$2. u_i = v_i^B(E_i, D_i) \rightarrow \max_{E_i, D_i}, \tag{22}$$

$$\frac{\partial v_i^B(E_i, D_i)}{\partial E_i} > \frac{\partial u_i^{RC}(E_i, D_i)}{\partial E_i} \text{ under the same } E_i \text{ and } D_i.$$

### *Modeling the Federal Authorities' Behavior*

Whilst building the central government's behavioral models we assume that the federal authorities collect the federal taxes and finance expenditures, including transfers to the regions. Given that, as well as preferences of consumers that receive utility from private and public goods, an increase in expenditures on financing the federal public goods and lowering taxes (increase in consumption of private goods by consumers) result in the federal government's greater utility:

$$U = U^F \left( E_0^+, E_1^+, \dots, E_n^+, D_1^-, \dots, D_n^- \right) \rightarrow \max_{E_0, G_1, \dots, G_n}, \tag{23}$$

where

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<sup>171</sup> See: *Niskanen (1968)*.

$U^F(E_0, E_1, \dots, E_n, D_1, \dots, D_n)$  – the federal authorities' utility function;

$E_0$  – the federal government expenditures on provision of the federal public goods;

$E_i$  – the regional authorities' expenditures on provision of the regional public goods;

$D_i$  – the volume of budget arrears in  $i$ -region;

$G_i$  – the volume of financial assistance to  $i$ -region.

The budget constraint for the federal government suggests that the collected federal taxes are used to finance expenditures on the federal public goods, as well as on provision of financial assistance to the regional authorities in the form of grants. Let us suggest that the central government carries out a financial assistance to the regions by means of allocation of some volume of funds in the form of irregular (discretionary) assistance which is earmarked to solve a given region's financial problems. As noted above, we do not consider regular (equalizing) transfers, as we believe they are exogenous and included in  $T$ , as their value does not depend on the region's budgetary policy. The center's expenditures on provision of the federal public goods and provision of discretionary financial assistance to the regions are linked by the following identity:

$$E_0 = T_0 - \sum_{i=1}^N G_i, \quad E_0, T_0, G_i \geq 0, \quad (24)$$

where

$T_0$  – tax revenues to the federal budget;

$G_i$  – volume of financial assistance to  $i$ -region (like above, we assume that the financial assistance the regions receive is positive, particularly in the equilibriums below).

We assume that no problem of softening of budget constraints arise for the federal government, for it strictly follows a given budget constraint and no increase in budget arrears is possible on the federal level, while expenditures on the federal public goods and transfers to regions

are financed fully from the center's own resources (the debt financing for the federal government is not considered below).

In the course of the subsequent analysis and finding equilibrium values of financial assistance, expenditures and budget arrears we will assume that all the utility functions in question are concave and have continuous second derivatives by arguments, the budget constraint is binding in equilibrium (otherwise one could increase the utility value by boosting expenditures), while other constraints do not. That is, the first-order conditions at the same time form sufficient conditions of optimum.

Whilst considering below different modifications of the problem of interaction between the center and regional authorities, we will analyze two possible forms of the center's utility function:

1. The center's utility function comprises the utility from the federal government expenditures and utility functions of regional governments:

$$U = U(u_0^{RC}(E_0), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_n, D_n)) \rightarrow \max_{E_0, G_1, \dots, G_n}, \quad (25)$$

$$\frac{\partial U}{\partial u_i} > 0,$$

$u_0^{RC}(E_0)$  – utility of the representative consumer (on the federal level) from the volume of public goods  $E_0$  delivered by the federal government, while  $\frac{\partial u_0^{RC}(E_0)}{\partial E_0} > 0$  and  $\frac{\partial^2 u_0^{RC}(E_0)}{\partial E_0^2} < 0$ .

1. The center's utility function also takes into account possible externalities that appear critical for the federal center in the course of executing regional expenditures. In addition to increasing the representative consumer's utility in the regions, execution of the regional expenditures is associated with additional positive externalities for the country on the whole which are not taken into account in the regional authorities' utility function, as well as in the federal center's utility function given in the above variant. One of optional ways of considering the externalities is to take into account regional ex-



penditures in addition to the regional authorities' utility in the function of the center's utility (this particular variant of the center's utility function is employed in the task of maximization of the public welfare (see below)):

$$U = U(v_0^{Ext}(E_0, E_1, \dots, E_n), u_1^{RC}(E_1, D_1), \dots, u_n^{RC}(E_n, D_n)) \rightarrow \max_{E_0, G_1, \dots, G_n} \quad (26)$$

$$\frac{\partial v_0^{Ext}}{\partial E_0} = \frac{\partial u_0^{RC}}{\partial E_0}, \quad \frac{\partial v_0^{Ext}}{\partial E_i} > 0 \quad \text{для } i = 1..N.$$

Thus, the comparison of the above two kinds of the center's utility function highlights that the mission of provision of financial assistance to regions arises both due to the center's consideration of positive externalities from public goods the regional finance and because of the need for the center to equalize marginal utilities of expenditures and budget arrears between regions, as well as the marginal utility of the center's own expenditures – with that of regional expenditures, i.e. because of the center's eagerness to find an optimal balance of its expenditures between the provision of federal public goods and regional public goods in all the regions.

*Sequence of Actions, Possible Equilibriums, Soft  
Budget Constraint Situation for Regional Authorities*

Modeling of a strategic interaction between the federal government and regional authorities can be carried out in a game set with the players' simultaneous and subsequent moves. In such game models, the regional authorities' strategies are formed by the regional budget expenditures on provision of public goods and the amount of budget arrears. By contrast, the federal government's strategy lies with a set of values of financial assistance allocated to the regions and the amount of expenditures on federal public goods.

Interacting, the federal center and the regional authorities solve their problems by maximizing their utility functions (see above) and find the optimal values of the regional budget expenditures and budget arrears (the regional authorities) and the amount of financial assistance (the federal center). Below we consider some possible moves se-

quences in the frame of a given game set, optimal response functions, and possible equilibriums in the model.

While analysing the federal government and regional authorities' behavior options, one should realize that the equilibriums in such a model emerges under the presence of a certain sequence of moves of the regional authorities and federal government, as well as under a certain distribution of information of results of choices the parties made. Accordingly, there can be possible three situations which will be analyzed below using the respective game models. First, the situation in which the federal center makes the first move and use provision of financial assistance as a tool that should ensure achievement of the maximum public welfare with account of externalities from the production of public goods in the regions. That is, if the region receives a grant, it boosts its expenditures to a publicly optimal level. Second, the situation in which allocation of financial assistance is used as an instrument that allows achievement of public optimum in the conditions of a simultaneous interaction of regional authorities. Third, the situation in which the regional authorities make the first move in the given interaction and boost regional expenditures and debt. In the event the expenditures exceed an optimal level, there occurs the regional authorities' opportunist (moral hazard) behavior – the regions compel the federal center to increase financial assistance to them, thus finding itself in the conditions of soft budget constraints.

#### A) Model of interaction with the first move of the federal government

With a great deal of conditionality, the actual budget procedures that concern allocation of discretionary financial assistance between regions for the sake of building their formal model can be described with the decision making sequence as follows:

1. The federal center projects its own tax revenues and those of regional budgets (which in our model are considered pre-set). On the basis of the information, the federal center identifies the amount of transfers to the regions and foresees their response to those. The response manifests itself in a respective choice of values of regional expenditures and budget arrears of their budgets.
2. The developed at the previous stage federal center's decision goes to the regional level and, basing on it, regional authorities makes

decisions on values of the regional budget expenditures and budget arrears according to what has been foreseen by the federal center.

3. The regional authorities execute expenditures aimed at production of public goods and finance them out of their own tax revenues, financial assistance and budget arrears; meanwhile the federal center executes its own expenditures and allocates the financial assistance to the regions at a pre-set size.

These particular moves of the center and regions leave no chance for the situation of a region's opportunist (moral hazard) behavior, i.e. change in its behavior in a hope for an additional grant from the federal center, to arise. It should be noted that if in the course of decision making with regard to a grant the center considers external effects generated by production of public goods in different regions, transfers to regions and respective expenditures will be greater than otherwise.

These moves by authorities at different levels in the framework of the Russian model of implementation of interbudgetary relations can be viewed as a situation in which in the course of the budgeting cycle (while working on a draft federal budget on next financial year) carry out an accurate forecasting of indicators that characterize budget decisions made by the Federation's Subjects. Meanwhile, the policy of allocation of interbudgetary transfers is built in such a manner that the federal authorities do not disburse an additional financial assistance at all, or do this only in the case of an emergency or crisis situation, which does not enable the subnational authorities to form expectations of receiving additional funds and, accordingly, build their policy basing on the expectations.

#### B) Model of the simultaneous interaction between the federal government and regional authorities

Let us consider the situation in which the sequence of the aforementioned steps 1-3 p. A) changes in such a manner that now the center and regions make decisions on budgetary policy at the same time (while the former makes decisions on allocated financial assistance and execution of its own expenditures, the latter rule about volumes of regional expenditures and budget arrears).

In this case, in response to some value of the grant (this can, for instance, be based on expectation using the information from previous

stage of the interaction – that is, whether it was equilibrium, or not, the substance of the grant received in the course of preliminary negotiations with the federal center, etc.) regional authorities solve their own problem and find the values of expenditures and budget arrears being optimal for the given particular substance of financial assistance (they may opt for their own response functions – dependence of the regional budget expenditures or budget arrears on the size of the financial assistance, thus solving the problem of maximization of their own utility function under the pre-set parameter – that is, the financial assistance allocated by the federal center).

We also will assume that in the situation when equilibrium values coincide with publicly optimal ones financial assistance forms the instrument that ensures attainment of the public optimum. In addition, due to various reasons, such as, for instance, the Niskanen's hypothesis, the regional authorities' eagerness to boost their expenditures beyond the optimal ones, there may become possible situations when the equilibrium values differ from publicly optimal ones.

The situation appears far more complex, so far as the central government in the case of a simultaneous interaction is concerned. The main parameter that the federal center changes is the value of the financial assistance under which the regional authorities and the central government's utility function grows. Should the interaction occurs simultaneously and the federal center is unaware of the regional authorities' response function, without additional assumptions the latter would fail to foresee how the allocated additional financial assistance would be distributed between the financing of provision of public goods and repayment of the budget arrears, or how a contraction in the financial assistance would affect volumes of the provided public goods and the size of budget arrears in the region. Without such additional assumptions, the federal center will be unable to solve its problem, as the center's utility depends on the regions; expenditures and budget arrears, which in turn depend on the size of the financial assistance. The central government does not know beforehand how the financial assistance is distributed between expenditures and repayment of budget arrears;

hence, it cannot compute a change in its own utility and, accordingly, cannot find the volume of financial assistance allocated to regions<sup>172</sup>.

We will consequently assume that the additionally allocated financial assistance is fully spent on repayment of the budget arrears. In the circumstances, the federal center's response function is the connection between the federal financial assistance and the amount of the regional budget expenditures. Given this, upon results of the grant allocation there occurs an adjustment of the budget arrears according to the changed budget constraint – that is, the grant is spent to repay budget arrears.

The assumption allows solution to the respective problem of a simultaneous interaction between the center and regions (see below), however it considerably narrows the set of modeled situations. Indeed, the use of financial assistance by regional authorities only to repay budget arrears appears a fairly rigid prerequisite. At this point, a softening argument can be that it is appropriate to view discretionary financial assistance the allocation of which is hard to predict as the only embodiment of financial assistance, which means that as it is allocated, as a rule, at the end of the year, it is hard to foresee and manage to execute the respective regional budget expenditures. Technically, it is much easier to spend the respective funds on debt repayment.

In the course of our analysis we assume that the size of the allocated financial assistance is smaller than the accumulated budget arrears. In the circumstances, with a pre-set value of the financial assistance, the equilibrium value of budget arrears and regional budget expenditures is found proceeding from the condition of equity by the absolute value of marginal utility from boosting the expenditures and budget arrears. Given that, the choice of mechanisms of consumption of the financial assistance – that is, for the sake of financing expenditures or repayment of budget arrears, – does not impact the respective optimal values.

Interpretation of the process of reaching equilibrium with the regions and the center simultaneously opting for parameters of their budgetary policies can suggest both a real iteration process of convergence under

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<sup>172</sup> In practice the regional authorities can operate basing on their own ideas of the volume of allocated financial assistance formed on the basis of the record of prior years and negotiations with the federal government or the ministry of finance.

which iterations match annual cycles of budget planning and the process in the course of a given budget cycle by negotiations and identification of the counterpart's possible behavior under the pre-set behavior patterns of other participants in the game<sup>173</sup>. In this particular situation, given certain conditions (with the regional authorities' utility function being different from that of the representative consumer in the region), the regional authorities' expenditures may exceed the publicly optimal value, or, if the regional authorities mirror the representative consumer's preferences, that ensures the public optimum of expenditures and budget arrears.

Whilst considering the given model in terms of interbudgetary relations in Russia, it should be noted that under the simultaneous interaction the federal authorities' policy can generate prerequisites for the bodies of power of the Federation's Subjects increasing their budgetary expenditures. However, as long as allocation of financial assistance is concerned, the regional authorities' decisions do not appear crucial – the budget bargaining process involves consideration of various parameters of the regional authorities' behavior – and if in the course of negotiations the regional authorities manage to convince the federal one that transfers should be allocated to finance the repayment of their payables, the success of such a practice is reflected at the level of the regions' budgetary expenditures and budget arrears.

### C) Model of interaction with the first move made by the regional authorities

Let us consider the different from what was described in A) items 1–3 sequence of actions of the center and regions.

1. Regional authorities form some expectations of their own tax revenues, which are considered to be pre-set in the model, and amounts of the federal financial assistance; they also select an amount of expenditures on provision of the regional public goods and the volume of the respective debt, while foreseeing the center's reaction to the values, i.e. solving the central government's problem and finding how the federal center will react on their

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<sup>173</sup> Other mechanisms of convergence to equilibrium, such as more frequent subsequent moves by the counterparts, etc. are also possible.

- (regional authorities') decisions<sup>174</sup>, or directly guessing beforehand the federal center's response function.
2. The regional authorities carry out the respective expenditures and finance them out of their own tax revenues and budget arrears.
  3. The federal center identifies the amount of financial assistance basing on the available information of the regions; revenues and expenditures according to how the regional authorities foretold that and it allocates the financial assistance which the regional authorities spend on repayment of their budget arrears<sup>175</sup>.

With this simplified description of the budgeting planning process in place, there may arise the problem of soft budget constraints. It can be interpreted as follows: in the above formulation of the problem soft budget constraints arise because the regions' moves (in this particular case, boosting expenditures and budget arrears) influence the amount of the grant allocated by the federal government. The regional authorities execute expenditures (financed out of their own tax revenues and through budget arrears), while foretelling the federal government's behavior and hoping for a financing of repayment of their budget arrears by means of financial assistance from the federal government.

This situation can be viewed as an indecent (opportunist or moral hazard) behavior on the part of the regional authorities who assume that should they boost expenditures funded through debt accumulation, the central government would not let the debt grow considerably (as the existence of a great volume of outstanding budget arrears destabilizes the socio-economic situation in a given region and lowers their support on the part of the local population<sup>176</sup>) and it would allocate extra volumes of financial assistance to the region. Being in possession of the

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<sup>174</sup> Like in p. B, in this case there should be used an additional assumption – for instance that the financial assistance is used to repay budget arrears.

<sup>175</sup> It is also possible that budget arrears in practice are not increased (or they are not outstanding), however the regional authorities capitalize on the mere possibility of its emergence as a endangering argument while submitting a request for an additional financial assistance. While doing that, the regional authorities stress before the federal center that in the event the latter fails to provide the requested assistance, there can arise substantial budget arrears. We will not further consider such situations below assuming that already accumulated considerable payables form a more serious argument.

<sup>176</sup> Like before, we do not consider possible latent subsidizing of regional budgets by “permitting” them to accumulate debts before public companies and natural monopolists.

information that the center conceives the level of budget arrears in the region as an important criteria of allocation of financial assistance, the regional authorities are keen to boost their expenditures well over the publicly optimal level and they consequently receive a financial assistance from the federal government in a volume that also exceeds the public optimum.

Given the above, a substantial prerequisite is not only the fact that the regional authorities make their first move selecting the amount of its expenditures, but also the fact that the region when making their choices optimizes its utility function by foretelling the center's behavior<sup>177</sup>.

A particular case of the sequence of moves C) is a model wherein the regional authorities are aware of the federal center's response function, or, in other words, they are aware of procedures basing on which the federal center allocates discretionary financial assistance due to parameters of the regional budgetary policy (regional budget expenditures and accumulated budget arrears). As an instance it was suggested that the federal center decides to allocate, in the form of the discretionary financial assistance, some volume of funds which is further distributed between all the regions in proportion to the accumulated budget arrears. The purpose of allocation of such assistance can be smoothing down socio-economic problems in a region that appear associated with accumulation of budget arrears – that is, non-payments of social assistance, arrears before enterprises

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<sup>177</sup> This setting suggests that while jumping on the opportunity of the first move and foreseeing the central government's reaction, the regions make their move simultaneously vis-à-vis each other and they do not undertake additional action to increase the received financial assistance at the other regions' expense. In amore general setting of the problem, the situation is possible when individual regions enjoy an opportunity of the first move against other regions or, vice versa, individual regions view other regions' expenditure and payables values, how the federal center reacts to them and only then they make their choice. That is, a more complex situation is possible when a part of regions has the respective information and possibility to influence the federal government's decisions, while the other regions in the course of the budgeting do not exercise indecent moves against the federal government, as they consider the amount of financial assistance to be pre-set. In such circumstances the former group of regions enjoy an advantage which entails a greater volume of financial assistance received and, accordingly, greater values of expenditures and utility.



that provide public goods and before the population employed in the budget sector.

Thus, from the perspective of the actual budgeting process, this particular model describes a situation in which the federal authorities make decisions on allocation of financial assistance completely under the impact of the situation at the regional level, while authorities of the latter use their knowledge of the federal authorities' possible reaction in order to receive more financial assistance, i.e. there arises a classical case of soft budget constraints.

The above division of situations that is based on the sequence of actions (moves) of the federal government and regional authorities superimposes on the following interaction peculiarities that can be taken into account in the model:

- The regional authorities' preferences mirror those of voters, or they reflect the bureaucracy's preferences;
- The interaction takes place in the condition of certainty of allocation of financial assistance, or in the conditions of uncertainty about that.

*Table 1* below contains a classification of models that describe the above situations of interaction between the federal government and regional authorities. The lines in the Table correspond to the possible sequence of the center and regions' moves (including the simplified case of the federal center allocating financial assistance according to a pre-set procedure). The columns of the Table correspond to considered types of the regional authorities' preferences and uncertainty in the analyzed interaction models. Thus, at the intersection of the lines and columns there are models that are characterized by different sequences of the counterparts' moves, different methods of description of the regional authorities' preferences, and account of uncertainty of allocation of the financial assistance.

In addition to the models given in *Table 1*, for the purpose of comparison we will also consider the central planner models in which his utility function is the federal center utility function. The latter can be presented either as the representative consumer utility function ( $U=U(u_0^{RC}(E_0), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_N, D_N))$ ), or as a function that takes into account externalities from provision of regional public goods ( $U=U(v_0^{Ext}(E_0, E_1, \dots, E_N), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_N, D_N))$ ). In this model, the budget con-

straint is formed by the sum of expenditures of the federal and regional budgets which may not exceed the sum of revenues to the federal and regional budgets and payables accumulated in the regions. The respective models are depicted below as Model M0 and Model M0e. Optimal values of the federal and regional budget expenditures in this model represent public optimum values (without or with the presence of externalities).

Table 1

**Models of Interaction between the Federal Center and Regional Authorities**

	The federal center's preferences mirror those of the (federal) representative consumer $U=U(u_0^{RC}(E_0), \dots)$		
	Regional authorities' preferences		
	mirror those of the (regional) representative consumer $u_i=u_i^{RC}(E_i, D_i)$	mirror those of bureaucratic representative $u_i=v_i^B(E_i, D_i)$	mirror those of the (regional) representative consumer $u_i=u_i^{RC}(E_i, D_i)$
	Interaction in the conditions of certainty about allocation of financial assistance		Interaction in the conditions of uncertainty about allocation of financial assistance
A) The first move by the federal center	Model M1	Model M4	Model M7
B) Simultaneous interaction	Model M2	Model M5	Model M8
C) The first move by regional authorities	Model M3 Model M3a	Model M6 Model M6a	Model M9 Model M9a
C-a) allocation of financial assistance in proportion to budget arrears			
C-b) allocation of the total fund of financial assistance in proportion to budget arrears	Model M3b	Model M6b	Model M9b

Thus, we have considered above main types of interaction between the federal and regional authorities that form different prerequisites of

the emergence of the problem of soft budget constraints at the level of Subjects of the Federation. The case when the model suggests the first move to be made by the federal authorities in practice means the absence of traditions of such a behavioral pattern of the federal and regional authorities under which the former are inclined to allocating financial assistance due to the budget policy pursued on the regional level. Another extreme case is the situation in which the federal authorities pursue their policy in the area of allocation of financial aid completely under the impact of parameters of the regional budgetary policy. In other words, in this case the regional authorities, basing, for instance on existing traditions, can foretell the impact on the value of the federal transfer from these or those parameters of their budgetary decisions and then make their decisions with account of their experiences.

Below we consider in detail formulations of the above models and provide a comparison of results of solving optimization problems and parameters of equilibriums obtained on the basis of the analysis of the respective variants of the strategic interaction between the central government and regional authorities.

### **2.3. Models of Interaction between Regional Authorities and Federal Government in the Course of Making Choice of a Budgetary Policy**

This section comprises results of the analysis of equilibrium values of expenditures, budget arrears and financial assistance, as well as comparison of characteristics of equilibriums in different models with each other. Due to the type of the models in question, they can display the effect of soft budget constraints (the regional authorities' moral hazard behavior when their budgetary policy results in an increased volume of allocated financial assistance vis-à-vis optimal values).

#### *Model M0. Maximization of Public Welfare, the Utility Function Mirrors the Representative Consumer's Preferences*

In this model, we assume that maximization of public welfare is carried out under the general budget constraint – that is, the aggregate expenditures of the federal and regional budgets do not exceed the

sum of revenues to the federal and regional budgets and increment in budget arrears of the regional budget over a given period.

The utility function of the federal center mirrors preferences of the (federal) representative consumer and includes the utility from execution of federal expenditures  $u_0^{RC}$  and utility functions of representative consumers at the regional level  $u_i^{RC}$ .

$$\left\{ \begin{array}{l} U(u_0^{RC}(E_0), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_N, D_N)) \rightarrow \max_{E_0, E_1 \dots E_N, D_1 \dots D_N} \\ \sum_{i=0}^N E_i \leq \sum_{i=0}^N T_i + \sum_{i=1}^N D_i \end{array} \right. \quad (27)$$

The first-order conditions in this problem constitute conditions of equilibrium of the marginal utility from the increase in federal expenditures, increase in regional expenditures, and reduction in budget arrears on the regional level (according to the above prerequisites, we assume that budget arrears are not accumulated on the federal level):

$$\frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}(E_0^{M0})}{\partial E_0} = \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}(E_i^{M0}, D_i^{M0})}{\partial E_i} = - \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}(E_i^{M0}, D_i^{M0})}{\partial D_i}$$

for  $\forall i = 1..n$ .

Solving the system of equations – first-order conditions- along with the budget constraint allows finding optimal values of expenditures on the federal  $E_0^{M0}$  and regional  $E_i^{M0}$  levels, and optimal values of budget arrears  $D_i^{M0}$  on the regional level. The respective transfers (positive or negative) needed for transferring funds to the regional budgets to finance the respective expenditures in this particular case are computed as regional expenditures less own tax revenues and budget arrears.

*Model M0e. Maximization of Public Welfare with Positive Externalities from the Regional Expenditures*

This model appears analogous to the above one. The only distinction is that the utility function of the federal center also takes into account positive externalities from provision of regional public goods. The respective problem takes the following form:

$$\left\{ \begin{array}{l} U(v_0^{Ext}(E_0, E_1, \dots, E_N), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_N, D_N)) \rightarrow \max_{E_0, E_1, \dots, E_N, D_1, \dots, D_N} \\ \sum_{i=0}^N E_i \leq \sum_{i=0}^N T_i + \sum_{j=1}^N D_j \end{array} \right. \quad (28)$$

The introduction of the positive externalities means a greater marginal utility from provision of the regional public goods vis-avis the utility function of the representative (regional) consumer:

$$\begin{aligned} \frac{\partial v_0^{Ext}}{\partial E_i} > 0 \text{ for } i=1..N, \text{ accordingly } \frac{\partial}{\partial E_i} U(v_0^{Ext}, u_1^{RC}, \dots, u_N^{RC}) = \\ = \frac{\partial U}{\partial u_0} \frac{\partial v_0^{Ext}}{\partial E_i} + \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} > \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} = \frac{\partial}{\partial E_i} U(u_0^{RC}, u_1^{RC}, \dots, u_N^{RC}) \end{aligned} \quad (29)$$

Similarly to the previous model, the first-order conditions in this problem it the equality of the marginal utility from an increase in federal expenditures, increase in regional expenditures, and reduction in the regional budget arrears:

$$\begin{aligned} \frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}(E_0^{M0e})}{\partial E_0} = \frac{\partial U}{\partial u_0} \cdot \frac{\partial v_0^{Ext}(E_0^{M0e}, E_1^{M0e}, \dots, E_N^{M0e})}{\partial E_i} + \\ + \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}(E_i^{M0e}, D_i^{M0e})}{\partial E_i} = - \frac{\partial U}{\partial u_i} \cdot \frac{\partial v_i^{Ext}(E_i^{M0e}, D_i^{M0e})}{\partial D_i} \end{aligned} \quad (30)$$

for  $\forall i = 1..n$

The solution of the system of first-order conditions and the budget constraint are optimal values of the federal  $E_0^{MOe}$  and regional  $E_i^{MOe}$  expenditures in the model, and the value of budget arrears on the regional level  $D_i^{MOe}$ . Similarly to the previous model, the values of transfers are computed using the difference between the region's optimal expenditures and the sum of its own revenues and budget arrears.

As a result of the fact that the marginal utility from the financing of regional expenditures in this model is greater than in the previous (due to the first item in the first-order condition under differentiation of regions by expenditures), with values of expenditures optimal in the previous model, the marginal utility from their financing will be greater than the marginal utility from financing federal expenditures or contraction in budget arrears. Accordingly, an increase in expenditures on regional public goods will result in a greater utility. This means that in this model of public welfare maximization with account of externalities regional expenditures and budget arrears will be greater, while federal expenditures- lower than in the previous model.

*Model M1. Preferences of the Federal Center and Regional Authorities are the Preferences of the Appropriate Representative Consumer, the First Move is Made by the Federal Center*

In this model, according to the above pattern of interaction (pp A), it is supposed that providing a financial assistance, the federal center knows the regional authorities' response function and solve its own problem with account of their response to the financial assistance allocated.

Thus, the regional authorities solve the problem in the following form:

$$u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \text{ for } \forall i = 1..N \quad (31)$$

$$E_i \leq T_i + D_i + G_i.$$

The solution to the problem is the dependence of the optimal values of regional expenditures and budget arrears on the amount of financial assistance allocated to regions, while the marginal utility from the in-

crease in regional expenditures appears equal to the marginal utility from the contraction of the regional budget arrears:

$$E_i = E_i^{RC}(G_i^+), D_i = D_i^{RC}(G_i^-), \frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial u_i^{RC}}{\partial D_i}. \quad (32)$$

As the budget constraint is binding in the optimal point, should the financial assistance be increased, a part of the increment can be spent on financing the expenditures, while the rest – on repayment of budget arrears, – the sum of the increase of the expenditures and repayment of budget arrears is equal to the increase in the financial assistance.

$$\frac{\partial E_i}{\partial G_i} - \frac{\partial D_i}{\partial G_i} = \frac{\partial(E_i - D_i)}{\partial G_i} = \frac{\partial(T_i + G_i)}{\partial G_i} = 1. \quad (33)$$

According to the above pattern of interaction between the federal center and regional authorities, while making the first move, the federal center takes into account the regional authorities' response to the volume of financial assistance:

$$\left\{ \begin{array}{l} U(u_0^{RC}(E_0), u_1^{RC}(E_1^{RC}(G_1), D_1^{RC}(G_1)), \dots, u_N^{RC}(E_N^{RC}(G_N), D_N^{RC}(G_N))) \rightarrow \max_{E_0, G_1, \dots, G_N} \\ E_0 \leq T_0 - \sum_{i=1}^N G_i \end{array} \right. , \quad (34)$$

where  $E_i^{RC}(G_i)$ ,  $D_i^{RC}(G_i)$  are the optimal values of regional budget expenditures and budget arrears in the problem of maximization of the regional authorities' utility (the values depend on the amount of the financial aid  $G_i$  allocated to  $i$ -region).

In this case the first-order conditions of the problem for the federal government can be written as follows:

$$\frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}}{\partial E_0} = \frac{\partial U}{\partial u_i} \cdot \left( \frac{\partial u_i^{RC}}{\partial E_i} \cdot \frac{\partial E_i^{RC}}{\partial G_i} + \frac{\partial u_i^{RC}}{\partial D_i} \cdot \frac{\partial D_i^{RC}}{\partial G_i} \right) \text{ for all } i=1..N \quad (35)$$

Using the condition of the equality of marginal utilities from financing regional expenditures and repayment of budget arrears on the regional level, as well as that the change in the difference between the expenditures and budget arrears is equal to the change in the financial assistance, we can arrive to the conclusion that these conditions match the first-order conditions for the model M0 of maximization of public welfare.

$$\begin{aligned} \frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}}{\partial E_0} &= \frac{\partial U}{\partial u_i} \cdot \left( \frac{\partial u_i^{RC}}{\partial E_i} \cdot \frac{\partial E_i^{RC}}{\partial G_i} + \frac{\partial u_i^{RC}}{\partial D_i} \cdot \frac{\partial D_i^{RC}}{\partial G_i} \right) = \\ &= \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} \cdot \left( \frac{\partial E_i^{RC}}{\partial G_i} - \frac{\partial D_i^{RC}}{\partial G_i} \right) = \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} = - \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i} \end{aligned} \quad (36)$$

for all  $i=1..N$ .

Thus, optimal values of the federal and regional expenditures, as well as the regional budget arrears, match the maximum welfare optimum:  $E_i^{M1}=E_i^{M0}$ ,  $D_i^{M1}=D_i^{M0}$ ,  $G_i^{M1}=G_i^{M0}$ . This means that if the federal center (and the regional authorities alike) has the utility function that corresponds to the utility functions of the representative consumer, decentralization of budgetary decisions under the first-move by the federal center, i.e. an allocation of financial assistance and a consequent choice by the regional authorities under a pre-set value of the financial assistance, does not result in a decline of public welfare. With the value of the allocated financial assistance being optimal, the regional authorities finance the optimal value of expenditures.

*Model M2. The Federal Center and Regional Authorities' Preferences are the Appropriate Representative Consumer's Preferences, the Interaction between the Federal Center and Regional Authorities is Simultaneous*

Under the simultaneous interaction (p. B of the above arrangement), equilibrium financial assistance, federal and regional expenditures, as well as budget arrears on the regional level are found from the intersection of the response function curves of the federal center and



the regions. Using the budget constraints, the respective response function curves can be depicted on the axes “federal financial assistance” – “regional budget arrears (*Fig. 1*, see below, in the course of the comparison of results of evaluation of different models).

In this case, the solution of the regional authorities’ problem takes the form similar to the previous model:

$$E_i = E_i^{RC} (G_i^+), D_i = D_i^{RC} (G_i^-), \frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial u_i^{RC}}{\partial D_i}. \quad (37)$$

It is important to pay attention to the fact that the first order conditions for the federal center’s problem, that include the preferences of the regional representative consumers in the federal center’s utility function ( $\partial U/\partial u_i \neq 0$ ), comprise the first-order conditions for the regional authorities’ problem:

$$\frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}}{\partial E_0} = \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i}. \quad (38)$$

The above first-order conditions match conditions of the model of maximization of public welfare M0:  $E_i^{M2}=E_i^{M0}$ ,  $D_i^{M2}=D_i^{M0}$ ,  $G_i^{M2}=G_i^{M0}$ . In this case, such a result is explained by the fact that when regions maximize utility function of the regional representative consumer and the function is included into the federal center’s utility function, optimal values of choices made by the regional authorities and federal center match the optimal expenditures under maximization of public welfare.

*Model M3. The Federal Center and Regional Authorities’ Preferences are the Appropriate Representative Consumer’s Preferences, the Model of the First Move by the Regional Authorities*

In this model (p. C of the aforementioned interaction arrangement), the regional authorities use the possibility for their first move and while solving their problem, they take into account the federal center’s response function:

The federal center solves the following problem:

$$\left\{ \begin{array}{l} U(u_0^{RC}(E_0), u_1^{RC}(E_1, D_1), \dots, u_N^{RC}(E_N, D_N)) \rightarrow \max_{E_0, E_1, \dots, E_N, D_1, \dots, D_N} \\ E_0 \leq T_0 - \sum_{i=1}^N G_i, \quad D_i = E_i - T_i - G_i \end{array} \right. \quad (39)$$

Like before, the first-order conditions here are the conditions of the equality between the marginal utility from financing federal expenditures and repayment of budget arrears of the regional budgets. Given that, optimal federal expenditures and financial assistance depend on regional expenditure  $E_i$  (we suppose that the federal financial assistance is used to repay the budget arrears):

$$\frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}}{\partial E_0} = - \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i}, \quad (40)$$

from which follows  $E_0 = E_0^-(E_i), G_i = G_i^+(E_i)$ .

The given signs of the derivatives for the federal center response functions can be interpreted as follows: with the regional budgetary expenditures growing, there occurs an accumulation of budget arrears on the regional level; accordingly, to equalize the marginal utility from the federal expenditures with budget arrears on the regional level, we need to cut the federal expenditures and increase the federal financial assistance.

The regional authorities in this model solve their problem with the account of the federal center's response to the changes in budget arrears:

$$\begin{array}{l} u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \text{ for } \forall i = 1..N \\ E_i \leq T_i + D_i + G_i(E_i) \end{array} \quad (41)$$

where  $G_i(E_i)$  denote the federal center response function – the optimal value of financial assistance to  $i^{th}$  region, depending on the regional budget expenditures.

The first-order conditions in this problem can be written as follows:

$$\frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial u_i^{RC}}{\partial D_i} \left[ 1 - \frac{\partial G_i}{\partial E_i} \right]. \tag{42}$$

From the first-order conditions it follows that when the federal financial assistance does not depend on the actual expenditures of regional budgets (the respective derivative  $\partial G_i / \partial E_i$  equals zero), the regional budget expenditures and values of budget arrears match publicly optimal values as well as the federal budget expenditures and the financial assistance. In general in the given model the allocated financial assistance depends increasingly on the regional budgetary expenditures that means that the optimal value of regional budget expenditures are greater than publicly optimal:

$$\frac{\partial u_i^{RC}}{\partial E_i} < -\frac{\partial u_i^{RC}}{\partial D_i} \Rightarrow E_i^{M3} > E_i^{M0}, E_0^{M3} < E_0^{M0}, G_i^{M3} > G_i^{M0}. \tag{43}$$

Thus, in the event the regional authorities make the first move, their use of the federal center’s response function in the maximization problem leads to an increase in regional budgetary expenditures and budget arrears. So, in this model regional authorities find themselves in the situation of soft budget constraints – their moral hazard behavior leads to an increase in the financial assistance allocated to them and a bias of the regional expenditures towards their increase vis-à-vis publicly optimal values.

*Models M3a and M3b. The Preferences of Regional Authorities are the Preferences of the Representative Consumer, Financial Assistance is Allocated in Proportion to the Regions' Budget Arrears*

This particular model appears different from the above as it considers the regional authorities' behavior in the conditions of pre-set procedures of allocation of financial assistance. Let us consider that the financial assistance is allocated in proportion to budget arrears<sup>178</sup>. We also suggest that the federal center's funds are limited, i.e. the coefficient of proportionality in the financial assistance allocation formula is below one – in the event when regions accumulate debts, the federal center grant them with a financial assistance that is proportional to the debt, but its value is smaller than the debt value (the total amount of the fund of financial assistance is equal to the sum of regional grants):

$G_i = \alpha D_i^0$ , where  $D_i^0$  – budget arrears in  $i$ - region prior to allocation of the financial assistance (44)

$$G = \sum_i G_i .$$

For the sake of simplicity we also suggest that the grant is fully utilized to repay budget arrears (for instance, it is allocated at the end of the year). The budget arrears prior to the allocation of financial assistance, according to the budget constraint, equals the difference between expenditures and revenues to regional budgets. Accordingly,

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<sup>178</sup> This model can be considered a particular case of the M3 model. Models M3a and M3b proceed from model M3, provided that once the regional authorities solve their problem, the federal center's response function (allocation of financial assistance in proportion to their budget arrears) is suggested to be pre-set). Such a response function can be found under a certain form of the federal center and regional authorities' utility functions. As a simple example of the functional form of the utilities one can cite, for example, the following functions: the regional authorities' (1 region) utility function  $u = E^2 - DG$ , where  $E$  – regional budget expenditures,  $G$  – amount of the federal financial assistance,  $D$  – amount of budget arrears (meeting the condition of decrease in utility in terms of budget arrears necessitates meeting the inequality  $D < G$ ). The federal center's utility function  $U = (E_0 - T_0)^2 + \beta u$ , where  $E_0$  – the federal budget expenditures,  $T_0$  – the federal budget revenues,  $\beta$  – parameter of the model ( $\beta > 1$ ),  $u$  – the regional authorities' utility function. This example is quite arbitrary and it serves as an illustration of the connection between models M3a and M3b with model M3.

$$E_i = T_i + D_i^0 \Rightarrow D_i^0 = E_i - T_i, \text{ that yields } G_i = \alpha(E_i - T_i). \quad (45)$$

The above formulation allows, in particular, another interpretation of the model in question – it is a model under which allocation of financial assistance takes place in proportion to the gap between actual expenditures and revenues of the regional authorities.

Accordingly, the regional authorities solve the following problem (it de-facto is the problem of maximization of the regional authorities' utility under a constraint that determines the correlation between the financial assistance and budget arrears):

$$u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \text{ for } \forall i = 1..N \quad (46)$$

$$E_i = T_i + D_i + G_i, E_i = T_i + D_i^0, G_i = \alpha D_i^0$$

The formulation of this problem allows consideration of two situations that appear different in optimal values of expenditures and budget arrears of the regional authorities.

*Model M3a.*  $\alpha = \text{const}$ . The coefficient of proportionality in the formula of allocation of financial assistance is set by the federal center, it is equal for different regions and it does not depend on how great the accumulated budget arrears are. Under such a formulation, on every ruble of the accumulated debt a given region receives  $\alpha$  rubles ( $\alpha < 1$ ) in financial assistance. Under such a procedure of allocation of financial assistance the account of budget arrears in the formula of grant allocation diminishes the cost of provision of public goods for the regional authorities.

In this case the interaction of regions between each other is excluded (the center's assistance to any region does not depend on other regions' actions) and the first-order conditions for this particular problem can be written as follows:

$$\frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial u_i^{RC}}{\partial D_i} \cdot (1 - \alpha), \text{ i.e. } \frac{\partial u_i^{RC}}{\partial E_i} < -\frac{\partial u_i^{RC}}{\partial D_i}. \quad (47)$$

The first-order conditions mean that the marginal utility of financing expenditures is lower than the marginal utility of repayment of budget arrears; accordingly, the regional budget expenditures and budget arrears are greater than publicly optimal ones. The above condition (47) allows to note that  $\alpha \neq 0$ , this condition meets the condition of public optimality in the absence of a financial assistance (thus the second best value is attained). With  $0 < \alpha < 1$ , the marginal utility of financing regional expenditures at the optimal point is under the marginal utility of repayment of budget arrears, i.e. the regional budget expenditures are greater than optimal ones. In this case the greater the share of repayment by the federal center of budget arrears is, the greater the volume of provision of public goods is.

*Model M3b.*  $\sum_i G_i = G = \text{const}$ . The fund of allocated financial assistance is common and its value is pre-set. In this situation, the coefficient of proportionality in the formula of allocation of financial assistance depends on the budget arrears accumulated by the regional authorities:

$$G_i = \alpha D_i^0, \quad G = \sum_i G_i \Rightarrow \alpha = G / \sum_i D_i^0. \quad (48)$$

The above expression allows to note that the greater the budget arrears accumulated by a given region (or other regions) are, the smaller the proportionality coefficient in the formula of allocation of financial assistance is. Accordingly, under this particular model regions interact, as they compete for the right for receiving an additional financial assistance from the common fund (pool)<sup>179</sup>.

In this case the problem facing the regional authorities in  $i$ -region takes the form:

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<sup>179</sup> This model makes it possible to consider a situation in which one of the regions will accumulate very big budget arrears in a hope for receiving a greater part of the overall volume of financial assistance and debt repayment. Whereas in this paper we do not analyze interaction between regions, the respective situations will not be considered below.

$$u_i = u_i^{RC}(E_i, D_i) \rightarrow \max_{E_i, D_i}, \text{ for } \forall i = 1..N. \quad (49)$$

$$E_i = T_i + D_i + G_i, \quad E_i = T_i + D_i^0, \quad G_i = \alpha D_i^0, \quad \sum_i G_i = G.$$

The budget constraint facing regional authorities can be modified as follows:

$$E_i = T_i + D_i + G \frac{E_i - T_i}{\sum_k (E_k - T_k)}, \quad (50)$$

причем  $\frac{\partial G_i}{\partial E_i} = \alpha \left(1 - \frac{G_i}{G}\right) < 1.$

Accordingly, in such a model the first-order conditions are put as follows (we solve the problem of  $i$ -region in an assumption that  $(E_k - T_k)$  are constant for  $k \neq i$ <sup>180</sup>):

$$\frac{\partial u_i^{RC}}{\partial E_i} = -\frac{\partial u_i^{RC}}{\partial D_i} \cdot \left(1 - \alpha \left(1 - \frac{G_i}{G}\right)\right), \text{ т.е. } \frac{\partial u_i^{RC}}{\partial E_i} < -\frac{\partial u_i^{RC}}{\partial D_i}. \quad (51)$$

The above condition means that the marginal utility of regional expenditures appears to be lower than the marginal utility of repayment of budget arrears, i.e. in this model equilibrium values of expenditures are

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<sup>180</sup> The condition of constancy of the other regions' budgetary policy parameters de-facto means a search for Cournot equilibrium in the problem of interaction between regions seeking the aggregate fund of financial assistance. With account of the fact that once expenditures grow by 1 Rb. the financial assistance grows at a smaller value, the equilibrium that is found proceeding from the above conditions appears stable. With the regional budget expenditures growing, regardless of a consequent increase of the financial assistance, to meet a given budget constraint, the regional authorities are compelled to boost their own budget arrears. In practice, there may arise more complex cases of interaction – for instance, regional authorities accumulate considerable payables, receive a greater financial assistance and consequently partly repay the debt out of their own revenues. Such cases are not considered in the given model, for it is assumed that the allocation of financial assistance takes place at the end of the year and it is fully spent on debt repayment.

greater than optimal ones. Under the considered circumstances, the costs of public goods for regional authorities are lowered through allocation of additional financial help against an increase in expenditures, which leads to growth in the latter.

In this model, in addition to the decline in the costs of provision of public funds, the regional authorities face the problem of the common fund of financial support. It manifests itself in the situation in which an increase in assistance to a region becomes possible only through cutting down the assistance to the others<sup>181</sup>. This leads to a situation in which optimal values of regional budgetary expenditures are greater than expenditures in the absence of grants, but lower than expenditures in model *M3a*, because in addition to the condition of proportional correlation between the financial assistance and budget arrears, regions face the problem of the common fund of financial assistance.

The result of the model is the following comparison between the equilibrium expenditures:  $E_i^{M4a} > E_i^{M4b}$ . The correlation between optimal expenditures and public optimal ones in this model depends on parameters of the model – that is, if the proportionality coefficients in the formula of allocation of financial assistance  $\alpha$  in model *M3a* or the aggregate volume of the common fund  $G$  in model *M3b* are small enough, the values of expenditures in the model will be lower than the expenditures that maximize the social welfare.

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<sup>181</sup> From the first-order conditions it follows in particular that for a region with minor budget arrears (for which  $G_i$  is substantially smaller than  $G$ ) equilibrium values of expenditures (and, accordingly, budget arrears) will be close to values of model 4a), as with the change of its debt such a region will practically exert no influence on the value of the proportionality coefficient. That is why an increase in expenditures will be coupled with a growth in financial assistance (albeit smaller by its size) with the proportionality coefficient being close to  $\alpha$ . By contrast, a region that receives most of its financial assistance from the aggregate fund because of a greater of its value of budget arrears will see an increase in expenditures coupled with a relatively smaller increase of the financial assistance. The phenomenon will be there because of the decline in the proportionality coefficient due to the limited amount of the aggregate volume of the fund – the growing (and for the region in question aggregate) budget arrears account for the increasingly smaller proportion of the overall fund of financial assistance. Accordingly, in such a situation expenditures of the regional budget will be closer to optimal ones. For a region that receives practically a full volume of financial assistance expenditures will practically match optimal ones (in this particular case, the size of the grant appears loosely correlated with the amount of budget arrears and it is determined mostly by the size of the fund).



*Models M4-M6. Preferences of the Regional Authorities are the Preferences of the Bureaucracy*

According to the above assumption, the distinction between models *M4–M6* from models *M1–M3* lies in the situation when in the models *M4–M6* the regional authorities have a utility function which differs from that of the representative consumer by a greater marginal utility from regional expenditures. Accordingly, after replacing the regional authorities' utility function of representative consumers in models *M1–M3* with the utility function of the bureaucracy, we receive the following first-order conditions (the utility function of the regional authorities mirrors the bureaucracy's preferences).

Model *M4* (the first move by the federal center) and model *M5* (simultaneous interaction):

$$\frac{\partial U}{\partial u_0} \cdot \frac{\partial u_0^{RC}}{\partial E_0} = \frac{\partial U}{\partial u_i} \cdot \frac{\partial v_i^B}{\partial E_i} = -\frac{\partial U}{\partial u_i} \cdot \frac{\partial v_i^B}{\partial D_i}.$$

Model *M6* (the first move by the federal center):

$$\frac{\partial v_i^B}{\partial E_i} = -\frac{\partial v_i^B}{\partial D_i} \left[ 1 - \frac{\partial G_i}{\partial E_i} \right].$$

Model *M6a* (allocation of financial assistance in proportion to budget arrears): (52)

$$\frac{\partial v_i^B}{\partial E_i} = -\frac{\partial v_i^B}{\partial D_i} \cdot (1 - \alpha).$$

Model *M6b* (allocation of the fixed fund of financial assistance):

$$\frac{\partial v_i^B}{\partial E_i} = -\frac{\partial v_i^B}{\partial D_i} \cdot \left( 1 - \alpha \left( 1 - \frac{G_i}{G} \right) \right).$$

Accordingly, the above first-order conditions allow comparisons of the equilibrium values of expenditures of the federal and regional budgets, budget arrears and financial assistance in different models. The lower the marginal utility expenditure financing vis-avis the marginal utility from repayment of budget arrears is, the greater the difference between regional budget expenditures and publicly optimal expenditures will be.

As noted above, the equilibrium expenditures of regional budgets in Model *M1* of the first move of the federal center match the equilibrium expenditures in model *M2* of the simultaneous interaction, but the expenditures in the models are smaller than the equilibrium expenditures in model *M3* of the first move by the regional authorities. If the utility function of the regional authorities has a greater marginal utility from regional expenditures compared with the utility function of representative consumer, in this case the equilibrium expenditures of regional budgets grow:

$$\begin{aligned}
 E_i^{M0} = E_i^{M1} = E_i^{M2} &< E_i^{M4} = E_i^{M5} < E_i^{M6} \\
 E_i^{M0} < E_i^{M3} < E_i^{M6} \\
 E_i^{M3a} < E_i^{M6a} \\
 E_i^{M3b} < E_i^{M6b} < E_i^{M6a} .
 \end{aligned}
 \tag{53}$$

The growth in the regional budget expenditures in all the cases corresponds to the contraction in the federal budget expenditures and growth in the federal financial assistance, as well as to the growth in budget arrears on the regional level.

The graphic illustration of the above models is given in *Fig. 1*. Straight lines  $G_i = G_i(E_i)$  and  $E_i = E_i^{RC}(G_i)$  are the response functions of the federal center and regional authorities, respectively. The angle of the federal government's response function  $G_i = G_i(E_i)$  over the  $G_i$  axis is more than  $45^\circ$ , as with the regional authorities' expenditures growing by 1 Rb., financial assistance is increased at a smaller value. The angle of the regional authorities' response function  $E_i = E_i^{RC}(G_i)$  over the  $E_i$  axis is likewise more than  $45^\circ$ , as with the financial assistance to regional authorities growing by 1 Rb., a part of the funds is spent on repayment of budget arrears, while the regional expenditures grow at a smaller amount.

The equilibrium in model *M1* of the first move by the federal government matches the equilibrium of the simultaneous interaction between the federal center and regional authorities (model *M2*) – intersection point I of the response functions of the federal government  $G_i = G_i(E_i)$  and regional authorities  $E_i = E_i^{RC}(G_i)$  in the event the regional authorities' preferences are those of representative consumer. Such a match between the equilibrium with the first move by the federal

government with that of simultaneous interaction means that the constant utility curve of the federal government  $U = \bar{U}$  must be tangent to the regional authorities' response function  $E_i = E_i^{RC}(G_i)$  at the point of its intersection with the federal government response curve  $G_i = G_i(E_i)$ . According to the above results of the analysis, this particular point coincides with the point of maximization of public welfare in model *M0*.

In the model of the first move of the federal authorities *M3* they maximize their utility function on the federal center response curve  $G_i = G_i(E_i)$ . The respective point is denoted in the Figure with p. II – that is, this point is characterized with a greater values of expenditures and federal financial assistance vis-à-vis p. I.

When the regional authorities' preferences are those of bureaucracy, the respective equilibriums are characterized with greater expenditure values under the same volumes of financial assistance – the regional authorities response curve shifts upward  $E_i = E_i^B(G_i)$ . Accordingly, the equilibrium in model *M4* of the first move of the federal center and model *M5* of simultaneous interaction is characterized by greater values of expenditures (p. III). If so, expenditure values in model *M6* of the first move by the regional authorities (p. IV) is also characterized by greater expenditures vs. model *M3* (p. II).

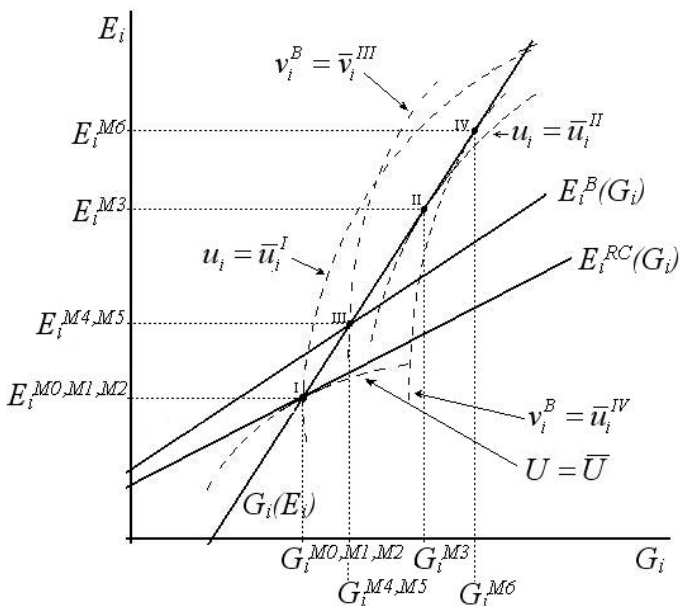


Fig. 1. Graphic Illustration of Analyzed Models M0–M6

*Models M7-M9. Preferences of the Federal and Regional Authorities are the Preferences of the Representative Consumer, Financial Assistance is Allocated with Probability  $p$ .*

The difference between the models in question from M1–M3 lies in an assumption of allocation of financial assistance with some preset and known to the regional authorities probability  $p$ , while with probability  $(1-p)$  the financial assistance is not allocated<sup>182</sup>.

In model M7 of the first move by the federal center the uncertainty is realized prior to the regional authorities making their decisions. Accordingly, model M7 of the first move by the federal center in the event of allocation of financial assistance matches model M1 of the first move made in the conditions of certainty. For other models by the mo-

<sup>182</sup> It can be assumed that with probability  $(1-p)$  can be realized the type of a center that does not suggest an allocation of financial assistance.

ment of selection of a fiscal policy by the regional authorities allocation of financial assistance remains uncertain and, accordingly, in models *M8–M9* the regional authorities maximize the expected utility:

$$\begin{aligned}
 & p \cdot u_i^{RC}(E_i, D_i) + (1 - p) \cdot u_i^{RC}(E_i, D_i) \Big|_{G_i=0} \rightarrow \max_{E_i}, \\
 & \text{under the budget constraint} \\
 & E_i = T_i + D_i + G_i.
 \end{aligned}
 \tag{54}$$

In models *M8* and *M9* the optimal values of the federal budget expenditures in the event of allocation of financial assistance derive from the condition of equality between the marginal utility of the financing of federal expenditures and that of repayment of regional budget arrears through allocation of financial assistance to regions, i.e. the respective first-order conditions for the federal center match the conditions of models *M2* and *M3*. For regional authorities' problems the first-order conditions in models *M8–M9* can be written as follows:

Model *M8* (a simultaneous interaction between the regional authorities and federal center, maximization of the expected utility of the regional authorities under uncertainty of allocation of financial assistance):

$$\begin{aligned}
 & p \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} + (1 - p) \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} \Big|_{G_i=0} = \\
 & = -p \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i} - (1 - p) \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i} \Big|_{G_i=0}.
 \end{aligned}$$

Model *M9* (the first move by the regional authorities, maximization of the expected utility of the regional authorities under uncertainty of allocation of financial assistance with account of the federal financial assistance response to the regional authorities' expenditures and debt):

$$\begin{aligned}
& p \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} + (1-p) \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial E_i} \Big|_{G_i=0} = \\
& = -p \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i} \cdot \left[ 1 - \frac{\partial G_i}{\partial E_i} \right] - (1-p) \cdot \frac{\partial U}{\partial u_i} \cdot \frac{\partial u_i^{RC}}{\partial D_i} \Big|_{G_i=0}
\end{aligned}$$

Model *M9a* (allocation with a pre-set probability of financial assistance in proportion to budget arrears)

$$p \cdot \frac{\partial u_i^{RC}}{\partial E_i} + (1-p) \cdot \frac{\partial u_i^{RC}}{\partial E_i} \Big|_{G_i=0} = -p \cdot \frac{\partial u_i^{RC}}{\partial D_i} \cdot (1-\alpha) - (1-p) \cdot \frac{\partial u_i^{RC}}{\partial D_i} \Big|_{G_i=0}$$

Модель *M9b* (allocation with a pre-set probability of the common fund (pool) of financial assistance)

$$\begin{aligned}
& p \cdot \frac{\partial u_i^{RC}}{\partial E_i} + (1-p) \cdot \frac{\partial u_i^{RC}}{\partial E_i} \Big|_{G_i=0} = -p \cdot \frac{\partial u_i^{RC}}{\partial D_i} \cdot \left( 1 - \alpha \left( 1 - \frac{G_i}{G} \right) \right) - \\
& - (1-p) \cdot \frac{\partial u_i^{RC}}{\partial D_i} \Big|_{G_i=0}
\end{aligned}$$

As demonstrated by the above conditions, under uncertainty the equilibrium values of expenditures, financial assistance and budget arrears lie between the appropriate values in the conditions of the absence of financial assistance and equilibrium values under certainty. It should be noted that the lower the probability of allocation of financial assistance is, the smaller expenditures of the regional budget and budget arrears are.

The above results mean in particular that the introduction of uncertainty in the model with the increase in regional budget expenditures under soft budget constraints or bureaucracy preferences can shift equilibrium values of regional budget expenditures towards optimal ones.

Results of the analysis conducted in the present section allow noting the following influence between variables of models of interaction between the center and regions:

- With revenues to the federal or regional budgets growing, there occurs a rise in expenditures of the federal and regional budgets

and decline in budget arrears of regional budgets; should revenues to the federal budget grow, the amount of financial assistance grows as well; while if revenues to regional budgets grow, the volume of the allocated financial assistance declines;

- If the federal center and regional authorities' preferences match those of the representative consumer, the equilibrium values of regional budget expenditures and budget arrears of regional budgets match for the model of the first move by the federal center and model of simultaneous interaction and match the values of the welfare maximization;
- In the model of the first move by the regional authorities there occur soft budget constraints – while foreseeing the federal center's behavior, the regional authorities increase expenditures and budget arrears of their budgets over their optimal values, thus ensuring the receipt of greater volumes of financial assistance;
- If the regional authorities' preferences correspond to those of bureaucracy (with a greater marginal utility from regional expenditures) this results in a rise in the equilibrium regional budget expenditures under any sequence of moves due to differences between the federal center's preferences and those of the regional authorities; this increases expenditures over an publicly optimal level even if the value of financial assistance matches an optimal one;
- Allocation of financial assistance in proportion to the value of budget arrears of regional budgets likewise leads to an increase in regional expenditures, because of a decrease in the costs of provision of public goods; meanwhile, in the situation when a common fund (pool) of financial assistance is distributed between regions, this effect is higher; this situation also matches the one of the presence of soft budget constraints;
- An uncertainty with allocation of financial assistance leads to a downward shift of regional budget expenditures, which proves to be the greater, the lower the probability of allocation of financial assistance is; accordingly, if regions, while finding themselves in the conditions of soft budget constraints, increase their expenditures over a publicly optimal level, the federal center can make the equilibrium values of regional expenditures converge with

publicly optimal by introducing an uncertainty of allocation of financial assistance.

Thus, basing on the above modifications of the suggested theoretical model, we analyzed conditions under which situations of soft budget constraints unfold (see *Table 2*).

*Table 2*

**Results of Modeling Interaction between the Federal Government and Regional Authorities**

		The federal center's preferences are the (federal) representative consumer preferences $U=U(u_0^{RC}(E_0), \dots)$	
		Regional authorities' preferences	
		the (regional) representative consumer $u_i=u_i^{RC}(E_i, D_i)$	bureaucracy $u_i=v_i^B(E_i, D_i)$
		the (regional) representative consumer $u_i=u_i^{RC}(E_i, D_i)$	
		Under certainty of the allocation of financial assistance	Under uncertainty of the allocation of financial assistance
A) The first move by the federal center	Public optimum is ensured	Expenditures of regional budgets grow	Public optimum is ensured (Model M7)
B) Simultaneous interaction	(Models M1 and M2)	(Models M4 and M5)	Expenditures fall vis-à-vis the publicly optimal level (Model M8)
C) The first move by regional authorities			
C-a) allocation of financial assistance in proportion to budget arrears	The situation of soft budget constraints arises	The situation of soft budget constraints arises, aggravated by an additional increase in expenditures	The situation of soft budget constraints arises, albeit with smaller expenditure values vis-à-vis conditions of the complete certainty (Models M9, M9a and M9b)
C-b) allocation of the common fund of financial assistance in proportion to budget arrears	(Models M3, M3a and M3b)	(Models M6, M6a and M6b)	

The *Table 2* shows that the situations of soft budget constraints emerge under the opportunist (moral hazard) behavior of regions, when



they take into account the center's behavior in the models of the first move by the federal center (models *M3*, *M6* and *M9*) – an increase in regional budget expenditures and budget arrears results in a rise of the federal financial assistance.

In addition, we consider two particular cases of the first move by regions when the federal center's financial assistance is allocated in proportion to budget arrears (models *M3a*, *M6a* and *M9a*), and the distribution of the common fund of financial assistance in proportion to budget arrears takes place (models *M3b*, *M6b* and *M9b*). All other situations describe in our terminology hard budget constraints. When the regional authorities are the population's preferences, the first move by the center (model *M1*) and a simultaneous interaction between the center and regions (model *M2*) ensure public optimum. He situations of an increase of regional expenditures over an optimal level in the models arise when the regional authorities' preferences are shifted towards increase in expenditures (models *M4–M6*).

In terms of interaction between the federal government (Ministry of Finance) of Russian Federation and regions (Subjects of the Federation) the above results can be interpreted as follows:

Interaction in model *M1* of the first move by the federal government suggests that the government is in possession of information of the regional authorities' (regional representative consumer) utility function and their budget constraint. Accordingly, the federal center can solve the problem of maximization of the region's utility and identify financial policies they will be pursuing in response to this or that value of the amount of financial assistance. Whereas the federal government's utility function in this case coincides with the function of maximization of public welfare, while the regional authorities' preferences – with those of the regional representative consumer, such an interaction results in public optimum.

This situation suggests that the federal center is aware of all parameters of the regional authorities' fiscal policies, with the federal center playing the role of benevolent dictator, and it de-facto sets parameters of the fiscal policy at all the levels and delegates to regional authorities the sole function of execution of the budget, rather than functions on making decisions on the regional fiscal policy. In other words, in terms of real budgeting the federal authorities in this case

form the regional budgets in such a manner as if the respective decisions on the regional level were passed by the regional representatives that reflect the regional voters' preferences with account of the federal authorities' possible decisions and priorities. Attainment of public optimum in this particular case is determined chiefly by the federal center's decisions. Despite the fact that the results received for the situation when the center that plays the role of the public planner ensures the optimum generally match results of the theorem on decentralization (see *Oates (1972)*), implementation of the above prerequisites is unlikely.

In models *M2* and *M3* the federal center does not know and cannot identify the regional authorities' response functions to the financial assistance allocated to them. In model of simultaneous interaction *M2* the approximation to an equilibrium can take place in the course of the process of groping for the point of intersection of curves of the federal center and regional authorities' responses either under the transition from one budget year to next one, or in the frame of a given budget year in the course of discussions on budget projections in the course of a step-by-step bargaining. As in this case we assume that both the federal center and regional authorities maximize the representative consumer's utility function, the equilibrium values of expenditures and financial assistance correspond to publicly optimal ones. Decentralization of decision making with regard to the regional authorities' fiscal policy does not lead to a 'shift from the public optimum in the event the regional authorities' preferences are those of the representative consumer. Like in model *M1*, in this case (model *M2*), allocation of financial assistance can be interpreted as an instrument the federal center employs to ensure attainment of public optimum.

In other words, should the model of simultaneous interaction be implemented, in practice it does not result in the emergence of the problem of soft budget constraints, because of the absence of the possibility to influence the allocating an additional financing, once the respective need arises on the regional level. If in the course of a budgeting cycle regional authorities have no idea as to how the federal government responds to parameters of their budgetary policies (this may happen, for example, if the prior experiences do not allow

conclusions on the existence of a certain response function), the situation, in which the regional authorities' decisions to increase their budgetary expenditures in order to get an additional financial assistance can be effective, can take place only accidentally.

The difference between model *M3* of the first move by the regional authorities and the model of simultaneous interaction *M2* lies in the regional authorities being aware of the federal center's response function (that is, how much of the financial assistance will be allocated due to parameters of a given regional budget). By contrast with model *M1* of the first move by the federal government which implies that the federal government has information of the regional authorities' budgetary policy parameters and preferences, model *M3* of the first move by the regional authorities is unlikely to allow assumption that while solving the respective problem, the regional authorities can identify the federal center's response function. It appears more probable that they would be able to guess the form of the response function (not the intersection point of response functions, but the point on the federal center's response function, i.e. how the allocated financial assistance depends on the parameters of the regional authorities' budget policies) in the course of negotiations on allocation of an additional financial assistance between the regional authorities and federal centers or proceeding from the analysis of the center's behavior in the prior years with respect to decisions made by various regional authorities.

Allocation of an additional financial assistance in the event of increasing regional budget expenditures can be determined by various reasons, such as the federal center's aspiration not to allow the rise of a budgetary crisis in regions, seeking various kinds of support from them, particularly at elections of federal authorities, the need to repay debts to institutions, enterprises and employees financed out of the budgetary funds for the sake of keeping the political support from the voters, among others. In any case, as it follows from the models, in the event a given region becomes aware of procedures or conditions of allocation of discretionary financial assistance by the federal center (given our prerequisites, the procedures in question rest upon preclusion from the growth in budget arrears of the budget on the regional level), there occurs a rise in regional budgetary expenditures

over an optimal level, i.e. soft budget constraints of regional authorities. This results in the situation in which even when the regional authorities are the regional representative consumer's preferences, they are keen to receive a greater volume of financial assistance to finance their expenditures. The region's expenditures in this case are higher than optimal ones while the federal budget expenditures are lower.

In order to prevent the situation of soft budget constraints for the federal center, in terms of the evaluated models, the possibility for the regional authorities to identify the center's response function should be prevented. An early declaration by the center of procedures of allocation of a discretionary financial assistance (in the event the procedures are based upon employment of indicators that are directly susceptible to the regional authorities' decisions) appears equal to announcement of the center's response function and entails the possibility for regions to use the right for the first move.

The above means that to secure a public optimum, the center should maintain such a reputation that would not enable the regions, given their past experiences, to have fairly trustworthy forecast its reaction on their certain budget decisions. Likewise, the center's entering into negotiations with the regions in the course of the ongoing budgetary process should not give the regional authorities necessary information of a possible allocation of financial assistance in response to their policy. Interpretation of models *M3a* and *M3b* allows to note that the budget legislation and the center's behavior in the course of a real budgeting process should not provide the regions with any grounds for developing a forecast that some proportion of their budget arrears would be forgiven or covered, or in the current financial year the federal center is going to allocate a certain, in absolute terms, amount to help them repay their budget arrears. The analysis speaks of the possibility for the rise of non-optimal equilibriums otherwise.

While political considerations testify in favor of the impossibility for the federal center to refuse the practice of using discretionary financial assistance, the center's rational policy is a deliberate stage-by-stage decrease of its scale, along with an early notification of the scale in question. Combined with the diminishing shift from public optimum, such a policy may help establish the federal authorities' reputation which in turn would help overcome soft budget constraints. The

regional authorities have their preferences and may enjoy a great marginal utility from increasing their expenditures, for bureaucracy exhibits a direct or indirect interest in certain kinds of expenditures. This, as well as some other reasons, in any case shifts equilibrium values of regional budget expenditures towards their growth (models *M4–M6*). Reclusion from a possibility for the rise of such situations is associated with emergence of procedures of public control over bureaucrats' performance, competition between them on the labor market, and building of optimal stimulating contracts concluded with regional and local civil servants.

Introduction of uncertainty with respect to allocation of financial assistance results in the regional authorities compulsory cutting down cash expenditures of their budgets to avoid the existence of considerable budget arrears in the situation the financial assistance is not allocated. Given that, in the situation when financial assistance is used as an instrument that ensures attainment of public optimum, the expenditures appear lower than optimal ones. However, in the situations when the regional budget expenditures prove to be greater than optimal, because of soft budget constraints or the regional authorities' (bureaucracy's) preferences that appear biased towards a greater marginal utility from greater expenses vis-avis the population's preferences, a tightening of the federal center's budgetary policy by means of introducing an additional financial assistance shifts regional budget expenditures towards their diminishment. This allows to note that lowering the probability of allocation of financial assistance the regions in practice assess on the basis of the federal center's previous actions allows for harder budget constraints for the regional authorities.

#### **2.4. Interpretation of Results of Theoretical Analysis of Interaction between Central and Regional Authorities**

The above theoretical research allows systematization of the terminology that concerns description of soft budget constraints relative to the system of relationship between the federal center and regions and division of situations under which:

- (1) financial assistance from the budget of a higher-level body of power constitutes an instrument of ensuring a public optimum on the sub-national level;

(2) there arise the regional authorities' soft budget constraints (the regions' opportunistic/moral hazard behavior) that do not allow establishment of budget expenditures on an optimal level.

Below, we will consider main situations that help or resist the rise of the problem of the subnational authorities' soft budget constraints under a multi-tier structure of government and budget system from the viewpoint of the above theoretical models. As well, we will consider main hypotheses concerning the Russian regional authorities' behavior in terms of the theoretical models and the respective results of their analysis.

#### *2.4.1. Main Conclusions from the Analysis of the Theoretical Models*

In the aforementioned models of interaction between the federal center and regional authorities the respective equilibrium and dependence between equilibrium values of the federal and regional budgets, arrears and financial assistance and publicly optimal values depends on the conditions of the interaction and particularly on the extent to which the regional authorities have and use the possibility for thrusting their own strategy on the federal center – that is how they use the right for the first step.

In terms of the Russian budgeting process, this means that biases of expenditures and financial assistance from their optimal values under implementation of the above prerequisites vis-à-vis the federal center's preferences are determined by the degree of the regional authorities' success in negotiations with the federal center, how the latter responds to their arguments in favor of allocation of an additional financial assistance, and to what extent the regional authorities are successful in dictating their strategy of behavior to the federal center (in terms of the model, in justifying for the necessity of the center's support to financing budget arrears by making budgetary decisions that become known to the center prior to the moment of allocation of financial assistance to regions).

In other words, the right for the first move by the regional authorities in the course of formation of a system of allocation of the federal financial assistance to regional authorities is determined by the degree of their influence on the decision making process with respect to proce-

dures of allocation of funds and (or) volumes of interbudgetary transfers to particular regions.

The analysis of the theoretical models showed that in the event the regional authorities maximized the utility function of the representative voter in the region, while the federal authorities' utility function was the public welfare one, despite the fact that maximization of each function is made on its own budget constraint (regional and federal, respectively), the equilibrium in the conditions of simultaneous interaction and that in the situation of the first move by the federal center matches the public optimum under which maximization of public welfare takes place under a budget constraint common for the regions and the center and formed by their budgetary revenues and budget arrears.

This means that in the conditions when the regional authorities' preferences are those of regional voters and the regional authorities do not carry out opportunistic actions aimed at receiving an additional financial assistance from the federal center, the decentralization of expenditure mandates does not result in a bias from the public optimum.

In other words, in such circumstances the federal and regional authorities act absolutely independently of each other, i.e. regions have no opportunity for an early identification of their policies in the budgetary expenditures area in such a manner, so that to be able to shift some share of the burden of financing onto the federal budget, i.e. to receive additional financial resources beyond those allocated in the frame of discretionary procedures, or to affect parameters the federal authorities consider in the course of allocation of regular interbudgetary transfers. Neither the Russian, nor international practices have exhibited such a situation. As shown by the review of international experiences, regional authorities to some degree enjoy the possibility for affecting decision making on the federal level, particularly in the area of allocation of additional financial resources to regional authorities. A similar situation is noted in Russia, with representatives of regional authorities contributing most vigorously to the process of budget bargaining and the respective discussions at which decisions are made on both volumes of allocated financial assistance (both regular and discretionary ones) and principles of its distribution.

It should also be noted that if the regional authorities have preferences in favor of greater budgetary expenditures than the voters have

and the former have no possibility for increasing their tax revenues, but have information of the volume of financial assistance allocated and (or) the formula of its distribution, the level of budgetary expenditures and budget arrears is set under the impact of these bureaucracy's preferences. Meanwhile, if the general procedures of allocation of financial assistance have been set, with the growth in the aggregate volume of the allocated assistance and, accordingly, the proportion of budget arrears repaid at the expense of funds of the federal budget, the federal center cannot resist the regional bureaucracy and the regional budgetary expenditures find themselves increasingly getting biased from the public optimum towards their rise.

Such a situation is familiar, as long as the Russian budgeting process is concerned. On the one hand, the Russian regional authorities have limited possibilities to increase their own tax revenues, while it can be suggested that basing on their past experiences, the Russian authorities are in possession of information of principles of allocation of financial assistance and they are keen to maximize regional budget expenditures. The above theoretical analysis allows a hypothesis that in the circumstances the regional authorities increase the volume of public expenditures vis-à-vis public optimum.

In the situation when the regional authorities use the right for their first move, i.e. while opting for their own budgetary policy, they consider a possible response of the federal center to the volume of expenditures and budget arrears they opt for, the equilibrium values of regional budget expenditures and financial assistance drift towards greater values vis-avis publicly optimal ones. That is, in the situation of soft budget constraints (the regional authorities' opportunistic behavior) being in equilibrium, the regional budget expenditures prove to be greater than publicly optimal ones, due to the fact that greater accumulated budget arrears result in the federal center allocating an additional financial assistance. If, in addition to that, the regional authorities' preferences reflect the bureaucracy's preferences, rather than those of regional voters, i.e. they determine a utility from executing expenditures of the regional budgets greater than the population's preferences, that results in an additional rise in the regional budget expenditures boosted by the increase in the financial assistance.



Thus, in the situation when, capitalizing on their right for the first move, the regional authorities have an opportunity for receiving additional financial resources compared with the originally set volume (or vs. the volume set on the basis of formalized computations), they will seize on the opportunity, regardless of the fact that such an additional financial assistance will give a rise to a number of costs for the region in the long run. So, such a strategy does not generate incentives to increase the efficiency of budget expenditures, while their inefficiency results in the decline of both the level and quality of provision of public goods. If the regional authorities pursue their own interests, rather than those of voters, they are keen to yet a greater extent ignore the costs and use the right for the first move to receive even a greater volume of additional financial assistance than in the first case.

So, the most essential factor of risk of emergence of the problem of soft budget constraints is the regional authorities' ability to manipulate the central authorities' activities (for instance, having information on how the latter respond to the regional authorities' budgetary decisions) which derives from the possibility for a region to consider the center's response to the budgetary policy pursued by the regional authorities. Such an influence of the region on the central authorities' policy can rest upon the regional authorities' influence, its formal and informal relations with the central authorities, as well as opportunities for the regional authorities to find the center's possible response to their activities and ways of communicating to the center information of the decisions the region made in the course of iterative coordination of positions in the course of budget planning.

In addition, an important factor that affects the possibility for the rise of soft budget constraints is the probability of getting additional financial assistance. Such a probability can be assessed on the basis of information of past experiences with receiving additional financial assistance, forecasts of the federal center's revenues and resources it spends to support regions. Given the above, the greater the uncertainty of receipt of the discretionary financial assistance (the lower the probability of its receipt) is, the closer to optimal values the respective equilibrium values are.

The above cases, of course, cannot be applied in a pure form to the Russian practice. During the period in question the federal authorities

was setting the bulk of expenditures of consolidated budgets of the RF Subjects in the form of federal expenditure mandates. In Russia, regional authorities have no possibility to opt for levels of financing of these or those expenditure obligations exclusively by their own initiative. More than that, in some situations the rise of budget arrears by some kinds of such obligations can be caused by an increase in expenditure obligations as per a decisions the federal authorities make in the frame of their expenditure mandates, rather than the existence of a region's own strategy aimed at receiving an additional financial assistance.

What the above situations have in common is the reaction displayed by expenditures of the federal and regional budgets to a rise in tax revenues. With tax revenues growing, budgetary expenditures rise, while the accumulated budget arrears of the budget are shrinking. With these phenomena in place, depending on whether the rise is noted in revenues to regional budgets, or those to the federal budget, the respective redistribution of revenues between them is made to this or that extent by means of changing the federal financial assistance<sup>183</sup>. In other words, the theoretical model implies that any increment in tax revenues results in a rise in budgetary expenditures and (or) contraction in budget arrears. Given that, the volume of financing of provision of public goods on the regional level due to a rise in revenues growth both under the rise in tax revenues to regional budgets (in every concrete Subject of the Federation) and under the rise in revenues to the central budget resulting from the rise in the volume of financial assistance allocated to regional authorities.

#### *2.4.2. Theoretical Results and the System of Interbudgetary Relations in Russian Federation*

The above analysis of prerequisites of the soft budget constraints situation for the regional authorities allows assumption that the struc-

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<sup>183</sup> Such a conclusion is basically evident and the Russian practice of execution of budgets confirms it – until 2000–01 the greatest volumes of budgetary expenditures (as well as minimum values of budget arrears) have been noted in the Subjects with a high level of budget revenues (city of Moscow, St. Petersburg, Yamalo-Nenetsky and Khanty-Mansy autonomous okrugs, among others). Meanwhile, beginning 2000–2001, the growth in the federal budget revenues allowed for an increase in the volume of resources allocated between Subjects of the Federation and thus reduce the budgetary budget arrears in all the regions, including the needy ones.

ture of the system of interbudgetary relations in RF, as well as trends in allocation of financial assistance to the RF Subjects out of the federal budget in certain periods of time fueled the rise of a situation that appeared analogous to the one that is described by the model with the first move by regional authorities.

More specifically, prior to 1998 there were no strict procedures of allocation of financial assistance basing on characteristics independent of the regional authorities' policies. At the time, there were fairly sophisticated arrangements to ensure allocation of financial resources between the RF Subjects. Regional authorities employed lobbying mechanisms to modify volumes of financial assistance from the federal budget. There were several channels of influence they resorted to:

(1). The law on the federal budget passed prior to the start of a given financial year fixed volumes of financial assistance to regional authorities. Such volumes were computed basing on both a methodology that considered revenues to and expenditures from regional budgets in the prior years and results of the budget bargaining between the regional and federal authorities. Computations of a series of parameters in then existing formula of allocation of budgetary sufficiency equalization subsidies were not based on objective statistics (for instance, the computation of the expenditure needs indicator was made by indexing to the inflation level of the 1991 budgetary expenditures on the respective needs). Such a process did not bear a great deal of objectivity and thus received figures would fall prey to the regional authorities' intense manipulations.

(2). In the course of consideration of a draft federal budget law in the parliament the original version the government submitted was adjusted considerably, including results of computations of transfers to regions according to the approved formula, in particular. Regional authorities could exert influence on results of the parliamentary debates on the matter through their representatives therein.

(3). Until 1999 the federal budget laws failed to be executed on the whole, both in its expenditure and revenue parts, with the level of execution of different expenditure items was different. As a result, in the process of finding consensus regional authorities enjoyed a possibility for exerting influence on the level of financing of transfers out of the federal budget to particular regions. In practice, the latter could receive

financial assistance in a volume considerably greater or smaller vis-avis the respective values set in the federal budget law.

Thus, in the period prior to 1998–99 the budget bargaining between the regional and federal authorities, as well as identification of volumes of financial assistance directly during the financial year has been following the same pattern from year to year. In the frame of the pattern in question the regional authorities submitted to the federal center arguments that concerned shortage of revenues to finance their budgetary expenditures and repayment of wage arrears. The experiences accumulated over a number of years, starting from 1992, was leading to the situation when the problem of soft budget constraints could arise with regard to a particular type of Subjects of the Federation. Thus, the regions that traditionally were considered to be financially strong, as a rule, did not pretend for financial assistance, while transfers to depressive regions were made specifically to repay their budget arrears. In late 1997, the federal authorities launched a campaign on repayment of the budgetary budget arrears on wages. In the course of the campaign considerable sums were distributed between regional budgets, which likewise failed to create incentives for most of regions to cut down their expenditures and budget arrears.

Thus, by 1997 the situation in the national budgetary system had been closer to the one described by the model that implied the first move by the regional authorities. The Federation's Subjects were aware of main characteristics of the federal government's response to their claims of provision of financial assistance, which is why main guidelines of the budgetary policy on the regional level could be formed with account of that particular factor.

Since 1998 when in the aftermath of the financial crisis the revenues to the budgets of all levels had declined drastically and the degree of the regional authorities' influence on the process of allocation of financial assistance to budgets of the Subjects of the Federation fell considerably, during the next consequent years the situation could be characterized as actions in the conditions of uncertainty. The drastic decline in budgetary revenues broke the tendencies that had been existing over the prior years, while the federal authorities' reaction to the regional authorities' claims of provision of financial assistance changed – with account of the decline in the volume of revenues to the federal budget,

there were numerous cases when the federal government failed to match the regions' claims to finance their budget arrears out of the federal budget. Furthermore, given inflation rates, the real volume of the debt declined. It was the period between 1999 and 2001–02 when the national budgetary system was functioning in such conditions. The interaction between the center and regions at that time is likely to be described by a model with the first move by the federal center or the one of simultaneous interaction with uncertainty.

Since the early 2000s the budgetary policy and interbudgetary relations have found themselves under the impact of the factor of growth in budgetary revenues, which were steered by the start of economic growth and high international oil prices. At the same time, the government has implemented the interbudgetary relations reform which has allowed allocation of the bulk of financial resources between regions on the basis of relatively transparent and objective methodological principles. In the circumstances the model of interaction between the federal center and regional authorities has once again undergone certain modifications.

Since then and up to today the financial assistance allocated in the course of drafting the bill on the federal budget for next financial year has been computed using already beforehand known methodologies and the volume of interbudgetary transfers to regions finds itself indirectly correlated with characteristics of the regions' budgetary revenues and budget arrears.

Meanwhile, over a number of years the federal budget has been planned on the basis of a conservative scenario that suggests an underestimation of budget revenues. As a result, between the middle and second half of a given financial year there occurs an allocation of additional (extra) revenues, particularly to provide additional interbudgetary transfers to the regional authorities. During recent years the federal authorities have made early announcements of the scale of salary raises in the budget sector and provided for funds to maintain the equilibrium of regional budgets without announcing procedures of allocation of the funds.

The above allows conclusion that the regional authorities once again have an opportunity, basing on experiences of the previous years, for having an idea of a possible interconnection between characteristics of

their budgetary policies and volumes of financial assistance allocated out of the federal budget. As a result they can build their policy in the budgetary expenditures area in such a manner, so that to maximize the volume of the financial assistance and boost the volume of their budgetary expenditures over the level that matches the public optimum in a given region. Thus, it can be suggested that it would be appropriate to describe the current situation with a model of interaction with the first move by regions in the conditions of uncertainty.

It should be noted at the same time that because of the transition from the practice of election to the one of appointment of heads of the executive power in the Subjects of the Federation, there unfold prerequisites to resisting such a situation by having the federal center exert a greater influence on the regional authorities' decisions in the budgetary policy area. In other words, in the new political circumstances the federal center can receive the right for the first move thanks to a stronger financial discipline the appointed governors should maintain vis-à-vis elected heads of regions (this, of course, does not support the rationality of the refusal to keep governor elections), rather than thanks to a consistent policy of refusal of allocation of discretionary financial assistance that compensates for the regional authorities' budgetary decisions.

A more detailed description of hypotheses of a region's budgetary policy in the conditions of soft budget constraints is given in the next section. It also contains results of the testing of hypotheses of soft budget constraints for regional authorities.

### **3. The Empirical Testing of Some Hypotheses Concerning the Soft Budget Constraints for Subnational Authorities**

#### **3.1. The Main Hypotheses and the Limitations of the Empirical Analysis**

The results of our analysis of the existing studies on the problem of soft budget constraints at the regional level, foreign experience in the development of interbudget relations, and the conclusions based on analyzing the theoretic model of the interaction between the federal and regional levels of authority in Russia, have led to a number of hypotheses, which we intend to test by applying sample data concerning the execution of the budgets of the Federation's subjects, as well as some other regional statistics available to us.

The situation of soft budget constraints for regional authorities, in accordance with the prerequisites for our analysis, emerges in an instance when regional authorities increase the amount of budget arrears in order to obtain additional financial assistance from the federal budget. In terms of the theoretic model discussed above, this means that regional authorities take advantage of their right to make the first move in order to increase the values of their own utility function through increasing the amount of budget arrears over the socially optimal level. Such an increase becomes possible because the central government, while solving its own optimization problem, allocates financial assistance with due regard to the necessity of earmarking a certain part of this assistance for the settlement of existing debts.

It can be assumed that in actual practice, in the eyes of the federal government, the aggregate amount of budget arrears in regional budgets is less important than the arrears against certain items of expenditure in regional budgets that are vital from the point of view of society. According to our assumptions, the grounds for priority allocations of additional funding to regional authorities may be provided by the growth in the amounts of budget arrears against such items as the expenditures on housing and utilities (especially in the country's northern regions during the winter season and in the course of the preparation to

it), as well as on public education and public health care (primarily in respect to arrears of wages and salaries in the budget-funded sphere).

As has been demonstrated by our analysis of the available studies in the sphere of soft budget constraints for regional authorities, the principal approach to testing the presence of soft budget constraints consists in estimating the dependence of the actions taken by regional authorities on the very fact of irregular financial support having been granted to them in the preceding periods. In a situation when such financial support is granted not only in the event of a crisis and only to some regions, but to a considerable number of regions almost throughout the entire period under study (the years 1994–2003), it can be suggested that regional authorities purposefully accumulate the amounts of budget arrears to their suppliers in an expectation of these debts being settled at the expense of financial support allocated by the federal center. If this hypothesis is true, then it may become possible for us, by doing econometric assessments of the panel data on all Russian regions within the period under study, to reveal the correlation between the volume of budget arrears, which is characteristic of the financial behavior of regional authorities, and the allocation of financial assistance.

However, in a real situation it might be quite difficult to determine the actual cause-and-effect relationship responsible for the potential dependency of financial support on the actions being taken by regional authorities. On the basis of statistical data pertaining to the whole of the period under study, we can assess changes in the volumes of federal financial support being allocated to regions, and in their expenditures or budget arrears during that period; however, it would be rather difficult to determine the specific factors responsible for such changes. In particular, it is difficult to find a definite answer to the question as to whether the volumes of public goods provided in a given region and the volume of their financing were growing as a result of budget arrears being purposefully accumulated by regional authorities in order to obtain additional unplanned financial assistance from the federal budget (that is, the soft budget constraints problem actually existed there), or this increased volume of expenditures occurred due to some objective reasons (e. g., certain decisions made by superior authorities).



A situation may also become possible when, as a result of some objective reasons, unrelated to any actions of regional authorities, – for example, in the event of growing revenue of the federal budget – the amount of financial support also increases, thus providing a source of funding for the expenditure of a regional budget. It should also be taken into account that, although the growth in arrears and volumes of public goods being provided may be caused by some other factors beside the opportunistic behavior of regional authorities aimed at attracting additional financial assistance, including also certain quite objective factors, the very presence of such objective reasons for increasing the amounts of expenditures and budget arrears may, in the final analysis, stem from the existence of soft budget constraints. Under conditions when the federal government almost always allocates some additional financial aid in the event of natural disasters, regional authorities take no special measures to prevent potential consequences thereof, which is also the result of existing soft budget constraints.

It is not possible to strictly distinguish such situation on the basis of the available annual statistics, and therefore a considerable proportion of the hypotheses for testing presented below have been formulated so as to make it easy to estimate the presence of absence of certain phenomena that could have potentially been caused by the existence of soft budget constraints. These conditions are the necessary prerequisites for the emergence of a situation characterized by soft budget constraints, that is, in an instance of soft budget constraints being present, certain consequences will inevitably occur, but not the other way round: situations may also be possible when similar changes in the corresponding indices could have been caused by some other phenomena<sup>184</sup>.

An important feature of our further analysis of the data concerning the execution of regional budgets is that the budget expenditure statistics of the Russian Federation's subjects reflect their cash expenditures (or

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<sup>184</sup> Thus, within the framework of our empirical analysis we are going to test the compatibility of the hypotheses concerning the existence of soft budget constraints stated here with the available empirical data. In this connection, the obtained positive results will be demonstrative only of a possibility for the existence of soft budget constraints in the relations between the federal center and regional authorities, and by no means of their actual presence: we do not thereby reject the alternative hypothesis as to the existence of rigid budget constraints.

those that have actually been paid), and not the actual value of public benefits provided to the population during a given period. This, in particular, implies that increased (cash) expenditures in regional budgets resulting from increased tax revenues therein may not necessarily mean that the volume of public benefits being provided has been growing; on the contrary, the amount of budget arrears may be diminishing.

The main bulk of budget arrears at the regional level do not represent the actual debts in a regional budget against the execution of the approved budget – they are indicative of the debts of budget-funded institutions. The available statistics have made it possible to distinguish the relatively reliable data concerning the budget arrears of budget-funded institutions during the period of 1999–2004, and so in our analysis that follows we have been dealing with this particular index. In this connection we assume that the financing of regional budget expenditures may result, among other things, in a reduced amount of the budget arrears of budget-funded institutions, without any growth in the volume of public benefits and services being actually granted.

These problems are largely associated with the lack of more detailed statistics on expenditures, financial assistance and budget arrears throughout a year. If such statistics were available, we could have checked whether the changes in the amount of budget arrears and expenditures in regional budgets were the result of changes in the amount of financial assistance, or vice versa. Or, whether the amount of budget arrears accumulated by a year's end (but before they had been settled) depended on objective circumstances (lowered revenues, objective growth in expenditure needs), or it was produced by purposeful actions of regional authorities aimed at accumulating budget arrears in order to use their amount as an argument when asking for additional financial assistance.

For purposes of solving this problem, we could attempt to apply the data concerning the amount of budget arrears accumulated against socially important items by the beginning of quarter III or IV of a current year, or budget arrears accumulated by the moment when an irregular financial assistance is received. Regretfully, no such information was available at the time of our study. We had only annual data on budget arrears by Russian regions, so no analysis was made of the changes in the amount of budget arrears, or in regional budget expenditures or

financial assistance during a year. As a result, we could make conclusions as to the presence of soft budget constraints or any other factors determining budget policies only on the basis of aggregate annual data, when financial assistance has already been granted, regional budgets expenditures financed, or the settlement of budget arrears has already occurred<sup>185</sup>.

### *The Main Hypotheses*

As has been noted earlier, the main hypotheses to be tested are those concerning the presence of certain results of a potential existence of soft budget constraints for regional authorities in Russia – that is, their use of the right of the first move and the accumulation of budget arrears in regional budgets. As one can see from the preceding analysis, the main results in this sphere will be as follows.

(1) Growing amount of budget arrears is taken advantage of as an argument for obtaining additional financial assistance: regions with higher budget arrears, all other conditions being equal, receive more substantial financial assistance.

When analyzing the actual peculiarities of the interaction between regional authorities and the federal center in Russia, it can be assumed that this interaction under conditions when regional authorities make use of their right of the first move and accumulate the amount of their budget arrears in order to attract additional financial assistance happens not only within one budget year, but also in a longer period. For example, the federal government can plan an increase in the amounts of regular and additional financial assistance in a draft federal budget for the next budget year, on the basis of each region's situation in the previous budget year. In this case, according to the theoretic model's results, the presence of a positive dependence can be assumed of the amount of financial assistance allocated in a current year on the amount of budget arrears accumulated by a year's beginning.

2) As a result of financial assistance being allocated to regions with higher amounts of budget arrears, at least some of this financial assis-

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<sup>185</sup> During our study, the data concerning the amounts of budget arrears were available only in respect of the period of 1998–2004 (as of a year's end), and so we estimated the equations with the variables of growth and / or volume of budget arrears only relative to the corresponding shorter periods.

tance is used for settling the existing debts, – that is, the cash expenditures against certain budget items are increased. This means that cash expenditures in such a situation depend to a greater degree on federal financial assistance than on other sources of financing – e.g., regional revenues proper.

It is obvious that condition (2) can be complied with only in respect to some expenditure items, – as far as total expenditures are concerned, for purposes of budget identity total cash expenditures must be equal to the sum of regional revenues proper and financial assistance received from the federal center. We assume that the described effect must be evident to a higher extent in respect to expenditures on socially important items. Such items (housing and utilities, public education, public health care), which are significant in the eyes of the federal authorities, may be financed at the expense of accumulating budget arrears; to be settled after financial assistance is allocated. At the same time, certain items that are important for regional authorities (law enforcement, state administration expenditures), the accumulation of budget arrears against which would either be inconvenient, or not be regarded by the federal authorities as a serious argument in favor of financial assistance to be allocated, are funded to a larger extent from regional tax revenues proper.

While analyzing the main phases in the evolution of interbudget relations in Russia (see above), it can be additionally assumed that the soft budget constraints of regional authorities, especially when associated with the financing of social expenditures, could be observed as being more prominent in 1995–1998 and to a lesser degree in later years, when more objective rules for the allocation of financial assistance began to be implemented.

The assumed character of the dependence of cash expenditures on financial assistance may be determined also by reasons other than the presence of soft budget constraints. On the one hand, in the situation of a legislatively determined necessity of providing a certain set of social benefits (in particular, the maintenance of a functioning budget network, with the payment of salaries in the amounts determined by the federal authorities), regions with low level of budget sufficiency will have to ensure the provision of this set through increasing the amount of their budget arrears, and to pay for it after receiving the necessary

funds from the federal budget, that is, to execute federal mandates irrespective of the actual availability of funding.

In a similar way, the accumulation of budget arrears at the regional level can be conditioned by other objective factors (a shock fall in revenues, natural disasters, changes in federal legislation, etc.). In this case, until a certain part of these newly emerging obligations is fulfilled at the expense of additional funding from the federal authorities, regional authorities may cover the provision of social benefits or public services by accumulating budget arrears. Considering that such situations cannot be very reliably distinguished from instances of dishonest behavior of regional authorities on the basis of available empirical data, we are going to assume that in every case we will be testing the hypotheses as to the consequences of the existence of soft budget constraints.

### **3.2. Models of the Influence of Budget Arrears on the Amount of Financial Assistance**

The testing of the hypothesis as to the influence of the amount of budget arrears accumulated by a year's beginning on the amount of financial assistance will involve an assessment of the model of financial assistance that incorporates the index of budget arrears. As is shown in *Sinelnikov, Kadochnikov, Trunin (2002)*, the amount of financial assistance in Russia in the period under study following the year 1995 has been influenced also by the indices of expenditures and regional budget revenues, which must be incorporated in the model, the amount of financial assistance influencing the amounts of expenditures and budget arrears. This means that indices like the amounts of budget arrears, federal financial assistance and budget expenditures are mutually influencing one another, and so it becomes necessary to estimate a system of simultaneous equations, which will include, in addition to the financial assistance equation, the equations for expenditures, regional budget revenues and budget arrears.

When the system of equations was being built, two additional circumstances were taken into consideration. Firstly, the specification and preliminary assessment of the model in such a form, in accordance with the results obtained in *Sinelnikov, Kadochnikov, Trunin (2002)*, has demonstrated that in the situation of negative fiscal incentives being

absent, tax revenues will not be dependent on federal financial assistance, and so the corresponding equation was excluded from the system. Secondly, the estimates of the equations for budget arrears within this system have shown that significant coefficients can be seen in this equation only when applied to the indices that reflect the results of regional voting at the Rf presidential election and the elections to the State Duma (the regions that voted for V. Putin and the United Russia Party had been accumulating greater budget arrears). Besides, a significant and positive coefficient was observed at the variable reflecting the gap between standard spending requirements and a region's tax potential<sup>186</sup>, that is, the amount of the region's actual shortage of budget funding. The actual expenditures and financial assistance were found to be insignificant. Accordingly, in this equation, the explained variable of budget arrears was found to be independent of the system's other endogenous variables, and therefore this equation was excluded from the system when the estimation was being made.

Thus, the final model was assessed as a system of two equations – for regional budget expenditures and for received financial assistance. In the equation of regional budget expenditures, in addition to financial assistance and tax revenues, the indices characterizing the budget network were also incorporated (the indices were selected on the basis of assessing the models for each individual item of expenditure – see Section 3.3: all other conditions being equal, an increase in the number of budget-funded institutions or in the number of their employees will be accompanied by higher budget expenditures. Besides, the expenditures equation also incorporated the changes in budget arrears during that period, because increased cash expenditures may be independent of the indices of social benefits being granted, being instead associated with the settlement of budget arrears (the higher the amount of their settlement, the higher become cash expenditures).

For calculations, the panel data on 88 regions of the Russian Federation (except the Chechen Republic) were applied, the available

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<sup>186</sup> The standard spending requirements were calculated in accordance with the results of modeling the regions' expenditures under conditions of their revenues being equalized, the values of tax potential – in accordance with the results of modeling regional tax revenues under conditions of their fiscal efforts being equalized. For more details, see *Sinel'nikov, Kadochnikov, Trunin (2001)*, *Sinel'nikov, Lugovoi, Trunin (2001)*.

source of the data on the revenues and expenditures of the regional budgets, as well as the data on the aggregate amount of financial assistance received from the federal budget<sup>187</sup> taken from reports of the Ministry of Finance of the Russian Federation on the execution of regional budgets, while other statistical data were taken from open publications of the Federal Statistics Service of the Russian Federation and from the collection “Regiony Rossii...” (“Russia’s regions...”) <sup>188</sup>. In the assessments, the per capita values, in prices comparable between regions and between years<sup>189</sup>, for the period of 2000–2004 were applied. The period of assessment was limited by the initial year 2000 because of the data on budget arrears being available from late 1999 only. The data being applied are structured as a panel, and the assessments, accordingly, were made in the form of the following steps.

The panel data make it possible to assess the model’s coefficients that vary between years and between regions. However, for this to become possible, limitations should initially be imposed on the equality of

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<sup>187</sup> In our assessments, we applied the data on aggregate financial assistance received by RF subjects’ budgets from the federal budget. At the same time, it should be noted that for purposes of more correct estimations, financial assistance should be divided into two components – the resources whose volume is determined on the basis of objective formulae and criteria that can hardly be influenced by regional authorities, and the resources that to a variable degree may be dependent on the amounts of revenues, expenditures and budget arrears at the level of subjects of the Russian Federation and municipal formations. Unfortunately, despite the fact that the main source of transfers – the dotations from the Federal Fund for the Financial Support to the Regions (FFFSR), Fund – in the past few years have been calculated on the basis of an approved fixed formula, two considerations at least preclude the separate application of these dotations as a formalized financial assistance. Firstly, the formula in its pure form was applied for a few years only, until the years 2001–2002; and, even despite the availability of this formula, the process of determining the volume of transfers was largely discretionary. Secondly, in recent years the total volume of transfers from the Federal Fund for the Financial Support to the Regions, by a year’s results, incorporated the volumes of transfers allocated at the expense of additional budget revenues being distributed in the middle and the end of a financial year, from which follows the interdependence between the budget situations in regions and the volume of financial assistance being distributed.

<sup>188</sup> While these assessments were being made, the Rosstat’s data on the number of schools and the number of nursing staff in 2004 were unavailable, and therefore, considering that these indices are, as a rule, rather stable, we applied the 2003 data.

<sup>189</sup> For purposes of making the data compatible in terms of comparable prices between regions and between years, we applied the data on the subsistence level and the price of a fixed basket of goods and services, on which the matrices of price indices with a single base value were based.

coefficients (the degrees of freedom are insufficient for assessing the full matrix of coefficients), based on content considerations. At the first step, we assumed that the coefficients (both the constant and the angular coefficients) of the model being tested are equal for all the regions, but may vary by years. Accordingly, at this step the model was tested separately for each year. At the second step, by applying *F*-test, we tested the hypothesis as to the equality of coefficients for each year between neighboring years (or simultaneous limitations of equality for corresponding pairs of coefficients for different years). In this connection we assumed that the model's coefficients, as a result of the system of interbudgetary relations having been reformed, the changes in the macroeconomic situation, and other factors, may vary throughout the period of 2000–2004.

As a result, we adopted the model where coefficients are equal for each of the five years being studied. An exception is represented only by the coefficient of budget arrears as of the beginning of a year in the financial assistance equation, – the tests' results demonstrated this coefficient's statistically significant changes in 2004, while later on the corresponding dummy variable was applied.

At the third step, the assessments of panel data, with the application of fixed individual effects were made<sup>190</sup>. However at the same time, since the model incorporated the budget network's indices which demonstrated negligible annual variations, the assessment's results also pointed to a significant correlation between fixed effects and the budget network's indices. Accordingly, as a result of preliminary assessments, the model was selected which preserved the budget network's indices while combining the fixed effects into a common constant.

The results of testing the hypothesis as to the equality of all angular coefficients and constants by applying *F*-test between years do not, however, eliminate the possible presence of time effects, as far as the constant is concerned.

Therefore, at the fourth step we separately tested the equality of time effects between years. In the first equation, in respect to regional budget expenditures, the hypothesis was not rejected, and so the time effects were also combined into a common constant. In the second equation for financial assistance the tests demonstrated statistically

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<sup>190</sup> Fixed effects were assessed on the assumption that this was a full sample of regions.



significant changes in time effects between years, and so in this equation the time effects were not eliminated.

With due regard for the considerations discussed above, when the hypothesis as to the influence of the amount of budget arrears as of a year's beginning on the amount of financial assistance was being tested, we assessed the following system of equations:

$$\begin{cases} E_{i,t} = b_{0,t} + b_1 \cdot T_{i,t} + b_2 \cdot Tr_{i,t} + b_3 \cdot \Delta D_{i,t} + \sum_k b_k \cdot B_{i,t}^k + \varepsilon_{i,t}^E \\ Tr_{i,t} = c_{0,t} + c_1 \cdot T_{i,t} + c_2 \cdot E_{i,t} + c_{3,t} \cdot D_{i,t-1} + \varepsilon_{i,t}^{Tr} \end{cases}, \quad (51)$$

where

$E_{i,t}$  – average per capita cash expenditures in the budget of region  $i$  in period  $t$  in comparable prices;

$T_{i,t}$  – tax revenues to the budget of region  $i$  in period  $t$  в расчёте per capita in comparable prices;

$Tr_{i,t}$  – aggregate federal financial assistance to region  $i$  in period  $t$  per capita in comparable prices;

$D_{i,t-1}$  – budget arrears of budget-funded institutions as of a year's beginning per one resident of the region in comparable prices;

$\Delta D_{i,t-1}$  – changes in budget arrears of budget-funded institutions during one year per one resident of the region in comparable prices;

$B_{i,t}^k$  – variables characterizing the budget-funded network and the number of employees of budget-funded institutions in region  $i$  in period  $t$  (as such variables, according to the results of testing the models for each individual item (see subsection 3.3), we applied the number of schools per capita and the number of nursing staff per capita).

The results of the system's assessment are summed up in the following table (in brackets under the coefficients,  $p$ -values of  $t$ -statistics are shown).

Table 3

### Results of Testing the System of Equations

Equation 1.

<b>Explained variable</b>	<b>Cash expenditures of regional budget</b>
Number of observations	<b>440</b>
Explanatory variables	<b>2000–2004</b>
Constant	–2.875 (0.002)
Tax receipts in consolidated budget of subject of Russian Federation	1.361 (0.000)
Federal financial assistance	1.365 (0.000)
Number of schools <sup>*)</sup>	–0.136 (0.813)
Number of nursing staff <sup>*)</sup>	0.137 (0.056)
Growth in budget arrears of budget-funded institutions during period	–2.635 (0.000)
<b>R<sup>2</sup> adjusted</b>	<b>0.832</b>

Equation 2.

<b>Explained variable</b>	<b>Financial assistance</b>				
Number of observations	<b>440</b>				
Explanatory variables	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Constant	1.019 (0.000)	1.357 (0.000)	1.518 (0.000)	1.793 (0.000)	2.214 (0.000)
Tax receipts in consolidated budget of subject of Russian Federation			–0.678 (0.000)		
Cash expenditures in consolidated budget of subject of Russian Federation			0.442 (0.000)		
Budget arrears of budget-funded institutions as of period's beginning		0.206 (0.011)			0.143 (0.669)
<b>R<sup>2</sup> adjusted</b>	<b>0.677</b>				

\*) As the 2004 data concerning these indices were unavailable while the testing was being done, in respect to year 2004 we applied the 2003 data.

The assessment results presented in the table demonstrate that in the first equation, in respect to cash expenditures, the main factors influencing the amount of expenditures are the federal budget's tax revenues and financial assistance, while the hypothesis as to the equality of these coefficients is not rejected<sup>191</sup>. This, in confirmation of the above considerations, is indicative of the fact that it is not possible to assess, on the basis of modeling the dependence of aggregate expenditures of regional budgets on various factors, the use of the received financial assistance predominantly for the purpose of settling the budget arrears in the presence of soft budget constraints – it will be necessary to make assessments by each individual item of expenditure.

Among the indices characterizing the budget-funded network and the number of employees of budget-funded institutions, the coefficient for the number of nursing staff (per capita) was found to be significant (at 10% significance level), while the number of schools (per capita) was insignificant. Also, in accordance with the hypothesis as to the connection between cash expenditures and the settlements of the budget arrears of budget-funded institutions the coefficient applied to the changes in budget arrears was found to be significant: the higher the settlement of arrears in one region in a given year (growth in arrears with negative sign) in comparison with another region, the higher are the cash expenditures in the first region.

In the equation of financial assistance, its amount is positively influenced by regional budget expenditures, and negatively – by a region's tax revenues proper. The results of testing the target hypothesis as to the presence of soft budget constraints, which are given in the table, demonstrate that budget arrears as of a year's beginning in 2000–2003 were significantly influencing the amount of financial assistance being allocated. This means that if in one region as of a year's beginning the amount of budget arrears was by 1 rouble higher than in the other region, then, all other conditions being equal, the first region will receive financial assistance in an amount higher by 0.2 roubles than the other

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<sup>191</sup> The assessed equation is close to a budget identity, however it cannot be regarded as such because it does not take into account non-tax revenues and the sources for covering the deficit or surplus of regional budgets. The coefficient of correlation between expenditures and tax revenues is 0.78, of that between expenditures and financial assistance – 0.52, respectively.

region. At the same time, the ratio of allocated financial assistance to arrears as of a year's beginning (the model's coefficient) demonstrated no statistically significant changes as seen by the tests' results, and amounted to approximately 20%. This, in its turn, corresponds to the results of testing the model that incorporates dishonest behavior of regional authorities – that is, their accumulation of a large amount of budget arrears as a justification for attracting additional financial assistance, – which shows the presence of soft budget constraints. In 2004, the coefficient for budget arrears, according to the results of testing, changes and was found to be insignificant, – probably due to the general improvements in the financial situation and the considerable reduction in the amount of budget arrears by that time.

As has been noted earlier, the estimations of the corresponding dependencies do not represent, strictly speaking, any testing of the hypothesis as to the presence of soft budget constraints. The positive results of the corresponding hypothesis' testing point to certain consequences of the existence of soft budget constraints, – that is, the necessary, but by no means sufficient conditions for their existence. In order to additionally take into account the potential presence of such an effect, in the models being tested below we applied variables reflecting the probability of financial assistance being received (the share of financial assistance in federal budget revenues, the share of additional financial assistance in the total amount of financial assistance allocated in a current and in a previous year). However, considering that the probability of the allocation of financial assistance (the proxy variables for this index) was assumed to be constant, in accordance with the theoretic model, for the assessments for all regions, and varying only between years, the corresponding variables were found to be insignificant and were excluded from the models during the phase of preliminary assessments.

### **3.3. Dependence of Regional Budget Expenditures on the Tax Revenues and Federal Financial Assistance**

The testing of the hypothesis as to the financial assistance coefficient being higher in an instance of those expenditure items of regional budgets which are socially important in the eyes of the federal govern-

ment than in an instance of regional tax revenues proper (as a result of additional financial assistance having been received and used as a source of funding for the settlement of some of the existing budget arrears and for increasing cash expenditures against these items) has been based on an assessment of models built in respect to the main items of expenditure.

When building a model, we assumed that, in addition to tax revenues proper and financial assistance, the amounts of expenditures on different items may also depend on the volume of social benefits being provided to the population, the parameters of the network of budget-funded institutions, as well as other specific features of a given region (its share of urban population, shares of the population younger and older than the employment age, etc.). The reverse dependencies should also be taken into consideration: the corresponding volumes of social benefits being provided to the population depend on the actual amounts of expenditures. In particular, if there exists a well-developed network of budget-funded institutions that provides high volumes of services in the spheres of housing and utilities, public health care, public education, law enforcement, etc., the corresponding expenditures will be quite high; the reverse is also true – the corresponding services, all other conditions being equal, will be provided in higher volumes in those areas where the level of expenditures is higher.

When a model is being built, the characteristics of the volumes of public goods being provided may in some instances be approximated by indices describing the results or characterizing the population's needs in specific services (morbidity levels, the level of crime and similar indices). Consequently, in accordance with the methodology for modeling expenditures described by us in *Kadochnikov, Sinelnikov, Trunin (2002)*, in our assessments we applied a system of equation which looks as follows:

$$\begin{cases} E_i^* = e_i(G_i^*, \vec{X}_i, A) \\ G_i^* = g_i(E_i^*, \vec{X}_i) \end{cases}, i = 1, \dots, n,$$

where

$E_i$  – cash expenditures on the provision of public benefit  $i$ ;

$A$  – funds allocated to the financing of all public benefits (the volume of funds is exogenously predetermined and fixed);

$G_i$  – volume of public benefit  $i$  being provided;

$\vec{X}_i$  – factors from set  $\vec{X}$  that influence the volume and effectiveness of the production of  $i$ th public benefit.

The estimations were made in respect to the following items of expenditure of the Federation's subjects: the housing and utilities housing and utilities sector, public health care, public education, culture and the arts, social policy, transport, law enforcement, and state administration. For the expenditures on public health care, public education, as well as culture and the arts, the estimations took the form of the system of equation presented above. As far as the other items of expenditure are concerned (housing and utilities, social policy, transport, law enforcement, and state administration), it was not possible to build a system of simultaneous equations, and therefore one econometric equation of the dependence of expenditures on tax revenues, financial assistance and other factors was applied. The factors in terms of costs, applied in order to eliminate regional variations, were calculated per capita and adjusted by the index of the cost of a fixed basket of consumer goods and services.

For calculations, the data on 88 regions of the Russian Federation (except the Chechen Republic) were applied, the available source of the data on the revenues and expenditures of the regional budgets, as well as the data on the amounts of financial assistance (reports of the Ministry of Finance of the Russian Federation on the execution of regional budgets). Other statistical data were taken from open publications of the Federal Statistics Service of the Russian Federation and from the collection "Regiony Rossii..." ("Russia's regions..."). Unfortunately, the data of the Federal Statistics Service of the Russian Federation for the year 2003 were as yet unavailable at the moment of our study, and therefore our calculations are limited to the period of 1995–2002<sup>192</sup>.

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<sup>192</sup> The data published in the Rosstat's collection "Regiony Rossii v 2003 godu" ("Russia's regions in the year 2003") contain, as far as a number of indices are concerned, only the information up to the year 2003 inclusive. Also, while a considerable number of indices are applied in this section, we did not perform an approximation of the data in respect of the year 2004, as we did it in the previous section.

When building the expenditure models, it was assumed that the main factors incorporated in each of the models of specific expenditure items comprised the following indices. Firstly, these were the factors characterizing the development of the budget-funded network: the numbers of schools, hospitals, pre-school institutions, libraries, the numbers of their personnel, etc. Secondly, expenditures are influenced by demographic factors and the population spread factors – the shares of urban populations, as well as the shares of population older or younger than the employment age. Thirdly, budget expenditures are influenced by budget revenues – proper tax revenues and federal financial assistance.

As explanatory, in the equation of the volume of public benefits provided to the population in the regions the following variables were applied.

*The variables describing the volume of the education services being provided in the regions are as follows:*

- Number of public daytime comprehensive educational establishments, per 1000 residents of a region.
- Number of children in pre-school institutions, per 1000 residents of a region.
- Number of students at educational establishments for primary vocational training, per 1000 residents of a region.
- Number of students at state secondary specialized educational establishments per one resident of a region.
- Number of students at public daytime comprehensive educational establishments, per 1000 residents of a region.
- Number of pre-school institutions, per 1000 residents of a region.
- Number of educational establishments for primary vocational training, per 1000 residents of a region.
- Number of state secondary specialized educational establishments, per 1000 residents of a region.
- Number of daytime comprehensive educational establishments, per 1000 residents of a region.

*Variables describing the volume of providing public health care services in the regions:*

- Number of hospital beds, per 1000 residents of a region.

- Number of physicians of all specialties, per 1000 residents of a region.
- Number of nursing staff, per 1000 residents of a region.

*Variables describing the level of services provided by the culture sector in the regions:*

- Number of publicly available book copies, per 1000 residents of a region.

*Variables describing the level of transport services:*

- Number of public buses, per 100,000 population.
- Number of passenger operations by public buses, per one resident of a region (in thousands of passenger operations).

The population's demographic structure was described by applying the following variables:

- The share of population older than the employment age within a region's overall population number. It can be expected that this variable will have a positive effect on regional budget expenditures, because pensioners enjoy numerous privileges. For example, an increased number of senior persons who use free-of-charge transport services results in transport expenditure growth, to be compensated from the regional budget<sup>193</sup>.
- The percentage of urban population in a region's overall population number. The introduction of this variable into a model makes it possible to explain the differences between the budget expenditures in the regions where rural population prevails and those with the prevalence of urban population. In this connection, it can be expected that an increased share of urban population in a region's overall population in a majority of cases results in increased average per capita regional expenditures due to the scale effect. However, in those instances when rural population uses certain services (housing and utilities, or transport) to a lower degree than urban population does, the existence of a positive dependency can be anticipated between the share of urban population and these types of expenditure.
- The average annual number of persons employed in the economy.

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<sup>193</sup> These considerations are not applicable to the later period, beyond the study's framework, when the monetization of privileges was introduced.



The model also included the indices reflecting a region's revenue level:

- Regional budget tax revenues per capita.
- Federal financial assistance per one resident of a region.

The expenditure model also incorporated a variable reflecting a region's population number. Regional budget expenditures can be expected to go down alongside population growth, due to the scale effect. The model's final specification was selected on the basis of the results of preliminary assessments. In the estimations, the method of least squares was applied.

Similarly to the system of equations in the previous section, the estimations were performed according to the following scheme. The first step consisted in the assessment of equations for each year. Then, at the second step, by applying *F*-test, the possibility of uniting the equations (or systems) for neighboring years into a panel was investigated (the equality test for all the model's coefficients for neighboring years); that is, as it has been noted earlier, we were testing the hypothesis as to whether or not the model's coefficients could vary between years depending on each step being implemented in the reform of interbudget relations, as well as on other factors. In accordance with our results, the subperiods for assessment were selected (see the tables concerning each expenditure item).

At the third step, separately for the selected subperiods, the estimations based on panel data, with the application of individual fixed effects, were performed<sup>194</sup>. Similar to the estimations in the previous section, since the model applies the budget network's indices, which vary insignificantly between years and are correlated to the fixed effects, the final model does not incorporate these fixed effects<sup>195</sup>.

At the fourth step, the hypotheses as to the equality of coefficients applied to the tax revenues of a regional budget and to financial support were tested.

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<sup>194</sup> In order to take into account the random effects, which possibly emerge in this setting due to inaccurate measurements, we also estimated the model with random effects, and in this connection the results of Hausman's test pointed to the model with fixed effects.

<sup>195</sup> By uniting the fixed effects, it becomes possible to assess each individual angular coefficient by region. However, in this study we did no such assessments, assuming that the model's angular coefficients are similar for each region.

The results of the assessments of models of different expenditure items are shown below.

**The expenditures on public health care.** When modeling the expenditures on public health care, the number of nursing staff was applied as the variable characterizing the volume of public benefits being provided to the population. In accordance with the applied methodology, a system of equations was assessed. In the equation for public health care expenditures, regional budget tax revenues, financial assistance and availability of nursing staff were applied as the explanatory variables, with an assumption that all those variables were having a positive effect on public health care expenditures. In the second equation, as the index of the volume of public health care services being provided, the variable of the number of the nursing staff being available. As the explanatory variables, in addition to the constant, the regional budget expenditures on public health care, population morbidity (in regions with higher population morbidity levels, the needs for nursing staff are greater), as well as the average wage level in a region, were applied, characterizing also the benefits from alternative employment in the private sector.

Beside those indices, in our preliminary assessments some other variables were also applied, which characterized the development of the budget-funded network (the capacities of outpatient and inpatient clinics, the number of hospital beds, the number of patient visits to outpatient clinics), as well as the indices of a region's demographic situation – the shares of population younger or older than the employment age, birth rate and mortality levels, etc. According to the results of preliminary assessments, the model whose assessment results are discussed below, has demonstrated the best explanatory properties.

The assessment was based on panel data, and the testing of the hypotheses for the equality of the coefficients between years has shown that several subperiods can be distinguished there: the years 1995–97, 1998, 1999, 2000–01 and 2002–03. On the whole and in contextual terms, this division into subperiods corresponds to the phases of tax reform and reform of interbudget relations, as reflected by the formalized parameters of the allocation of financial assistance in the years 1998–99 and the implementation of tax reform, with the redistribution

of tax revenues in favor of the federal budget and the granting of additional financial assistance to the regions in 2000–03.

Resulting from our analysis and assessments, the following values were obtained (see *Table 4*):

*Table 4*

**The Results of Testing the Public Health Care Expenditure Model**

<b>Public health care expenditures</b>					
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Number of observations:	264	88	86	175	176
<b>First equation</b>					
<b>Explained variable – public health care expenditures</b>					
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	-0.732 (0.000)	-0.559 (0.002)	-0.591 (0.001)	-0.715 (0.000)	0.105 (0.260)
Tax revenues of regional budget	0.089 (0.000)	0.113 (0.000)	0.097 (0.000)	0.093 (0.000)	0.089 (0.000)
Financial assistance	0.100 (0.000)	0.119 (0.000)	0.067 (0.000)	0.086 (0.000)	0.086 (0.000)
Availability of nursing staff	0.111 (0.000)	0.073 (0.000)	0.089 (0.000)	0.098 (0.000)	0.038 (0.000)
<b>R<sup>2</sup> adjusted</b>	<b>0.697</b>	<b>0.726</b>	<b>0.669</b>	<b>0.802</b>	<b>0.843</b>
<b>Second equation</b>					
<b>Explained variable – availability of nursing staff</b>					
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	8.096 (0.000)	9.138 (0.000)	9.314 (0.000)	8.963 (0.000)	7.455 (0.000)
Tax revenues of regional budget	2.451 (0.000)	2.545 (0.000)	3.134 (0.000)	2.036 (0.000)	1.397 (0.000)
Financial assistance	2.421 (0.000)	2.427 (0.000)	1.944 (0.002)	2.470 (0.000)	4.396 (0.000)
Availability of nursing staff	-0.490 (0.001)	-0.665 (0.020)	-0.954 (0.001)	-0.603 (0.000)	-0.366 (0.017)
<b>R<sup>2</sup>, adjusted</b>	<b>0.258</b>	<b>0.124</b>	<b>0.117</b>	<b>0.178</b>	<b>0.238</b>

The assessment results demonstrate that the coefficients are significant in all the specified subperiods, and that their signs are compatible with the suggested hypotheses. In addition to the indices of revenue

levels, the indices of expenditures and availability of nursing staff also produce a mutually positive effect, while at the same time the availability of nursing staff, in accordance with the hypotheses, is influenced positively by morbidity, and negatively – by a region's average wage level.

If in one of two regions the tax revenues proper are higher by 1 rouble than in the other (per capita, in comparable prices, with due regard for regional differences in subsistence level), the expenditures on public health care in the first region are higher by 0.089–0.113 roubles; similarly, if in one of two regions the volume of financial assistance is higher by 1 rouble, then the expenditures on public health care there are higher by 0.067 roubles. In this connection, for each period, except the year 1999, the hypothesis of the equality of coefficients in the presence of tax revenues proper and financial assistance is not rejected<sup>196</sup>.

In respect of the hypothesis being tested, that a model's coefficients differ in the presence of tax revenues proper and financial assistance, the results of tests almost for every year point to the coefficients' similarity in presence of financial assistance and proper tax revenues. This means that in respect to public health care expenditures the abovesaid logic – of the actions of regional authorities in a situation of soft budget constraints, when accumulated budget arrears are settled at the expense of financial assistance, and so the coefficient for financial assistance, as for the factor that influences the amount of expenditures under this item, must be higher in modeling of cash expenditures, – is not working.

**Expenditures on public education.** When modeling the expenditures on public education, the number of state full-time comprehensive-education institutions per capita (hereinafter – schools) was applied as a variable characterizing the volume of a region's public education services rendered to the population. Accordingly, the expenditures on public education are positively influenced by the indices of tax revenues proper and financial assistance, while the number of schools (per

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<sup>196</sup>This deviation, in 1999, from the general trend can be explained by a number of reasons, the most probable among which can be the differences in the indexation of public health care expenditures in different regions, the differences in the indexation of financial support, revenues and expenditures of regional budgets in face of the high inflation rate of 1999, as well as the differences in deflation associated with the application of the subsistence level index, whose rate of growth varied between regions after the 1998 crisis.

capita) – by public education expenditures and the share of urban population.

In this connection we assume that, if in one of two regions the revenues (tax revenues proper or financial assistance) or the number of schools are higher as compared to the other region, then the expenditures on public education will be higher in the first region. At the same time, if in one of two regions the expenditures or the share of the population younger than the employment age are higher than in the other, then the number of schools will be higher in the first region. The share of urban population characterizes the effect of saving public education expenditures in cities due to the scale effect and the possibility of mergers of budget-funded educational establishments.

According to the results of testing the hypothesis for the equality of time effects by years, similarly to the expenditures on public health, the hypothesis of the equality of coefficients is not rejected only for the years 1995–1996 and 2000–2001; in all other years, slight changes in the coefficients (both in the constants – time effects, and in the angular coefficients) occur, due, most probably, to the reforming of innerbudgetary relations in 1998–1999 and tax reforming in 2000–2002.

Besides the indices discussed above, when making preliminary assessments in the model, such variables as the number of students in higher educational establishments, secondary vocational training and comprehensive secondary schools; the number of educational establishments; the number of teaching and faculty staff; the share of the population younger than the employment age; etc. On the basis of the assessment results, a model was selected whose assessment is shown below.

As is seen from the assessment results, both in respect to the expenditures on public health care and in respect to all the subperiods, the coefficients for the variables being applied have turned out to be significant, the coefficients' signs being compatible with the hypotheses described above. The testing of the hypotheses for the equality of coefficients in presence of tax revenues proper and financial assistance has demonstrated that the corresponding hypothesis is not rejected for any of the subperiods. If in one of two regions tax revenues proper or financial assistance are higher by 1 rouble (per capita, in comparable prices, with due regard for subsistence level differentiation) than in the

other region, the regional budgets expenditures on public education in that region are higher by 0.10–0.16 roubles, depending on the subperiod. Besides, according to the hypothesis described here, a higher share of urban population corresponds to a smaller number of schools (per capita).

Table 5

**The Results of Testing the Public Education Expenditure Model**

<b>Public education expenditures</b>						
<b>Assessment period</b>	<b>1995–96</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Number of observations:	172	84	88	86	167	176
<b>First equation</b>						
<b>Explained variable: public education expenditures</b>						
<b>Assessment period</b>	<b>1995–96</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	0.008 (0.932)	0.467 (0.000)	0.088 (0.404)	0.328 (0.000)	0.295 (0.000)	0.324 (0.002)
Tax revenues of regional budget	0.147 (0.000)	0.096 (0.000)	0.164 (0.000)	0.146 (0.000)	0.110 (0.000)	0.155 (0.000)
Financial assistance	0.151 (0.000)	0.138 (0.000)	0.152 (0.000)	0.124 (0.000)	0.099 (0.000)	0.146 (0.000)
Number of pre-school institutions	1.231 (0.000)	0.993 (0.000)	0.762 (0.000)	0.458 (0.001)	0.692 (0.000)	0.719 (0.000)
<b>R2, adjusted</b>	<b>0.652</b>	<b>0.617</b>	<b>0.732</b>	<b>0.763</b>	<b>0.649</b>	<b>0.781</b>
<b>Second equation</b>						
<b>Explained variable: number of schools</b>						
<b>Assessment period</b>	<b>1995–96</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	0.942 (0.000)	0.922 (0.000)	1.111 (0.000)	1.099 (0.000)	1.040 (0.000)	1.043 (0.000)
Public education expenditures	0.134 (0.000)	0.134 (0.000)	0.109 (0.000)	0.118 (0.000)	0.127 (0.000)	0.066 (0.000)
Share of urban population	-0.009 (0.000)	-0.009 (0.000)	-0.011 (0.000)	-0.011 (0.000)	-0.010 (0.000)	-0.009 (0.000)
<b>R2, adjusted</b>	<b>0.544</b>	<b>0.539</b>	<b>0.576</b>	<b>0.581</b>	<b>0.551</b>	<b>0.556</b>

Similarly to the model of expenditures on public health care, in the case of public education expenditures the coefficients for tax revenues and financial assistance have been similar, by the tests' results, for all

the years studied. This is further evidence that the regions' actions, when spending budget funds on a given expenditure item, are in full agreement with the logic of the hypothesis for soft budget constraints being tested: the financing is executed evenly from the incoming proper revenues and federal financial assistance.

**Expenditures on culture and arts.** When the regions' expenditures on culture and the arts were modeled, the following indices were added as explanatory variables, beside budget financing indices (tax revenues proper and financial assistance): the supply of newspapers and journals to libraries and the share of the population younger than the employment age. In this connection, we assume that increased supply of newspapers and journals results in growing expenditures on culture and arts in the part pertaining to the upkeep of budget-funded libraries, while a higher share of the population younger than the employment age is associated with increased expenditures on the upkeep of cultural institutions.

As an index of the volume of services provided in the sphere of culture and the arts, by the results of preliminary assessments, the supply of newspapers and journals to libraries was applied. As explanatory variables, in the second equation, besides the regional budget's expenditures on culture and the arts, the share of the population older than the employment age was also applied. In this connection, it has been assumed that a higher share of the population older than the employment age corresponds to a higher number of the consumers of services, while a larger number of pre-school institutions reflects a better development of a region's network of social welfare institution.

In addition to the indices described above, the model's equation also incorporated the number of museums and theaters, attendance at museums and theaters, as well as some other variables. By the assessment results, these variables were found to be insignificant and therefore were excluded from the model. Consequently, the model was tested as follows:

Table 6

**The Results of Testing the Model for Expenditures  
on Culture and the Arts**

Expenditures on culture and arts					
1	2	3	4	5	6
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Number of observations:	263	88	88	176	176
First equation					
Explained variable – expenditures on culture and the arts					
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	–0.197	–0.089	–0.053	–0.163	–0.110
	0.000	0.014	0.254	0.002	0.016
Tax revenues of regional budget	0.018	0.017	0.021	0.023	0.019
	0.000	0.000	0.000	0.000	0.000
Financial assistance	0.013	0.013	0.022	0.012	0.015
	0.000	0.000	0.000	0.001	0.000
Supply of newspapers and journals to libraries	0.000018	0.000010	0.000006	0.000012	0.000013
	0.000	0.0000	0.035	0.000	0.000
Share of population younger than employment age	0.0060	0.0029	0.0023	0.0055	0.0051
	0.000	0.052	0.188	0.008	0.013
<b>R<sup>2</sup>, adjusted</b>	<b>0.634</b>	<b>0.706</b>	<b>0.773</b>	<b>0.765</b>	<b>0.751</b>
Second equation					
Explained variable – supply of newspapers and journals to libraries					
<b>Assessment period</b>	<b>1995–97</b>	<b>1998</b>	<b>1999</b>	<b>2000–01</b>	<b>2002–03</b>
Constant	4045.008	4589.15	5078.07	6020.89	1901.24
	0.000	0.003	0.001	0.000	0.088
Expenditures on culture and arts	11777.35	16850.47	11005.57	4756.50	12483.70
	0.000	0.000	0.001	0.000	0.000



1	2	3	4	5	6
Share of population older than employment age	85.942	46.543	56.144	46.935	162.588
	0.002	0.426	0.384	0.295	0.000
<b>R2, adjusted</b>	<b>0.198</b>	<b>0.163</b>	<b>0.118</b>	<b>0.063</b>	<b>0.301</b>

According to the results of testing the equality of the coefficients between years, subperiods were determined, which were similar to the subperiods obtained for the expenditures on public health care and public education: the years 1995–1997, 1998, 1999, 2000–2001, and 2002–2003. The assessment results for these subperiods have shown that if in one of two regions, a regional budget's proper tax revenues are higher by 1 rouble (per capita, in comparable prices) than in the other region, that region's budget expenditures on culture and arts are higher by 0.018 to 0.023 roubles, depending on the subperiod. The testing of the equality of coefficients for proper tax revenues and financial assistance has shown that, from the year 2000 onward, the hypothesis for the equality of coefficients is rejected, – the coefficient for financial assistance is by a statistically significant value less than the coefficient for tax revenues. If in one of two regions financial assistance is higher by 1 rouble than in the other region, the expenditures on culture and the arts in that region in the years 2000–2001 and 2002–2003 are higher by 0.012 and 0.015 roubles, respectively. At the same time, if in one of two regions tax revenues are higher by 1 rouble than in the other one, the expenditures under this item in that region are higher by 0.023 roubles in 2000–2001 and by 0.019 roubles in 2002–2003.

In accordance with the hypotheses described above, a share of the population younger than the employment age corresponds to higher expenditures on culture and arts, while an increased share of the population older than the employment age corresponds to a higher level of supply of newspapers and journals to libraries.

For the expenditures on culture and the arts, the coefficient for tax revenues in a number of years turns out to be higher than the coefficient for financial assistance. This is contrary to the formulated hypothesis for the behavior of regional authorities in a situation of soft budget constraints. This ration of coefficients points to the fact that this expenditure item, firstly, is to a greater part financed from proper revenues. Secondly, the amount of budget arrears accumulated against this

expenditure item are not used as an instrument for obtaining additional financial assistance, with subsequent repayment of this debt, as it would have happened in accordance with the hypothesis discussed above, – either because this expenditure item is less important for the federal center than, say, the expenditures on housing and utilities, or because the budget arrears against this item are not settled by regional authorities when they receive financial support – instead, the support is used to settle the existing arrears against other, more important expenditure items, or to finance these items.

**The expenditures on housing and utilities.** When making assessments in respect to the expenditures on housing and utilities sector, it was impossible to build a system of equations in accordance with the general methodology described above. This can be explained by the absence of an available index that could characterize the level of providing the housing and utilities sector services (the volumes of heating and water supplies were found to be insignificant, while the indices that characterize the quality of cleaning of public areas and premises are not statistically available).

For this reason, only one equation was assessed for the expenditures on housing and utilities sector. As an explanatory variable the indices characteristic of the overall number of the consumers of these services (the number of enterprises, municipal property structure, the share of urban population, housing supply level, etc.) were applied. We assume that if in one of two regions the number of consumers of the housing and utilities sector services (the share of urban population, the number of enterprises, etc.) are higher than in the other region, that region's budget expenditures on this item will be higher. In accordance with the preliminary results, the following model was tested.

By the results of the tests for the equality of time effects between years, four subperiods were singled out – the years 1995–98, 1999–2000, 2001–02, and 2003:

Table 7

**Results of Testing the Model for Expenditures  
on Housing and Utilities**

Assessment period	Expenditures on housing and utilities			
	1995–98	1999–2000	2001–2002	2003
Number of observations:	337	171	171	86
Constant	-1.278 (0.000)	-0.566 (0.000)	0.185 (0.418)	-0,511 (0.251)
Tax revenues of regional budget	0.167 (0.000)	0.134 (0.000)	0.082 (0.000)	0,098 (0.000)
Financial assistance	0.252 (0.000)	0.057 (0.001)	0.006 (0.773)	0,059 (0.083)
Number of organizations per capita	0.010 (0.034)	0.014 (0.000)	0.022 (0.000)	0,028 (0.000)
Share of urban population	0.022 (0.000)	0.011 (0.000)	-0.005 (0.082)	0,004 (0.556)
<b>R2, adjusted</b>	<b>0.554</b>	<b>0.710</b>	<b>0.522</b>	<b>0.611</b>

The tax revenues of a regional budget have a positive effect on the expenditures on housing and utilities sector, while the corresponding coefficient goes down from 0.167 in 1995–98 to 0.08–0.09 in 2001–03. The testing of the equality of the coefficients for tax revenues and financial assistance has shown that in 1995–98 the coefficient for financial assistance is statistically more significant than that for tax revenues; and in the subsequent years the coefficient for the tax revenues of a regional budget has a higher statistical significance.

The number of organizations per capita and the share of urban population (except in the years 2001–02, when the share of urban population becomes insignificant at the 5% significance level) have positive effect on the regional budget expenditures on housing and utilities sector, which is compatible with the hypothesis for a positive influence of the number of consumers on the volume of expenditures.

When the assessed coefficients are compared, it becomes obvious that the situation in the years 1995–98 fits smoothly into the framework of the hypothesis discussed above – that accumulated arrears of pay-

ments for housing and utilities sector could be used as an argument emphasizing the need for additional financial assistance, its allocation resulted in the repayment of such arrears and, as a result, the cash expenditures on housing and utilities sector became to a greater degree dependent on financial assistance than on proper tax revenues. In 1999–2003, the situation became reverse, that is, the coefficient for proper tax revenues becomes higher, which, in accordance with the hypothesis, could be the result of the soft budget constraints being hardened: the expenditures on housing and utilities sector are to a higher degree being financed from proper tax revenues<sup>197</sup>.

**Transport expenditures.** Similarly to the expenditures on housing and utilities sector, no system of equations for the mutual dependence of expenditures and the volumes of public benefits being provided was possible. In the equation for the transport expenditures, the following indices were applied: the tax revenues of a regional budget and financial assistance (the indices demonstrating a region's revenue level); the total number of organizations per capita; and the share of urban population (the index of the need for urban public transportation); the electricity tariff (the index of the costs of transport enterprises). In addition to these indices, in the preliminary calculations for the model we applied the indices of cargo and passenger turnovers, the share of industrial production, the share of the population older than the employment age (as an index characterizing the recipients of privileges), a city's average size, etc. On the basis of the assessment results, the following model was built (as before, the choice of time intervals for the assessments was based on the results of testing the equality of time effects between years):

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<sup>197</sup> As we have mentioned earlier, for several items, especially for those that are relatively less important in terms of regional budgets, the observed results, although bearing witness to the presence of the necessary preconditions for the emergence of soft budget constraints, by no means imply their actual presence, – the dependency of cash expenditures on financial support may arise not only due to the existence of soft budget constraints, but simply be the consequence of debts being redeemed by the financial support being allocated in absence of any dishonest behavior of regional authorities.

Table 8

### The Results of Testing the Transport Expenditures Model

Assessment period	Transport expenditures				
	1995	1996–2000	2001	2002	2003
Number of observations:	77	408	80	85	87
Constant	–0.014 (0.814)	–0.052 (0.025)	0.190 (0.010)	–0.010 (0.783)	0,118 (0.429)
Tax revenues of regional budget	0.026 (0.000)	0.026 (0.000)	0.009 (0.074)	0.016 (0.000)	0,024 (0.000)
Financial assistance	–0.001 (0.910)	–0.000 (0.887)	0.005 (0.643)	–0.007 (0.061)	0,016 (0.044)
Electricity tariff	0.601 (0.275)	0.911 (0.000)	–0.667 (0.505)	0.287 (0.540)	–3,758 (0.010)
Share of urban population	0.085 (0.004)	0.074 (0.000)	–0.018 (0.569)	0.020 (0.127)	0,00015 (0,926)
<b>R2, adjusted</b>	<b>0.539</b>	<b>0.473</b>	<b>0.040</b>	<b>0.515</b>	<b>0.500</b>

In terms of the hypothesis of testing the consequences of the existence of soft budget constraints, in respect of transport expenditures, only the coefficient for tax revenues was significant, which point to the lack of correlation between cash expenditures (debts accumulated and debts repaid) and the financial assistance being received.

**Law enforcement expenditures.** When modeling the law enforcement expenditures, the following indices were applied as explanatory variables, in addition to proper tax revenues and financial assistance, the indices which characterize both a region's general situation and the criminal situation: the level of crime and the recorded numbers of various types of crime. Besides, the expenditures were plotted in this model on the basis of indirect indicators that influence the expenditure level – the share of the population younger than the employment age, the share of urban population, unemployment, indices of the population's living standards, and the education level.

According to the preliminary assessment results and the checking of the equality of coefficients between years (see the Annex), subperiods were distinguished: 1996–1997, 1998–2001 and 2002; in this connection, in addition to the regional budget tax revenues and financial assistance, only the share of the population younger than the employment age was found to be significant. The assessment results are shown in *Table 9*.

*Table 9*

**The Results of Testing the Model for Law Enforcement Expenditures**

Assessment period	Law enforcement expenditures			
	1996–1997	1998–2001	2002	2003
Number of observations:	165	334	81	88
Constant	0.088 (0.017)	0.088 (0.000)	0.046 (0.244)	0.021 (0.628)
Tax revenues of regional budget	0.018 (0.000)	0.014 (0.000)	0.014 (0.000)	0.018 (0.000)
Financial assistance	0.008 (0.040)	0.007 (0.000)	0.005 (0.158)	–0.004 (0.262)
Share of population younger than employment age	0.001 (0.563)	0.001 (0.474)	0.006 (0.003)	0.007 (0.007)
<b>R2, adjusted</b>	<b>0.226</b>	<b>0.361</b>	<b>0.287</b>	<b>0.606</b>

The coefficient for the share of the population younger than the employment age in the year 2002 is significant and positive; that is, in those regions where the share of the population younger than the employment age is higher, the law enforcement expenditures are also higher.

The comparison of the coefficients for tax revenues and financial assistance has shown that in all the subperiods there was a statistically significant difference in the coefficients: if in one of two regions, the assessment results are higher by 1 rouble per capita than in the other region, while in the other region the volume of financial assistance is

higher by 1 rouble per capita, the law enforcement expenditures in the first region will be higher than in the second one. In this connection, the effect of financial assistance on the volume of this expenditure item is substantially lower<sup>198</sup>.

**Social policy expenditures.** When modeling social policy expenditures on the basis of the assessment results, the model was specified as follows (the explanatory variables and assessment results are shown in *Table 10*). As in the previous case, for social policy expenditures no system of simultaneous equations could be built, and therefore the assessments were done in the form of a single equation of the dependence of the expenditures under this item on a regional budget's tax revenues, federal financial support, and other factors.

*Table 10*

**The Results of Testing the Model for Social Policy Expenditures**

Assessment period	Social policy expenditures					
	1995–1997	1998	1999	2000	2001–2002	2003
Number of observations:	264	88	88	88	176	86
Constant	0.670 (0.000)	0.335 (0.003)	0.881 (0.003)	0.177 (0.184)	0.549 (0.000)	0.282 (0.066)
Tax revenues of regional budget	0.072 (0.000)	0.086 (0.000)	0.116 (0.000)	0.061 (0.000)	0.053 (0.000)	0.024 (0.000)
Financial assistance	0.013 (0.053)	0.038 (0.029)	0.013 (0.653)	0.031 (0.004)	0.011 (0.248)	-0.010 (0.314)
Share of urban population	-0.007 (0.000)	-0.005 (0.001)	-0.013 (0.002)	-0.001 (0.486)	-0.002 (0.093)	-0.0003 (0.891)
<b>R2, adjusted</b>	<b>0.567</b>	<b>0.732</b>	<b>0.346</b>	<b>0.643</b>	<b>0.623</b>	<b>0.149</b>

According to the assessment results, almost in all subperiods the coefficient for the tax revenues of a regional budget is higher than the coefficient for financial assistance (the hypothesis of the equality of the

<sup>198</sup> As it has been noted earlier, in this case for the periods of 1995–1997 and 2001–2002 the model with individual effects was also studied. By the assessment's results, we applied the model with a common constant, due to the close correlation with the share of the population younger than employment age, which varied insignificantly between years.

coefficients is rejected). Besides, the coefficient for the share of urban population, as seen by the assessment results, is significant and negative, which, most probably, is characteristic of the scale effect on the social policy expenditures for urban population.

If in one of two regions tax revenues are higher by 1 rouble than in the other region, the social policy expenditures in this region are higher by 0.024–0.116 roubles, while if financial assistance is higher by 1 rouble in this region, then the social policy expenditures there will be higher by 0.011–0.038 roubles (the 2003 coefficient was found to be insignificant). Thus, in most years, tax revenues proper have greater effect on social policy than federal financial assistance, which, as far as this budget item is concerned, points to the absence of any soft budget constraints. The assessment's results have demonstrated that regions, in all probability, did not employ their arrears against this item as a means for obtaining additional financial support, with the subsequent redemption of these arrears.

**State administration expenditures.** In the model of state administration expenditures, in addition to a regional budget's own tax revenues and financial assistance, also significant was the regional average wage level. This fact points to high regional budget expenditures in regions with high average wage levels, which is characteristic of the necessity to increase the level of wages and salaries of public employees in order to prevent personnel outflow. The assessment results are shown in *Table 11*.

The assessment results have demonstrated that, if in one of two regions the tax revenues of a regional budget are higher by 1 rouble per capita in comparable prices than in the other region, then the state administration expenditures there are higher by 0,012–0.017 roubles in 1996–1999, while in 2000–2002 the corresponding coefficient is insignificant, and in 2003 it amounted to 0.076. The coefficient for financial assistance was significant and positive for all years. The higher level of financial assistance, by 1 rouble per capita in comparable prices, corresponded to state administration expenditures that were higher by 0.047–0.141 roubles; in this connection, the hypothesis of the equality of the coefficient<sub>тв</sub> for tax revenues and financial assistance is rejected for all the years – the coefficient financial assistance is always higher. A



region's higher average wage level also corresponds to higher state administration expenditures.

Table 11

**The Results of Testing the Model for State Administration Expenditures**

	<b>State administration expenditures</b>					
	1	2	3	4	5	6
<b>Assessment period</b>	<b>1996</b>	<b>1997</b>	<b>1998–1999</b>	<b>2000–2002</b>	<b>2003</b>	
Number of observations:	86	82	163	236	88	
Constant	-0.045 (0.359)	0.060 (0.376)	0.032 (0.367)	0.048 (0.053)	-0.247 (0.030)	
Tax revenues of regional budget	0.017 (0.001)	0.012 (0.006)	0.013 (0.055)	0.007 (0.059)	0.076 (0.000)	
Financial assistance	0.052 (0.000)	0.047 (0.000)	0.074 (0.000)	0.051 (0.000)	0.141 (0.000)	
Region's average wage level	0.063 (0.009)	0.061 (0.037)	0.079 (0.000)	0.102 (0.000)	0.037 (0.346)	
<b>R2, adjusted</b>	<b>0.493</b>	<b>0.323</b>	<b>0.369</b>	<b>0.511</b>	<b>0.852</b>	

In respect to the hypothesis as to a possible presence of soft budget constraints, which is being tested here (or, rather, the consequences of the existence of such constraints for the regions' behavior, which results in an interrelation between cash expenditures and financial assistance), it can be noted that the results of assessments of state administration expenditures are quite compatible with the assumption that budget arrears against this item could serve as a valid argument for receiving additional financial assistance, because resulting from its allocation and debt repayment, this expenditure item volume seems to depend more on financial assistance than on proper tax revenues.

In this connection it should be noted that the close correlation between the volumes of financial assistance and the amounts of budget arrears against the "State Administration" item can be explained by the existence of the problem of soft budget constraints, which may be applicable also to the budget expenditures on other items of expenditure, because budget arrears against this item may be indicative of the exis-

tence of budget arrears also in the form of arrears of wages and salaries in budget-funded institutions of the social sphere. That is, it can be assumed that the accumulation of arrears against the "State Administration" item correlated with accumulating arrears of wages and salaries in budget-funded institutions, with the subsequent allocation of financial assistance and settlement of those debts.

The final results of the assessment of the coefficients applied to tax revenues of regional budgets and financial assistance are summarized in the following table:

Table 12

**Results of Assessments of Coefficients for Financial Assistance and Tax Revenues of Regional Budgets Applied in Respect to Different Items of Expenditure**

	1995	1996	1997	1998	1999	2000	2001	2002	2003
	2	3	4	5	6	7	8	9	10
<b>Expenditures on public health care</b>									
Tax revenues of regional budget	0.089	0.089	0.089	0.113	0.097	0.093	0.093	0.089	0.089
Financial assistance	0.100	0.100	0.100	0.119	0.067	0.086	0.086	0.086	0.086
<b>Expenditures on public education</b>									
Tax revenues of regional budget	0.147	0.147	0.096	0.164	0.146	0.110	0.110	0.155	0.155
Financial assistance	0.151	0.151	0.138	0.152	0.124	0.099	0.099	0.146	0.146
<b>Expenditures on culture and arts</b>									
Tax revenues of regional budget	0.016	0.016	0.016	0.016	0.021	0.023	0.023	0.019	0.019
Financial assistance	0.012	0.012	0.012	0.011	0.021	0.011	0.011	0.015	0.015
<b>Expenditures on housing and utilities sector</b>									
Tax revenues of regional budget	0.167	0.167	0.167	0.167	0.134	0.134	0.082	0.082	0.098
Financial assistance	0.252	0.252	0.252	0.252	0.057	0.057	-	-	0.059
<b>Expenditures on transport</b>									
Tax revenues of regional budget	0.026	0.026	0.026	0.026	0.026	0.026	-	0.016	0.024
Financial assistance	-	-	-	-	-	-	-	-	0.016

	1	2	3	4	5	6	7	8	9	10
	<b>Expenditures on law enforcement</b>									
Tax revenues of regional budget			0.018	0.018	0.014	0.014	0.014	0.014	0.014	0.018
Financial assistance			0.008	0.008	0.007	0.007	0.007	0.007	-	0.000
	<b>Expenditures on social policy</b>									
Tax revenues of regional budget	0,072	0.072	0.072	0.086	0.116	0.061	0.061	0.061	0.053	0.051
Financial assistance	-	-	-	0.038	-	0.031	0.031	0.031	-	-
	<b>Expenditures on state administration</b>									
Tax revenues of regional budget			0.017	0.012	-	-	-	-	-	0.076
Financial assistance			0.052	0.047	0.074	0.074	0.051	0.051	0.051	0.141
	<b>Arbitrary sum of coefficients applied to 8 items</b>									
			0.552	0.496	0.586	0.554	0.461	0.383	0.428	0.530
			0.575	0.557	0.653	0.350	0.342	0.285	0.298	0.463
	<b>Mean ratio of total expenditures on 8 items to total tax revenues of regional budget and financial assistance</b>									
	0.860	0.910	0.900	0.900	0.940	0.850	0.820	0.840	0.754	

Note: The dash ( - ) is in place of insignificant coefficients; when summing-up the amounts, these were understood as being equal to zero.

No summing-up of the assessed coefficients was performed in respect to year 1995, because no data on the expenditures on law enforcement and state administration were available for that year.

In absence of any sources of revenue other than tax revenues proper and financial assistance, or the deficit of a RF subject's consolidated budget, in addition to the eight items of expenditures discussed here, the resulting sum of coefficients must be equal to zero. In actual practice, however, due to the presence of other items of expenditure and revenue that have been omitted in our discussion, the corresponding items in their total sum are not equal to the sum of tax revenues and financial assistance. The ratio of expenditures to revenues is approximately 0.9 and has been diminishing in the past few years (see the last row in the above table).

When studying the dependence of the amounts of expenditures on different items on the amounts of tax revenues and financial assistance,

it can be assumed that the growth in tax revenues (or financial assistance) by 1 rouble must be followed by an increase in the amount of expenditures by an approximately similar value. The assessment's results have demonstrated that such an assumption is not true – as can be seen from the table, the sum of coefficients applied to the items of expenditure listed there is lower than the actual share of the corresponding expenditures in the general (mean) budget of the Russian Federation's subjects.

This can be explained by the fact that the mean ratio of expenditures on eight items to the sum of tax revenues of a regional budget and the amount of financial assistance represents the coefficient applied in the model of proportional dependence of a budget's expenditures and revenues, where no additional factors are present, such as the existence of a budget-funded network, the number of recipients, etc. The assessments of coefficients in the models are the assessments in the proximity to mean and actual values of revenues and expenditures; the dependence on revenues at those points is evidently lower than the proportional value, because there also exist certain expenditures that must be executed irrespective of any fluctuations in the amount of revenue. At the same time, our assessment of existing trends has shown that with time, while the general trend toward preserving in the budget the share of the main items of expenditure discussed here still persists, the proportionality coefficients in the models are going down, which points to the recently growing degree of linking expenditures to the budget-funded network, and the diminishing degree of their linking to regions' revenues.

The assessments discussed in this subsection laid the foundation for a number of conclusions concerning the influence of tax revenues and financial assistance on different expenditure items of regional budgets.

1. The assessments of the expenditure models in respect to different budget items are on the whole satisfactory in their properties, while the coefficients for the variables that characterize the tax revenues of regional budget and for the amounts of financial assistance are positive and significant<sup>199</sup>.

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<sup>199</sup> Tax revenues in the model of state administration expenditures in 1998–2002 are insignificant, while financial assistance is insignificant in the model of transport expenditures for all subperiods.

2. The assessments of the models of expenditures on housing and utilities sector have shown that the coefficient for expenditures on this budget item in 1995–1998, in the event of receiving financial assistance, was higher than the coefficient for tax revenues. This is compatible with the hypothesis that the growth in budget arrears against the expenditures on housing and utilities sector was used as an argument in favor of receiving additional financial assistance, because in the event of its allocation some of the budget arrears were settled, and resulting was cash expenditure growth. Similar results (a higher coefficient for financial assistance than that for tax revenues) were obtained also in respect of state administration expenditures in 1995–2002.

3. The assessments of the expenditures on housing and utilities sector in later years have shown that in 1999–2000 the coefficients for tax revenues were higher than those for financial assistance. According to our hypothesis, this is testimony to a situation when the regions, in terms of the theoretical model described above in respect to interactions between different levels of authority, in that period were no longer taking advantage of the right to make the first move and were not accumulating budget arrears for purposes of receiving additional financial assistance for its redemption<sup>200</sup>.

4. The assessments of the models of expenditures on public health care and public education have shown that, as far as these budget items are concerned, there were no differences between the coefficients for financial assistance and those for tax revenues proper in regional budgets. This is not compatible with the suggested hypothesis and points to the fact that the fact of accumulated budget arrears in respect to these items was not applied as an argument for obtaining additional financial assistance. In this connection, one of the possible explanations can be that these expenditure items have a rather high priority in the eyes of regional authorities, and so are financed regardless of whether the financing is generated by their own tax revenues or results from financial assistance. Besides, insufficient financing of pub-

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<sup>200</sup> From the year 2001, a part of expenditures under the item “Housing and Utilities” was redistributed into other items (in 2001, the share of housing-and-utilities expenditures in the total expenditures of RF subjects’ consolidated budgets went down to 10.5% from 21.5% in 2000). This, in particular, could result in the arrears against the remaining expenditures under this item being to a lesser degree used as a means to attract additional financial support.

lic health care and public education (with the exception of salaries), in contrast to that in case of housing and utilities sector, does not produce any obvious negative consequences in a short term, and so it is less feasible for regional authorities to use these budget items for obtaining additional financial assistance than the housing and utilities item, the latter being a source of mass-scale discontent of the population, especially in winter.

The indications of the presence of soft budget constraints in respect to the expenditures on state administration are probably pointing to the fact that the accumulation of arrears against this item corresponded to the accumulation of arrears of salaries by budget-funded institutions (there were no significant distortions in the time of payment of salaries to civil servants and employees of budget-funded institutions), while the total amount of arrears of salaries and wages served as an important argument in negotiating additional financial assistance from the federal center.

5. For other expenditure items (law enforcement expenditures, social policy expenditures, transport expenditures, as well as, from the year 2000 onward, the expenditures on culture and the arts), higher coefficient values were obtained for tax revenues proper than for financial assistance. This is compatible with the hypothesis that the accumulation of budget arrears under these budget expenditure items was not used for purposes of receiving additional financial assistance, also, among other reasons, because delays in the financing of these expenditure items are less important in the eyes of the federal government than, for example, the expenditures on the housing and utilities sector or on state administration (that is, the funding for the salaries to be paid to employees in the budget-funded sphere).

On the whole, the results of our analysis reveal a possible presence of soft budget constraints for regional authorities in the second half of the 1990s, demonstrated by the models of expenditures on the housing and utilities sector (1995–1998) and state administration expenditures. In this connection, the assessment of the models of the expenditures on the housing and utilities sector have shown that by the years 1999–2000 the situation changes – the financing of expenditures is becoming to an increasingly lesser degree dependent on the amount of financial assistance; that is, the problem of soft budget constraints is gradually losing its former importance.

The assessments of the models for the financing of the expenditures on public health care and public education, in accordance with the results of our calculations, are not compatible with the hypothesis for the presence of soft budget constraints. As shown by the calculations' results, these expenditure items have comparable coefficients for tax revenues and financial assistance. In respect to other regional expenditure items, the coefficients for financial assistance are even lower, which, according to the hypothesis, points to the fact that regional authorities were not using the accumulation of budget arrears under these items as an argument in favor of receiving additional financial assistance, with subsequent debt repayment against these items, instead providing the necessary financing from their own tax revenues<sup>201</sup>.

### 3.4. Summary Results of the Empirical Analysis

The results of testing the second hypothesis, which demonstrate that, in accordance with a theoretical model, the amount of budget arrears as of a year's beginning has a positive effect on the amount of federal financial assistance, have demonstrated that, in the federal financial assistance model under study, the coefficient for budget arrears is significant and positive for the years 2000–2001, implying the presence, in those years in Russia, of soft budget constraints<sup>202</sup>.

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The testing of the hypothesis that the regions were accumulating arrears against socially essential budget items, in order to use it later as an argument in favor of additional financial assistance (the expenditures on such items must to a greater degree depend on financial assistance than on the regions' own tax revenues), has demonstrated the following

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<sup>201</sup> In addition to the hypotheses as to the absence of soft budget constraints, this could also be caused by either the extraordinarily high priority of financing for certain types of expenditures depending on the availability of revenues proper, or, on the contrary, by "irresponsibility" in providing the funding for the budget arrears accumulated against these items, when the received financial assistance did not result in the liquidation of such arrears.

<sup>202</sup> In addition to the models tested in the previous sections, our study also involved some tentative assessment of models similar to *Rodden's (2001)* and *Bevilaqua's (2000) models*. These assessments also point to the presence of soft budget constraints imposed on regional authorities, expressed in increased expenditures in the next periods when financial assistance is allocated, as well as in the lack of any cuts in expenditures, or even in increased expenditures, when the tax revenues of regional authorities become lower.

results. The hypothesis that in the years 1995–1998 the growth in the budget arrears in respect to the expenditures on the housing and utilities sector was used as an argument in favor of receiving additional financial assistance, since in the event of its allocation, some of the budget arrears were settled, and there was a growth in cash expenditures, is quite compatible with the empirical data. Similar results (a higher coefficient for financial assistance than that for tax revenues in the equation that links the amount of expenditures on this item to the amounts of taxes and financial assistance) were obtained also for the state administration expenditures (probably because the arrears of expenditures on state administration correlate with the arrears of salaries and wages accumulated by budget-funded institutions, which could be quite substantial and represent an important argument in negotiations with the federal center concerning the allocation of financial assistance.

With time, the situation somewhat improved – the coefficients for expenditures on the housing and utilities sector in 1999–2000 did not differ depending on whether the financing was coming from tax revenues or from financial assistance, and in this connection in 2001–2003 the coefficient in respect to tax revenues was higher than the coefficient in respect to financial assistance. As for the other expenditure items, the coefficients for financial assistance were lower than for tax revenues proper, that is, the accumulation of budget arrears under these expenditure items, obviously, was not taken advantage of for purposes of receiving additional financial assistance, among other things, because delays in the financing of those expenditures were less important in the eyes of the federal government.

On the whole, the analysis performed in this chapter has provided some evidence as to the presence of soft budget constraints in the interactions between regional authorities and the federal center. The hypothesis that regional authorities were accumulating budget arrears in order to receive greater amounts of financial assistance does not contradict empirical data. At the same time, the assessment results point to a trend that demonstrates an improvement in the existing situation. With the passage of time, the evidence of the presence of soft budget constraints or their consequences is gradually becoming weaker.



## Conclusions

The present work is devoted to researching the problem of soft budget constraints for subnational authorities. The study was conducted along several lines.

Firstly, the authors conducted an analytic overview of approaches towards defining and analyzing the problem of soft budget constraints. In the course of this overview we analyzed both the existing works in the field of researching the soft budget constraints imposed on enterprises, and the problem of the soft budget constraints imposed on subnational authorities in states with multi-tier systems of bodies of authority and administration. As a result, a number of approaches were formulated, so as to define the problem of soft budget constraints for subnational authorities and to determine the major approaches to analyzing the problem of soft budget constraints.

By the results of the said analysis, we were able to demonstrate that the problem of soft budget constraints for economic agents had initially emerged in literature on economics in connection with examining the behavior of enterprises in a planned economy, under conditions of a centralized non-market distribution of resources between enterprises. Later on, similar approaches were used for analyzing the financial relations between the levels of power in states with multi-tier budget systems.

The research devoted to the problem of soft budget constraints for subnational authorities has been associated with analyzing the various aspects of fiscal decentralization. For one thing, economics theory considerations and the experience of many developed countries testify in favor of the need to carry out fiscal decentralization, which brings about a possibility to take into account all the preferences displayed by residents of specific territories, and the emergence of preconditions for competition between specific regions and levels of power in the course of taxation and provision of public benefits. For another thing, there were singled out a number of limitations restricting the possibility to introduce fiscal decentralization (in particular, the effect of scale demonstrable in the production of public benefits, the presence of external effects produced by public benefits, the existence of red tape, etc.), the

most essential of which was the creation of further incentives for subnational authorities' irresponsible behavior.

The autonomy of subnational authorities in any fiscal sphere is inevitably incomplete and cannot be compared to the degree of autonomy enjoyed by national authorities. At the national level, the authorities have no superiors in the person of institutes with adequate powers, designed to normatively regulate the system's functioning in various areas, and the only external source of financial assistance they can address in the event of a crisis is the creditors or the assistance from international financial organizations.

At the same time, as is shown by the experience accumulated by various states, the conducting of fiscal decentralization is usually related to a number of objective problems, predetermined by a specific conflict of interests. On the one hand, the devolution of various fiscal powers to subnational levels of power and administration means that these bodies of power become responsible both for the decisions taken in the budget revenues sphere (the level of taxation, the effecting of borrowings), and for the implementation of budget expenditures. On the other hand, in contrast to national authorities, subnational authorities collect taxes and are responsible for the provision of public benefits to the citizens who, at the same time, represent the electorate voting in the authorities of a superior level. This situation distorts the responsibility of subnational authorities, because in the event of an irresponsible fiscal policy being pursued (for example, when budget expenditures are increased without rising taxation, by means of borrowing or increasing the indebtedness of the budget), national authorities will not allow the situation of their citizens to sharply deteriorate, and therefore will not tolerate any sharp decline in the level of provision of public services. Therefore, national authorities are interested in the allocation of financial assistance to subnational authorities, even if the financial difficulties thereof are caused by their own irresponsible behavior.

As a result, it can be affirmed that a decentralized fiscal system on its own creates the problem of soft budget constraints, which results in the fact that subnational authorities, expecting to obtain additional financial resources from the authorities of a higher level, are prone to take decisions which they know in advance to be inefficient.

Secondly, we have performed a thorough analysis of the conditions under which soft budget constraints for subnational authorities emerge in a state with a multi-tier budget structure, as well as an analysis of the means designed to reduce the negative consequences of soft budget constraints.

By the results of our analysis, it is possible to conclude that the management of public finances under conditions of fiscal decentralization represents a quest for solutions ranging from vesting subnational authorities with maximum tax and budget autonomy, and the imposition of strict control over the budget decisions taken at the subnational level in order to prevent the implementation of any irresponsible policy. As a rule, because of the considerations of political and economic efficiency, any full control over the decision making of subnational authorities would be counterproductive (in fact, it means the abandonment of the principle of fiscal decentralization). Therefore, budget policy measures must be limited to the creation of such institutional conditions, which would prevent the negative consequences of irresponsible fiscal behavior not only with regard to the residents of a specific region, but also to the budget system as a whole.

Among the major factors influencing the state of budget constraints for subnational authorities, one can single out such characteristics of the system of state federalism as the vertical imbalance of the budget system (the gap between the revenue potential and the expenditure responsibilities of subnational authorities in general), the extent of the fiscal autonomy of subnational authorities, the characteristics of the interbudget transfers system, the transparency of the budgeting process and budget reporting, the extent of the fiscal autonomy of subnational authorities as regards the adoption of decisions concerning the effectuation of borrowings, the political characteristics of the federal system, and other important factors. In the aggregate, these factors exert significant influence on the propensity of subnational authorities to take non-efficient decisions based on the expectation of financial assistance from the budgets of superior levels.

Thirdly, the authors have examined the situation in the sphere of fiscal relations with subnational authorities, as it exists in a number of countries at different levels of development, from the point of view of researching the facts pertaining to the emergence of the problem of

soft budget constraints for subnational authorities, the consequences of the emergence of this problem, and also the adoption of either successful or unsuccessful measures aimed at preventing the emergence of soft budget constraints at the subnational level.

By the results of the overview of the practice existing in foreign countries, it can be affirmed that the necessary degree of rigidity as regards budget constraints for subnational authorities under conditions of a multi-tier structure of authority can be secured by the presence of market limitations restricting the behavior of subnational authorities, or by the application of the hierarchical control mechanisms on the part of the central authorities. The choice of a particular mechanism depends on a number of factors: in federations created by way of unifying independent states or provinces, preference is given to market mechanisms, while in states where the processes of decentralization have begun relatively recently, it is more efficient to use the mechanisms of hierarchical control, or to combine the use of the former and the latter.

Also, we have come to the a conclusion that the tightening of budget constraints in the absence of rigid control over the budget policy of subnational authorities, despite being determined, to a large degree, by the above characteristics of the system of interbudget relations consolidated in legislation, is largely being influenced by the previous experience of relations between the national and subnational budgets in periods of financial crises. Thus, among the factors responsible for the imposition of rigid budget constraints on subnational authorities in the USA and Canada, the long history of the central government's refusals to provide financial assistance to subnational authorities was by no means the least important one. At the same time, the experience of other states (e.g., Brazil) indicates that when regions are sufficiently represented in legislative bodies and enjoy substantial influence there, even the formal legislative approval of the rigid principles on which the financial relations between national and subnational authorities are to be based does not necessarily result in the tightening of budget constraints, because later on such a decision can be altered.

Another conclusion derived from the analysis of foreign practice is clearly important for decision-making in the sphere of economic policy: the rigidity of budget constraints for subnational authorities in the system of fiscal federalism can be successfully achieved when a reason-

able economic policy is pursued. However, this process is a long-term one, and therefore it must be based on the creation of market incentives to increase the responsibility of subnational authorities, as well as on the creation of the opportunities, for subnational authorities, to mobilize their own resources in order to meet this responsibility. The same objective must be pursued by the introduction of rigid formal rules concerning the allocation of interbudget transfers, by regulating the attraction of borrowed funds, by the creation of a formalized system for distributing responsibility between the levels of authority in the event of a financial crisis and for providing financial assistance, and by properly arranging the political system.

Fourthly, on the basis of an analysis of both the literature and the experience of foreign countries, the authors have examined the Russian practice of building fiscal-budget relations between the levels of authority and administration and have formulated some hypotheses regarding the acuteness of the problem of soft budget constraints for regional authorities in the Russian Federation. According to the conclusions we have arrived at, there are some reasons to believe that the problem of soft budget constraints for Russian regional authorities has been manifesting itself throughout all the period of existence of post-Soviet Russia.

Thus, in the period prior to the beginning of reforms in the sphere of budget federalism (1999–2000), some preconditions for the emergence of the soft budget constraints problem existed as a result of the failure to consolidate in federal legislation any scheme of relations between the federal and regional budget characterized by a minimum degree of definitiveness. The tendency of the federal authorities to support crisis regions, the allocation of financial assistance to politically influential subjects of the Federation, the presence of a substantial volume of financial resources being distributed between the regions on a discretionary basis, all served as factors responsible for the emergence of direct stimuli for regional authorities to behave dishonestly in order to obtain additional financial resources from the federal budget.

With the onset of budget reform, the situation with the allocation of financial assistance to subjects of the Federation began to improve. There were adopted a number of formalized methodologies concerning the allocation of interbudgetary transfers, and the results of calcula-

tions obtained thereby were to be consolidated in the annual laws on the federal budget. All this inevitably reduced the possibilities to manipulate budget policy at the regional level for the purpose of obtaining additional financing.

At the same time, there exist two major reasons for the impossibility to make an unequivocal conclusion that the soft budget constraints problem has become considerably less acute. In order to obtain political support for the party in power from the population of certain regions, the federal authorities allocated additional financial resources to these regions on the eve of elections. Secondly, the presence of a large volume of additional expenditures on the part of the federal budget (for a number of years, budget planning has been carried out on the basis of a conservative price projection with regard to hydrocarbon raw materials, which always lagged behind the actual prices) makes it possible for the federal authorities to repeatedly allocate, in the course of one financial year, additional financial resources to subjects of the Federation, notwithstanding the fact that no rules concerning their distribution have ever been adopted.

Fifthly, we have developed a simulation model of interaction between the national and the subnational levels of authority, designed to determine the major budget parameters of each level, including the volume of interbudgetary transfers and the accounts payable of the budget. The suggested approach to the modeling of the preconditions for the emergence of soft budget constraints for Russian regional authorities has been developed on the basis of the specific features of the budgetary process as it exists in Russia. Thus, in the course of modeling, we were surmising that subnational authorities were able to borrow funds to finance the provision of public benefits not only from their traditional creditors – banking institutions, but also from the organizations or structural units of the non-government sector – by way of increasing the amount of accounts payable in the budget when providing social benefits.

In the constructed models of interaction between the federal center and regional authorities, the obtained equilibrium and the ratio between the equilibrium values of the expenditures incurred by the federal and regional budgets, and between the accounts payable and the financial assistance with socially optimum values, depend on the conditions of

that interaction, and, in particular, on the degree to which the regional authorities are capable of imposing their own strategy on the federal center and are actually taking advantage of this opportunity, that is, are using the right of making the first move.

We have assumed that in terms of the Russian budgetary process this means that any deviations of the expenditures and financial assistance from their optimum values in the course of realizing the above preconditions regarding the preferences of the federal center are determined by the degree of success achieved by regional authorities in their negotiations with the federal center, by the degree to which the federal center responds to the regional authorities' arguments in favor of the allocation of additional financial assistance, and also by the degree to which the regional authorities manage to impose their strategy of behavior (or, in terms of the model, to provide appropriate justification for the necessity of the center's support for financing the settlement of accounts payable, by way of making budget decisions which become known to the center prior to the moment of the financial assistance to the regions being actually allocated).

An analysis of the developed theoretical models has indicated that in an instance when regional authorities maximize the utility function of the representative consumer in a region, while the utility function of the federal authorities represents the function of public welfare, both the equilibrium under conditions of simultaneous interaction and the equilibrium under conditions of the first move being made by the federal center coincide with the social optimum, when the maximization of social welfare takes place in the presence of a budget limitation, which is similar for the regions and the center, and includes the budgets' revenues and accounts payable.

This means that under conditions when the preferences of regional authorities reflect the preferences of regional consumers, and the regional authorities do not perform any opportunistic actions aimed at obtaining additional financial assistance from the federal center, the decentralization of spending powers does not result in deviation from the social optimum.

Moreover, when regional authorities use the right to make the first move and obtain, as a result, additional financial resources over the initially envisaged volume (or by comparison with the volume determined

on the basis of formalized computations), they use this right despite the fact that the additional financial assistance received by them may produce a number of negative side effects for the region in the long-term perspective. Thus, such a strategy does not create any stimuli to increase the efficiency of budget expenditures, while the inefficiency of the latter will eventually lead to a decline both in the level and quality of the provision of social benefits. If regional authorities are acting in their own interests (that is, in the interests of the bureaucracy), and not in the interests of the population, they are ready to ignore these side effects to a greater extent, in order to obtain an even larger volume of additional financial assistance than in the first case, by using the right to make the first move.

Thus, in accordance with our theoretical model of the interaction between the federal and regional authorities, the most significant factor responsible for the risk of the emergence of the soft budget constraints problem is represented by the capability of regional authorities to manipulate the activities of the central authorities, which results from the possibility, on the part of a region, to take into account the possible response of the center to the budget policy pursued by the regional authorities. Such an influence exerted by a region on the central authorities' policy can be based on the political influence of the regional authorities, on formal or informal relations with the central authorities, and also on the regional authorities' ability to anticipate the possible response of the center to their actions, and on their capacity to inform the center as to the region's decisions in the course of the iterative coordination of positions within the framework of budget planning.

Sixthly, proceeding from the conclusions made on the basis of the theoretical model, we have formulated a number of hypotheses concerning the development trends in the sphere of interbudget relations in Russia, and also the factors determining the behavior of the federal and regional authorities in the process of decision making. Then we have tested these hypotheses from the point of view of their correlation with the existing empirical data. We have tested two major types of hypotheses.

(1) The hypothesis that financial assistance allocated from the federal budget depends on the amount of accounts payable in subnational budgets (that is how we have tested the hypothesis that Russia's federal authorities tend to provide additional financial support to those re-



gions that are experiencing financial difficulties, demonstrated by a high volume of accounts payable accumulated in their budgets).

(2) The hypothesis that a regional budget's accounts payable against certain items of expenditure are settled, in the first instance, after financial assistance has been received from the federal budget, and not at the expense of revenue proper (that is how we have tested the hypothesis that regional authorities tend to use the amount of their budget's accounts payable against certain expenditure items as an argument for obtaining additional financial transfers from the federal budget, without financing the corresponding expenditures at the expense of their revenue proper, by simply accumulating their accounts payable in anticipation of obtaining additional financial assistance, to be spent on settling the accounts payable).

Naturally, even the combined effect of testing these two hypotheses is not sufficient for us to affirm that the problem of soft budget constraints for regional authorities does indeed exist in Russia. However, their testing makes it possible to speak of the presence of certain phenomena, which could stem from the existence of soft budget constraints for Russian regional authorities.

By the results of the afore-said empirical testing, we were able to come to the following conclusions. The empirical results point to the fact that the amount of accounts payable significantly influences the amount of financial assistance allocated from the federal budget during the period of 2000–03. This relationship may result from the existence of soft budget constraints.

We have also come to the conclusion that the settlement of regional budgets' accounts payable with regard to such expenditure items as housing & communal facilities (in 1995–98), as well as state administration, was financed, primarily, from the allocated financial assistance. These results indicate that the hypothesis concerning the dishonest behavior of regional authorities is clearly consistent with the empirical data. At the same time, it can be assumed that this result was obtained due to the irregularity of the data on the amount of the budgets' accounts payable, and also due to the fact that the main argument offered by regional authorities in support of their demand for additional financial assistance from the federal budget has not (and is not) the amount of accounts payable under the items of the functional classification of

budget expenditures that we have discussed, but, e. g., by the amount of accounts payable with regard to the arrears of wages in the budget-funded sphere as a whole, or the aggregate arrears of wages and salaries in the sphere of education and public health care, or the amount of arrears accumulated by budget-funded enterprises in the sphere of education, public health care and culture with regard to the payment for communal services. Nevertheless, the performed analysis of the existing empirical data provides some grounds for an assumption that the hypothesis concerning the presence of the problem of soft budget constraints for Russian regional authorities, understood as the problem of dishonest behavior, does hold some validity.

Our research also gives ground to some major conclusions concerning the characteristics of an economic policy capable of creating tighter budget constraints for Russian regional authorities. In our opinion, this tightening can be achieved by combining economic policy measures in two areas - that is, by increasing the degree of fiscal decentralization in Russia (both in the sphere of tax powers and in the sphere of spending powers on the part of regional and municipal authorities), in combination with increasing the degree of responsibility of regional and municipal authorities for any decisions they make.

Since we have been repeatedly discussing, in a number of works<sup>203</sup>, the possible steps in the sphere of increasing the degree of fiscal de-

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<sup>203</sup> See the Institute for the Economy in Transition's annual reviews "Rossiiskaia ekonomika: tendentsii i perspektivy" (The Russian Economy: Trends and Prospects); *Ekonomika perekhodnogo perioda* (Ocherki ekonomicheskoi politiki postkommunisticheskoi Rossii 1998–2002) (An Economy in Transition (Essays in the Economic Policy of Post-communist Russia, 1998–2002). Moscow. "Delo"; *Analiz dokhodnykh istochnikov i raskhodnykh obiazatel'stv munitsipal'nykh obrazovani* (An Analysis of the Sources of Revenues and the Spending Obligations of Municipal Formations) (Head of the group of authors – I. V. Starodubrovskaiia, the authors – I. V. Starodubrovskaiia, M. Slavgorodskaiia, A. D. Iudin, et al.). Moscow. "Konsortsium po voprosam prikladnykh ekonomicheskikh issledovani (The Consortium for the Issues of Applied Studies in Economics"). 2003; *Opyt i perspektivy realizatsii program reformirovaniia regional'nykh finansov: Materialy Vserossiiskogo soveshchaniia* (Cheboksary, 6-8 fevralia 2003 g.) (The Experience of and the Prospects for Implementing the Program of Regional Finance Reform: The Materials of the All-Russian Conference (Cheboksary, 6-8 February 2003). Eds. A. M. Lavrov, N. V. Smirnov. Cheboksary. RGUP "IPK "Chuvashiia". 2003; *Biudzhetni federalizm: problemy, teoriia, opyt* (Budget Federalism: Problems, Theory, Experience). Moscow. Rossiisko-Kanadskii konsortsium po voprosam prikladnykh ekonomicheskikh issledovani ("The Russian-Canadian Consortium for the Issues of Applied Studies in Economics"). 2001.

centralization, it would suffice to note here that the decision adopted in 2004 with regard to the new procedure for the granting of powers to the heads of RF subjects' administrations has decreased many-fold the independence of regional authorities, and has resulted in increasing the dependence of regional authorities on the federal government, because, in contrast to the situation when the heads of regions are elected by the population, the appointed head of a regional administration has more reasons to apply for financial assistance from the level of authority which has appointed him into office.

However, the transition to the appointment of governors can also lead to the tightening of budget constraints: we have already mentioned some arguments in favor of the utmost importance of both the formal characteristics of the procedure for allocating financial resources between subnational budgets (the existence of formalized rules regarding the allocation of interbudgetary transfers, the legislatively established procedure for the actions of various authorities in the event of a financial crisis caused by the ineptitude of regional authorities, etc.), and the informal characteristics of the federal authorities' behavior in the sphere of allocating financial assistance. From this point of view, it is necessary to strictly implement the recently adopted legislative acts that regulate the procedure for allocating financial assistance from the federal budget, and also to avoid, as far as possible, any decisions (which are becoming more and more frequent) as to financial assistance being allocated to regional authorities in the course of distributing the additional revenues of the federal budget for purposes of preparing for the winter season, or improving the equilibrium of the budgets of RF subjects, etc.

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