International Studies Program

Working Paper 97-2
June 1997

A Methodological Note on the Reform of EqualizationTransfers in The Russian Federation

Jorge Martinez-Vazquez
L.F. Jameson Boex

Georgia State University

Andrew Young
School of Policy Studies

A Methodological Note on the Reform of Equalization Transfers in the Russian Federation

Working Paper 97- 2

Jorge Martinez-Vazquez
L.F. Jameson Boex
June 1997

International Studies Program
Andrew Young School of Policy Studies
Georgia State University
Atlanta, Georgia 30303
United States of America

Phone: (404) 651-1144
Fax: (404) 651-3996
Email: ispaysps@gsu.edu
Internet: http://isp-aysps.gsu.edu

International Studies Program
Andrew Young School of Policy Studies

The Andrew Young School of Policy Studies was established at Georgia State University with the objective of promoting excellence in the design, implementation, and evaluation of public policy. In addition to two academic departments (economics and public administration), the Andrew Young School houses seven leading research centers and policy programs, including the International Studies Program.

The mission of the International Studies Program is to provide academic and professional training, applied research, and technical assistance in support of sound public policy and sustainable economic growth in developing and transitional economies.

The International Studies Program at the Andrew Young School of Policy Studies is recognized worldwide for its efforts in support of economic and public policy reforms through technical assistance and training around the world. This reputation has been built serving a diverse client base, including the World Bank, the U.S. Agency for International Development (USAID), the United Nations Development Programme (UNDP), finance ministries, government organizations, legislative bodies and private sector institutions.

The success of the International Studies Program reflects the breadth and depth of the in-house technical expertise that the International Studies Program can draw upon. The Andrew Young School's faculty are leading experts in economics and public policy and have authored books, published in major academic and technical journals, and have extensive experience in designing and implementing technical assistance and training programs. Andrew Young School faculty have been active in policy reform in over 40countries around the world. Our technical assistance strategy is not to merely provide technical prescriptions for policy reform, but to engage in a collaborative effort with the host government and donor agency to identify and analyze the issues at hand, arrive at policy solutions and implement reforms.

The International Studies Program specializes in four broad policy areas:

- **Fiscal policy**, including tax reforms, public expenditure reviews, tax administration reform
- **Fiscal decentralization**, including fiscal decentralization reforms, design of intergovernmental transfer systems, urban government finance
- **Budgeting and fiscal management**, including local government budgeting, performance-based budgeting, capital budgeting, multi-year budgeting
- **Economic analysis and revenue forecasting**, including micro-simulation, time series forecasting,

For more information about our technical assistance activities and training programs, please visit our website at **http://isp-aysps.gsu.edu** or contact us by email at **ispaysps@gsu.edu**.

A Methodological Note on the Reform of Equalization Transfers in the Russian Federation*

Jorge Martinez-Vazquez and L.F. Jameson Boex

The current mechanism of fiscal equalization in the Russian Federation is complex, unstable and not transparent. In addition, it does not appear to be accomplishing its main goal: the equalization of funds among regions. While major reforms were introduced in 1994, serious problems remain in most areas of inter-governmental fiscal relations. This note addresses the current problems with the Fund for Financial Support of Regions (FFSR) and offers several options for reforming the current mechanism of equalization transfers in the Russian Federation.

I. Overview of Intergovernmental Fiscal Relations in Russia

Russia is a country with large fiscal and economic disparities and with great diversity within its borders. The Russian Federation is composed of 89 "subjects of the Federation." Of these subjects, 49 are oblasts, 21 republics, 6 krai and 2 cities (Moscow

* This note was written in June 1997 by Jameson Boex and Jorge Martinez-Vazquez at the request of the Ministry of Finance of the Russian Federation. The empirical simulations were later updated, incorporating more accurate data. The original research was partially funded by the World Bank and by a grant from USAID Contract 12-21-16500-361.

and St. Petersburg). One of the 21 republics, Chechnya, for all intents and purposes is not a participating member of the federation and will therefore be left out of the current discussion. In addition, the Russian Federation contains 11 autonomous oblasts, or okrugs. These okrugs are actually sub-units within larger oblasts, but they are independent from these oblasts for fiscal and budgetary purposes. Hence, there are 88 subjects of the Federation, or regions, with which the federal government maintains regular fiscal relations.

Many of the current problems with the system of intergovernmental relations can be traced back to the period of Soviet rule. Under the old Soviet system, local and regional governments were merely extensions of the central government, and the system of intergovernmental relations was characterized by tightly centralized finances. Revenue sharing and intergovernmental transfers were used as accounting tools to balance subnational budgets, while the size of these budgets was determined by expenditure planning norms set by the federal government. The overall level of subnational budget expenditures was politically negotiated, while transfers were used to provide subnational governments with the required funding for the minimum expenditure budget.

Since the start of the transition process in 1991, the Russian Federation has been pursuing the reform of the system of intergovernmental relations under principles more akin to those of Western-style fiscal federalism. In this structure, the federal government may engage in equalization between subnational governments based on fiscal capacity and need, but the ultimate responsibility for balancing regional budgets lies with the regional governments -- not with the federal government. During the transition, issues of

intergovernmental fiscal relations have become increasingly important in Russia as federal government responsibilities have been devolved to subnational governments. Whereas in 1992 the consolidated revenues of the subnational governments (before transfers) comprised of 38.6 percent of the total revenues collected, by 1996 this share had increased to 56.4 percent.

Major reforms in the system of intergovernmental fiscal relations of the Russian Federation took place in 1994. Before 1994 rates for shared revenues were commonly differentiated ("regulated") to fine tune the amount of revenues collected by the regions. Since 1994 the revenue sharing rates of the value-added tax (VAT), the personal income tax (PIT), the enterprise profit tax (EPT) and various excise taxes were standardized across all regions and have remained virtually unchanged since.[1] Also in 1994, the system of negotiated subventions to the regions was replaced with a formula-driven mechanism of equalization transfers. The reforms since 1994 have represented significant improvements over the previous Soviet-style mechanism of regulated revenue sharing and negotiated transfers. In particular, the adoption of a formula-based mechanism of transfers, the increased reliance by subnational governments on own source revenues and the increased stability of shared revenues represent notable achievements.

An important component of intergovernmental transfers in the Russian Federation is the Fund for Financial Support of the Regions (FFSR). This Fund, which is financed

[1] Since 1994, sharing rates between federal and regional budgets have remained very stable. The "Law on the 1996 Federal Budget" states that the applicable rates would remain unchanged until 1998. The following sharing rates apply: VAT, 75 Federal / 25 Regional; Special Tax (VAT surcharge) 67/33; Enterprise Profit Tax, 37/63; Excise on Alcohol, 50/50; Energy Excises, 100/0; and Excises on Domestic Production, 0/100. The only change with regard to the sharing rates has been the assignment of 10 percent of the PIT to the Federal level in 1995 and 1996. This practice will be discontinued for 1997, when the PIT will be fully assigned again to the subnational level.

from the federal budget, allocates funds to the subjects of the Federation based upon a set of formulas, replacing the system of negotiated subventions that was in place prior to 1994. Despite these reforms, the current system of intergovernmental transfers is still far from a desirable system of intergovernmental transfers that is stable, transparent, objective, and that achieves the objective of equalizing fiscal resources across the regions.

The equalizing capacity of the current system of transfers is limited by the fact that the funds available for equalization are a relatively small share of the subnational budget, and the share has been declining. Table 1 presents the sources of funds for the consolidated regional budgets for 1995 and 1996. As can be seen in this table, in 1995 the size of the FFSR was 8.4 percent of subnational revenues, while for 1996 these funds only comprised of 6.9 percent of subnational revenues. As described below, the current system of transfers also continues the Soviet tradition of filling the budgetary gaps of subnational governments as opposed to actually equalizing the needs and capacities of regions. The general dissatisfaction with the FFSR in its present form culminated in the rejection of its allocation by the State Duma in the discussion of the 1997 budget.

Another shortcoming of the current system of transfers in the Russian Federation is the virtual absence of categorical or conditional grants by the federal government to the subjects of the Federation. Such grants could be used to either induce expenditures in areas of national priority (such as education, health, or infrastructure) and thus support national sectoral objectives, or to promote higher spending in areas with significant externalities (such as environmental protection). At the present time the federal government compensates the subjects of the Federation for their expenditures incurred

for federal expenditure responsibilities through "mutual settlement" transfers (see "other transfers" in Table 1), but these payments tend to be ad hoc and non-transparent. This category contains a wide array of targeted transfers. They include transfers aimed at regional development, subsidization of the shipment of goods in the Far North and other remote regions, as well as financing for the maintenance of residential housing and social and cultural assets by subnational government. In addition, several regions receive transfers for military cities and other "closed" areas, while the City of Moscow gets a special transfer equal to 5.6 percent of all transfers for its function as the capital city of the Russian Federation.

The next section discusses in greater detail the way in which the current equalization grants are assigned and an evaluation of the current system. Suggested options for reform follow.

II. Equalization Transfers in the Russian Federation

Before the reforms that took place in 1994, the allocation of intergovernmental transfers was based on bargaining between the regions and the central government. Critics of this system argued that these transfers were determined more by politics and power than by economic factors and fiscal need. In 1994, these negotiated subventions were replaced with formula-driven transfers from the new Fund for the Financial Support of the Regions (FFSR). The goal of the FFSR was to equalize the fiscal capacity and needs of the subjects of the Federation. The way this Fund has been endowed has varied annually since its inception. In 1994, 22 percent of the Federal share of VAT collections was allocated to the Fund. For 1995, the percentage of federal VAT collections assigned

to the FFSR was increased to 27 percent. For 1996, the funding formula was changed to include 15 percent of all Federal collections, while excluding import taxes and the Federal share of the PIT for 1996 (which was set at 10 percent). Based on budget execution data for 1996, the FFSR amounted to 23.6 trillion Rubles for that year. For 1997, the planned funding for the FFSR continue to consist of 15 percent of all Federal collection with import taxes still excluded.[2]

The FFSR mechanism of equalizing grants relies on two "windows" of transfers. The first window, which attempts to equalize the fiscal capacity of regions, is referred to as "Regions in Need of Financial Assistance." The second window of equalization is referred to as "Regions in Need of Additional Financial Assistance," and is meant to calculate transfers based on expenditure need. The formula for capacity equalizing transfers in Window I for 1997 is presented in Table 2. The allocation of funds in this window is broken down into three steps. In Step 1, the relative claim for regions is computed based on the fiscal capacity for each region. Next, steps 2 and 3 determine the size of the transfer for those regions with a positive claim. For the purpose of determining fiscal capacity, the Russian Federation is divided up into three groups of regions; two regions in the Northern territories and one for the rest of the Federation.[3] Within each of these three groups, regions whose per capita revenue collection is below 92 percent of the group average are entitled to capacity-equalizing transfers.[4] The fact that the subjects of the Federation are divided into groups for the purpose of capacity

[2] The 10 percent share of the federal government in PIT collections is discontinued in 1997 so that for this year all collections from the PIT are fully assigned to the subnational level.
[3] In 1996 and before, the Federation was divided up into 11 groups of regions for this purpose.
[4] The scaling coefficient was 0.95 for the years from 1994-1996. The coefficient acts to scale down the level of equalization.

equalization is justified by the existence of significant differences in the price level between the groups of regions.

An important element of the system of capacity equalization in the Russian Federation is the use of base year data as opposed to current data. This practice is based on the concern that the use of current revenue collections would reduce tax effort by "rewarding" lower collections with higher transfers. In an effort to avoid these perverse incentives, revenue collections for 1991 are used as a proxy of fiscal capacity of the regions rather than current collections data or other measures of fiscal capacity.[5] The obvious concern with the use of base year data is that the accuracy of this measure of capacity diminishes over time, especially after periods of high inflation. For all regions, their claims for capacity equalization are augmented or decreased by 92 percent of the ratio of average per capita expenditures and average per capita revenues for each group of regions. The effect of this transformation is to adjust each region's claim for differences in fiscal capacity between the three groups of regions. For the regions that exhibit a positive claim in Step 1 of Window I, the available pool of funds for capacity equalization is divided up based on the relative claim of each region.

The second window of equalization is referred to as "Regions in Need of Additional Financial Assistance."[6] Table 3 summarizes the process. Again, the process is based on data from a base year (currently 1991) to avoid perverse tax incentives. Redistribution in this window is based on the idea that regional public expenditures in the base year are an adequate approximation of the fiscal needs of regions. The principle guiding the second window follows the "gap filling" philosophy of the subvention system

[5] Until 1996, the base year for this purpose was 1993. The switch to 1991 was based on the belief that this year collections were more representative of actual fiscal capacity.
[6] Until 1997, this window was called "Regions in Urgent Need of Financial Assistance."

in the former Soviet system. In Step 1 of the formula, the claim for each region is measured by the gap between revenues available to the region (own sources, shared revenues and grant from Window I) and the "needs" as proxied by the adjusted base year expenditures. In Steps 2 and 3, the funds available under Window II are distributed to those regions with a positive claim, in proportion to the relative size of each region's claim.

Shortcomings of the Current Mechanism of Fiscal Equalization

Any mechanism of fiscal equalization needs to be stable, transparent, objective, and achieve fiscal equalization between the subjects of the Federation. Although the current mechanism of formula-driven transfers is a great improvement over the preceding system of negotiated subventions, there are several reasons why the current system of windows falls short from achieving the desired objective of equalization.

First, the current mechanism of transfers may not be achieving its goal of equalization of resources between the regions. There is little doubt that in comparison to the system of regulating (shared) revenues that was in place prior to 1994, less redistribution is taking place in the current system.[7] Although a system of standardized and stable sharing rates in federal taxes is a worthwhile objective, its introduction has resulted in increased fiscal disparities across regions with varying levels of fiscal capacity.[8] To preserve, if not increase, the degree of equalization achieved by the previous system of regulating sharing rates and subventions, the pool of funds available

[7] For a further discussion of this issue, see Kitty Steward. "Are Intergovernmental Transfers in Russia Equalizing?" European University Institute, Draft, September 1996.

[8] A view now espoused by some Russian experts is that a system of differentiated revenue sharing rates based on objective formulas (rather than negotiation) may be the most desired approach to achieving the objectives of adequate funding and equalization among regions. This proposal deserves careful evaluation but will not be discussed here.

for equalization transfers should have been increased significantly. In reality, equalization transfers are only a small part of the subnational budget. The importance of the FFSR is actually declining in the overall funds of subnational governments (Table 1).

Second, the current practice of using revenue collections data from a base year as a measure of fiscal capacity is not appropriate. There is no good reason to assume that revenue collections for 1991 adequately reflect the fiscal capacity of the regions for 1997. This is true especially in light of the sweeping changes in the economic structure of Russia in recent years. Moreover, the use of collections data is troublesome because in addition to fiscal capacity, collections are influenced by the effort of regional tax administrations. Furthermore, incentives under the system in force in 1991 were often perverse.

There are better measures available that indicate the fiscal capacity of a region. The ideal measure of fiscal capacity of a region is its tax base. The tax base for the personal income tax, for example, is the income earned by individuals, while the tax base for the Enterprise Profit Tax is the aggregate profits generated in a region. Unfortunately, little consistent data on tax bases for the regions of the Russian Federation are available. In the absence of good data for tax bases one possibility is to consider using proxies for tax capacity that cannot be influenced directly by fiscal effort, such as per capita income or gross regional product (GRP). The advantage of proxies such as per capita income and GRP is that they are current measurements, and that they are neutral with regard to regional tax effort.

Also, the division of regions into three groups is an unnecessary hindrance to capacity equalization in Window I. While the current process adjusts for within-group

disparities relative to the overall fiscal capacity of the group, the current procedure prevents adequate equalization across the groups of regions. A more appropriate way to adjust for the cost differences between regions would be to normalize the fiscal capacity of all regions using a regional price index. This would allow for real equalization by converting nominal amounts into real values rather than arbitrarily placing regions in groups.

Third, there is no real need-based redistribution in the current system. Although the second window is meant to equalize fiscal need, what actually takes place is old fashioned, Soviet-style budget gap filling. The use of base year expenditure data as a measure of fiscal need is equally inappropriate as it was in the case of capacity equalization. Expenditure levels in the base year (1991) were distorted by many factors including the use of norms, negotiation, and the asymmetric distribution across regions of other sources of funding (such as expenditures financed by state enterprises). But even if 1991 budget figures were reflective of fiscal needs for that year, it is unlikely that it would have remained so during the years of economic transition. Fundamentally, this measure lacks the ability to evolve as the fiscal needs of regions have changed in a turbulent world of economic reform. In the absence of independent budgetary power of regional governments, expenditures in the period before 1994 were arguably more a reflection of the political ability to get resources assigned than a true indicator of fiscal need.

Even more so than in the case of capacity equalization, there are multiple indicators of fiscal need available which can be used to measure the need of regions in ways that cannot be influenced by regional governments. Examples of basic measures of

fiscal need that could be used for this purpose include the number of persons living below the poverty level, the number of senior citizens, or the number of children of school age.

In addition to concerns dealing with the allocation mechanism, there are several concerns about the way in which the current system of equalization transfers has been administered. One problem has been the lag in appropriating revenues from the federal government to the regional governments. At times it has taken three months for monies to get to the regions. In response to these delays, regional governments started holding funds back from the shared revenues to credit themselves with the funds that should be transferred from the federal government. This practice of revenue swapping was formalized in the 1996 budget. This practical approach to reducing "counterflows" of funds between the federal and subnational governments has led to differentiated sharing rates for the major taxes on a cash basis.[9]

An administrative concern that existed prior to 1994 was the use by some ethnic republics of a single channel for fiscal relations with the federal government. These regions retained all tax collections and negotiated with the federal government one single payment rather than different sharing rates. The advantage of the 1994 reform was that most of these regions were pulled into the general system of fiscal relations to take advantage of the formula transfers.

In summary, the Russian Federation needs to reform the Fund for the Financial Support of Regions. This need has become pressing given the rejection by the State Duma of the current system during the 1997 budget discussion. The objective of the reform should be a full-fledged fund for equalization based on true measures of fiscal

[9] The practice of agreements for retaining different shares of tax revenues between the Ministry of Finance and the regions has given impetus to the idea of using formulas for regulating sharing rates, as an alternative for reform.

capacity and fiscal need. In addition, the reform also needs to incorporate the objective of using conditional or categorical grants to pursue federal government sectoral objectives.

III. Options for Reforms

The goals for the reform of the system of transfers include: (i) the implementation of a system of categorical or conditional grants from the federal government to the subjects of the Federation to encourage desirable expenditure patterns; (ii) the implementation of compensatory transfers to pay the subjects of the Federation for the administration of federal programs or previously unfunded mandates, and (iii) the design of a formula-driven mechanism of equalization transfers, based on fiscal capacity, tax effort, and expenditure need disparities across the subjects of the Federation. The goal behind the proposed framework for reform is to build a transparent, objective and effective system of transfers to equalize the fiscal capacity and needs across the subjects of the Federation.

In practical terms, this note proposes to replace the current FFSR two-window mechanism with a more comprehensive five-stage framework. This framework is flexible in the sense that some of the stages can be ignored. The five suggested components of this framework are (1) making a prior decision about the funds to be dedicated to (a) categorical and conditional matching grant to pursue sectoral policy objectives, (b) funds to be dedicated to direct compensation for federal programs and unfunded mandates and (c) funds to be dedicated to formula-based equalization; (2) making a decision as to whether it is necessary to hold regions harmless; (3) capacity

equalization; (4) encouraging tax effort and (5) equalization based on fiscal need. Again, the emphasis of the process is on the equalization mechanism. The advantage of the five stages is that they allow reaching the goal of implementing equalization of fiscal capacity and fiscal need after making explicit decisions on the funds dedicated to gain political consensus (whether regions should be held harmless or to what extent they should) and the funds dedicated to other objectives of the system of transfers.

Rather than suggesting one simple formula for each stage, this note provides an outline of the methodology and concrete examples of the methodologies. The next section will give some examples on how the mechanism could operate. The final formulas to be used and the levels of funds allocated are ultimately political decisions which will have to be modified in the process of budget preparation and discussion.

Stage 1: Determining the Scope of the Equalization Fund

In addition to the fiscal equalization pursued through the FFSR, the Russian Federation currently allocates "targeted transfers" to the subjects of the Federation. These targeted transfers include transfers to several "closed cities" and other "special towns" (i.e., military areas), and subventions to the City of Moscow for its role as the national capital. Other transfers are targeted for the support of shipment of goods in the Far North and other remote territories, financing of socio-cultural objects and some local housing, as well as subsidies from the Regional Development Fund.

Some of the activities currently undertaken as targeted transfers outside the scope of the FFSR are truly aimed at fiscal equalization. The subsidies for transportation costs in remote areas and support of public housing are examples of this. To the extent that these transfers have a fiscal equalization objective, they should be designed and

implemented within the overall framework of fiscal equalization. In recent years, the growing number of transfers with an equalization objective outside the scope of the FFSR has represented a worrisome development. It has been interpreted by some as signaling a return to a situation where the distribution of funds is based on bargaining and political negotiations. Thus, an important decision concerns which of these activities can be pulled into the scope of the formula-driven equalization system and thus increase the resources available to this purpose. In fact, increased equalization of fiscal resources through the use of improved measures and methods of grant allocation may make some existing targeted transfers redundant.

As mentioned earlier, the Russian Federation currently lacks a system of categorical or conditional grants to induce expenditures in areas of national priority, such as education or health care. As such, the Russian Federation needs to build a system of categorical and matching conditional grants to pursue particular sectoral objects. While full development of such a system lies outside the scope of the current note, Box 1 reviews different types of transfers the federal government could use to implement specific programs for sectoral policies or for the purpose of fiscal equalization.

A policy decision that must precede the assignment of equalization transfers to the regions is the determination of the size of the Equalization Fund, and its position relative to other transfer programs. On one hand, the implementation of categorical or conditional grants to sectors of national priority may reduce the need for fiscal equalization. On the other hand, the redundancy of certain targeted equalization transfers as a result of an improved mechanism of formula-based fiscal equalization may increase the pool of funds available to the Equalization Fund. Thus, the determination of the

scope of the Equalization Fund in this first stage is significant in that, after considering the impact of all other transfer programs, it determines the pool of funds available for the formula-driven Equalization Fund.

BOX 1: TYPES OF GRANTS

Grants can be distributed among regional governments in a variety of ways. The specific goal of each grant will help determine the appropriate design of these grants. This box outlines the different dimensions of intergovernmental grants.

Block Grants, Categorical Grants and Project Grants

Block grants are transfers that allocate lump sums of funds among regional government, leaving virtually complete discretion to the regions on how to spend these funds. For example, the current transfers from the Fund for Financial Support of the Regions are block grants. Grants for specific purposes can be broken down in categorical grants and project grants. Categorical grants are transfers from the federal government to regional governments that are given on the condition that these funds are spent in a certain category of spending (such as infrastructure improvement, health care, education, etcetera). While limiting the category in which these funds could be spent, categorical grants still leave a certain degree of discretion at the regional level on how to spend these funds. Projects grants are specific transfers designed to fund specific programs designated by the federal government. Examples of project grants would be transfers that provide funding for orphanages, specific infrastructure, or other targeted projects. The terms, upon which these project grants are provided, are specified in great detail by the federal government, thereby leaving virtually no discretion at the subnational level.

Lump Sum Grants versus Matching Grants

Grants systems may also differ in the degree to which regional governments are required to participate in funding the project or program. For example, a grant for a certain project or program may be allocated to a regional government as a lump sum. Alternatively, the central government may subsidize projects by matching the contributions of regional governments with contributions from central government funds. This method provides the regional governments with the flexibility to determine (in general terms) the amount of funds to be spent on certain programs or projects, while the cost of implementing these projects is effectively reduced through the matching ratio. At the same time, the central government has the ability to influence the levels of expenditures in specific categories and on designated projects, which the central government deems important.

Matching grants may be open-ended or closed-ended. A closed-ended grant would put a limit on the amount of central government funds given to a particular regional government. An open-ended matching grant will provide matching funds without such a limit.

Lump sum transfers encourage increased spending by regional governments by providing regions with more funds. This is called the income effect. Using matching grants adds an additional incentive to increase spending on designated categories or projects due to the fact that the size of the grant depends on the amount spent by the regional government. The matching rate is a useful tool for the central government to influence the level of regional spending on specific projects and selected expenditure categories: the higher the matching rate, the greater the incentive for regional governments to increase their spending.

Stage 2: Holding Regions Harmless

Often when governments reform the way in which transfer funds are allocated to subnational governments, there are "winners" and "losers" in the process. Rather than abandoning possible reforms altogether under the political pressure of the potential "losers," it is expedient and it may be desirable to design a system that holds regions harmless or partially harmless for their implied losses under the new system. For example, to reduce the "shock" caused by the change to a new system of equalizing transfers, the federal government could guarantee that in 1998 regions will receive at least a certain share of the transfers that they received in 1997. The share at which regions are held harmless could either be set to a fixed level (e.g., 50 percent) or the share could be reduced over time. In the latter case, regions could be held harmless at, say, 50 percent in 1998, at 25 percent in 1999, and holding harmless could be phased out in the year 2000. The experience during the discussion of the 1997 budget by the Duma clearly indicate the importance of this issue. Reputedly, one main reason for the rejection by the Duma of the reforms in the FFSR proposed in the 1997 budget was that it would harm a number of regions vis-à-vis what these regions received in 1996

The obvious advantage of holding regions harmless is that reforms become more politically acceptable. The disadvantage of implementing a policy of holding harmless is that implementation of this stage takes away funds from the overall pool that could otherwise be spent on different stages of equalization or on categorical and conditional transfers. Holding all regions harmless at 50 percent of their 1997 transfers would take an estimated 12.45 trillion Rubles, or 46.3 percent of the projected Equalization Fund for 1998. If the hold-harmless amounts are fixed in nominal terms, the "costs" of holding

harmless would tend to be lower under conditions in which the overall pool of funds increases rapidly in real terms or in the presence of inflation. The current economic conditions in the Russian Federation call for low real growth and relatively low inflation. Therefore, a hold-harmless provision would eat significantly into the available pool of funds for equalizing transfers.

Naturally, if transition problems were not expected to be great and little or no political opposition existed, the federal government could forgo this stage altogether (i.e., hold regions harmless at zero percent) and allocate the entire pool of funds according to the process outlined in Stages 3-5.

After Stages 1 and 2 of the process are completed, the three remaining elements of equalization to be considered include: (1) capacity equalization; (2) possible encouragement of tax effort; and (3) needs-based equalization. At this point, the policy determination needs to be whether to implement one, two, or all three of these elements, and how much of the funds are to be spent on each of these elements of fiscal equalization.

Stage 3: Equalization of Fiscal Capacity

Part of the equalization funds in the Russian Federation should be directed towards equalization of the ability of regions to collect revenues. The ability of regions to collect revenues is referred to as fiscal capacity. The subjects of the Federation have greatly dissimilar fiscal capacities. The fiscal capacity of regions can be equalized to some degree by allocating funds to regions that have a level of fiscal capacity below some benchmark.

The best measure of fiscal capacity is the base of all taxes accruing to the government in the region. But as discussed before, information on tax bases is often not available. Lacking information on tax bases, there are several alternative methods to measure tax capacity, although none of these are without shortcomings. An alternative measure of fiscal capacity is revenues collected by a region. However, using collections as a proxy for fiscal capacity for the purpose of assigning grants would discourage tax effort by providing regions with an incentive to collect less revenue. In countries other than Russia, this problem could be avoided by using federal tax collections as an indicator of tax capacity. In Russia this is not a feasible approach because the subjects of the Federation have a considerable degree of control over federal collections within their borders. Even though the State Tax Service (STS) is a national organization, de facto, there exists dual subordination of STS officials to regional authorities and these latter can, and do, exercise considerable influence on the collection of federal tax revenues. In addition, most of the federal taxes are shared with the regions.

Yet another option is to simply use real per capita GRP or real per capita income in a region as a proxy for the capacity of the population to pay taxes and ultimately to be able to afford a standard basket of public goods. However, we found that the data on personal income from the Russian Statistical Yearbook may provide an unreliable measure of a regions' per capita income. An alternative method for estimating tax capacity uses regression analysis. Basically, this method would allow us to predict the revenue capacity for each region based on the relationship between actual collections and relevant features of the regional economies for all regions in the Russian Federation. This method, which should receive due consideration, is discussed in Box 2.

In the absence of more sophisticated measures for the regions' tax bases, real per capita GRP should be deemed a good proxy of fiscal capacity. Using real per capita GRP as a workable indicator of the fiscal capacity of regions for the purpose at hand, we will describe the proposed method for capacity equalization. While the suggested procedure for capacity equalization is similar in some ways to the first window of the FFSR, it avoids the problems associated with adhering to lagged collection data as measure of fiscal capacity.

The first step in the suggested method of fiscal capacity equalization would be to determine the relative fiscal capacity of all regions. To do this, it is necessary to keep in mind that one ruble does not have the same purchasing power in each of the regions. Again, the economy of the Russian Federation is highly diverse and this is reflected by large cost differences across regions. To correct for these cost differences in the measurement of fiscal capacity, it is necessary to consider the fiscal capacity of a region in real terms as opposed to a region's nominal fiscal capacity. Therefore, we propose normalizing nominal per capita GRP by a regional price index to obtain real per capita GRP for each region. From a variety of consumer price indexes available, we suggest using the index for prices of a basket of 19 major food commodities. We deemed this cost of living index to be most suitable and believe that it provides the most accurate reflection of price differences among the regions. Funds should be allocated to all regions whose real tax capacity is below some benchmark of real fiscal capacity. An often used benchmark for this purpose is the national average. This benchmark can be easily adjusted by multiplying national average per capita GRP by coefficient K, which can take values, $0 < K \leq 1$.

Box 2: An Alternative Measure of Fiscal Capacity

In the absence of information on the size of actual tax bases for a region, it is possible to use regression analysis to estimate the fiscal capacity of a region. Regression analysis is a statistical technique that can be used to predict the value of one variable based on one or more other known variables. For the purpose of developing a measure of fiscal capacity, we predict the amount of collections for each region based on two proxies for each region's tax bases. The indicators of tax bases used in the regression are (1) per capita gross regional product (GRP) and (2) the value of industrial production per person.

Using these two indicators, the estimated equation explains 93 percent of the variation in collections between regions in 1996. (R2 = 0.93; all parameters are statistically significantly different from zero.) The variation in collections across regions not explained by the equation (7%) can be interpreted as due to different levels of tax effort across regions. The estimated equation used to predict the level of collections is:

Per Capita Revenue Collections = - 556 + (0.23 * PC GRP) + (0.04 * PC VIP).

The predicted amount of collections based on this regression equation shows what the revenue collection would be for each region under average effort. Therefore, the predicted value of collections from this regression can be used as a measure of a region's fiscal capacity.

There are several potential benefits to using regression analysis. First, there is no need to rely on just one proxy for tax bases. Second, this method allows the use of current collections data while excluding any perverse incentive effects on fiscal effort. Third, the relationship between collections and the tax bases is inferred from the data. The important disadvantage of the regression analysis approach is its complexity. Transparency and simplicity are desired features of any transfer formulas.

The proposed methodology for real capacity equalization is summarized in Table 4. For all regions that have a tax capacity above the benchmark, the capacity-based transfer will equal zero. For all regions that have fiscal capacities below K times average real per capita GRP, Step 1 in Table 4 indicates how the relative claim for each region i is determined. If K=1, the benchmark capacity will be equal to the national average. Setting the K scalar at a fraction between zero and one has the effect of redistributing the same amount of funds, but to a smaller group of regions whose fiscal capacities are only some fraction of the national average. Lower values of K would pull those worst-off regions closer to the benchmark. Values of K closer to 1 would pull all jurisdictions with

below-average capacity a little bit towards the average capacity. The choice of the K parameter can address in a straightforward manner the current concerns in the Russian Federation concerning the difficult issue of whether to use available funds to improve the conditions of the poorest of the regions or to spread the available funds among a larger number of regions. The choice of the K parameter will also have to consider the possible inequalities that will arise when poorer regions receiving capacity equalization funds end up with more funds per capita than relatively richer regions that are excluded, by the formula, from the capacity equalization fund. This choice will require careful evaluation of simulations under different values for the K parameter.

The next step to consider in the process of equalizing the fiscal capacity of regions is that if two regions have the same capacity gap in real terms, it will still be necessary to adjust the transfer into nominal terms. For instance, imagine that two regions that are situated similarly in real terms, but one of the regions has a higher price level. If both were to receive the same nominal amount in transfers, the transfer would close a smaller share of the real capacity gap for the region with the higher cost structure. Therefore, in Step 2 the real claim for each region is translated back into nominal terms by multiplying each region's real claim by the regional cost of living (COL) index. Multiplying by the COL index in Step 2 causes the real claims to be corrected for cost difference across regions.

The size of the fund used for capacity-based equalization (Fund C, in Table 4) depends on the amounts taken from the pool of funds in Stage 1 and Stage 2, as well as the amount of the residual fund reserved for tax effort encouragement and need-based

equalization (to be discussed in Stages 4 and 5). The determination of the actual size of the capacity-based equalization transfer to each region is shown in Step 3 of Table 4.

Stage 4: Encouraging Tax Effort

There has been an increasing concern in the Russian Federation with the way in which federal programs treat regions that exercise different degrees of tax effort. In particular, regions with similar economic resources or tax bases may decide to raise different levels of taxes. A prevalent concern is that those regions that exert greater tax efforts should receive some reward or, at least, should not be penalized for doing so. The theory of fiscal federalism does not provide any strong arguments for the encouragement or discouragement of tax effort by the regions. Encouraging tax effort would make economic sense if taxpayers underestimated the value of the services provided by governments. In that case, taxpayers would elect regional governments that promise the electorate to provide public goods at a level that is not optimal for society. However, this generalized bias is unlikely to happen and probably impossible to prove. On the other hand, if the Russian Federation were to encourage regional fiscal effort, the result could be that scarce federal resources would be spent on non-priority regional programs. For these reasons, it may make more sense for the Russian Federation to encourage spending in particular categories or on specific programs that are deemed of national importance through the use of matching grants. However, at earlier stages of the economic transition and given the current problems with revenue collections it may be desirable to encourage tax effort by the regions on a temporary basis. This may become more important if more tax autonomy is granted to the regions as proposed, for example, in the draft Tax Code.

Ultimately, the decision whether or not to engage in encouragement of tax effort is a political choice.

If the federal government does decide that it wants to encourage tax effort by the regions, a measure of tax effort will have to be selected. Since measurement of fiscal effort involves the comparison of revenues actually collected and the fiscal capacity of a region, any measure of tax effort faces the same measurement problems that we previously encountered in the measurement of tax capacity. The level of revenue collections relative to the tax base is influenced by the efficiency of tax administration, as well as the structure of the regional economy and the applicable tax rates.

Subnational authorities in Russia still have little discretion over the tax rates and little control over the structure of the regional economy. While the rates for the federally shared taxes are set by the federal government, regional governments are empowered by the Russian Tax Code to introduce exemptions regarding a portion of these taxes paid to the regional budgets. Perhaps more importantly, regional tax authorities have great influence over the diligence with which (subnational and federal) taxes are collected. Similar to the alternative method to measure fiscal capacity, regression analysis can also be used to measure fiscal effort. This is discussed in Box 3.

In general, there are several ways of encouraging tax effort. First, regions that increase their tax effort over a certain period of time may be granted additional funds in a matching arrangement. The drawback of this method is that you may award regions that previously slacked in their collection efforts, rather than rewarding regions that exerted a high level of tax effort.

Box 3: An Alternative Measure of Fiscal Effort

An alternative measure of fiscal capacity using regression analysis was discussed in Box 2. The regression technique and the regression estimated in Box 2 can be used to develop an alternative measure of fiscal effort. Fiscal effort is defined as the level of collections relative to the tax base. Based on this definition, we can compute tax effort as the level of actual collections for each region divided by the collections predicted by the regression (our measure of tax capacity). Although the measure of fiscal effort based on regression analysis may be more accurate, it has the defect of being more complex and therefore less transparent.

Second, grants may be allocated to regions that are exerting tax efforts above a certain benchmark level. Two obvious options for benchmarks are average and minimum effort. If the benchmark is set to the minimum level of effort, the federal government would be awarding grants to all regions, except for one. This would seem to be contradictory to the goal of fiscal equalization. If the benchmark is set to the average level of effort, the federal government would have the opportunity to reward only those regions that are exerting relatively more effort; that is, a level of tax effort that is above average.

Again, the objective of this note is only to suggest a general methodology for implementing the objective of encouraging tax effort by the subjects of the Russian Federation. Because data on the actual tax bases of the regions is absent, gross regional product is once again used as a measure of fiscal capacity. A simple definition of fiscal effort that could be adopted is the ratio of a region's total revenue collections to its gross regional product.

As shown in Table 5, the next step in the stage of encouraging tax effort is to reward the regions that exhibit above-average tax effort. Each region's claim is related proportionally to its level of effort above the benchmark (Step 2). As was the case for capacity equalization, in Step 3 of "encouraging tax effort" each region's real claim is

adjusted to nominal terms by multiplying the real claim by the region's cost of living index. In Step 4, using the funds available for this purpose (Fund E), grants are allocated based on the relative claims of all regions.

Stage 5: Equalization of Fiscal Need

In addition to disparities in fiscal capacities, regions may also have unequal expenditure needs due, for example, to higher prices, larger shares of the unemployed or the poor, or greater shares of dependent population (elderly and children). Thus, two regions with the same fiscal capacity (tax bases) still may differ in terms of fiscal expenditure needs. Transfers can be used to partially equalize for the differences in expenditure needs among the regions. The size of the funds allocated for this purpose (Fund N) is determined conjointly with the amounts to be assigned to the encouragement of tax effort (Fund E) and capacity equalization (Fund C).

Currently, fiscal needs of the regions are proxied by the 1991 level of expenditures, adjusted for legislative changes. This is a poor proxy because expenditures in 1991 reflected many other factors besides fiscal need, including the bargaining ability and power of the regions, as was discussed earlier in this note. In addition, fiscal needs have arguably evolved over time in the presence of significant economic developments over the last six years. On the other hand, good proxies for fiscal need are widely available. These proxies also reflect present (non-historical) needs. Examples include the size of the population of a region, the number of elderly in a region, the number of unemployed persons, school-aged children, population living in poverty, and so forth. For the purpose of expenditure need equalization, it is important to select indicators that

are transparent, reliable, and that cannot be manipulated by either the central government or subnational governments.

In the proposed scheme for expenditure needs-based equalization (presented in Table 6), the size of each region's claim is based on a combination of several indicators or factors of fiscal need. First, for each factor the share of fiscal need contained within each region needs to be determined (f). In Step 1 of the allocation formula, this is represented by $\boldsymbol{X_{fi}} / \sum_i \boldsymbol{X_{fi}}$. For example, if a region contains 1 million unemployed persons (i.e., $X_{fi} = 1$) out of a national total of 20 million (i.e., $\sum_i \boldsymbol{X_{fi}} = 20$), the region's relative need --based on this factor-- would be 0.05. Next, all the factor shares of need in each region weighted by factor weights (w_f) are added up for each region; these weights are the same for all regions. However, the factor weights for all the factors used need to add up to one. There is no scientific way to determine how these weights should be assigned; fundamentally, they are assigned by policy makers. Next, similar to the adjustment for regional cost variations that was made for fiscal capacity equalization, each region's expenditure need-based claim is adjusted for differences in the cost of living in each regions by multiplying each region's real fiscal need by the regional cost of living index (Step 2 in Table 6). Again, this is done to ensure that two regions with equal real expenditure needs but different price levels will actually get the same amount of real assistance. Note that the adjustment for differences in the cost of living would reduce, if not eliminate, the need for special targeted transfers to regions with higher price levels.

Steps 3 determines the relative claim to need-based equalization funds for the regions as the difference between the nominal need of the region and the nominal average need for all regions. The relative claim of a region is zero if its nominal fiscal need is

under the average of all regions. Step 4 in Table 6 divides the available pool of funds (Fund N) to those regions that have above average needs according to their relative claims vis-à-vis the total of relative claims.

IV. Simulations of Equalization Transfers for 1998

This section presents a number of simulations for the equalization transfers to be included in the 1998 budget. These simulations are based on the methodology discussed in Section III of this note (Options for Future Reforms). Again, it is necessary to emphasize that at this stage the main purpose of the simulations is to give examples of how the suggested methodology can be implemented. Decisions on the exact specification of formulas and amounts of funds to be allocated to the different stages of the equalization framework are fundamentally political issues which will be dealt with by budgetary authorities.

Data Sources

Revenue collections data were supplied by the Ministry of Finance. In addition, data on social and economic characteristics were taken from the Russian Statistical Yearbook. For certain regions, especially autonomous regions, variables were not always available and had to be imputed. Descriptive statistics of selected variables are presented in Table 7. A general problem with using formulas for the computation of equalization transfers is that the validity and indeed the credibility of the methodology used depends critically on the quality of the data used. It is therefore important that the federal government exerts more effort to improve the quality of the data now available.

Forecasted Size of Fund

The determination of the pool of funds available for transfers from the federal government to the regions is fundamentally a political decision which should reflect what other sources of funding are available to the regions, including revenue sharing, the priority given to certain objectives, such as the equalization of fiscal disparities across the regions, and the relative social value attached to the provision of subnational services vis-à-vis federal services. For the purpose of the simulations we compute a pool of funds available to the Equalization Fund as follows. For 1996, the size of the FFSR was determined as 15 percent of all Federal collections excluding import taxes and the 10 percent federal government share of the PIT. This resulted in a Fund for 1996 of 23,214 billion Rubles. The only anticipated change in the allocation of funding for future years is assumed to be the discontinuation of the federal government share of the PIT. Based on the assumption of an annual 15 percent inflation rate and no real growth for 1997, the estimated size of the pool of equalization funds available for 1997 is 26,696 billion Rubles. The projected allocation for 1997 (against which regions could be held harmless) was based on the relative assignment of funds for 1996. Based on the same assumptions for inflation and growth, the projected size of the available funds for 1998 is 30,700 billion Rubles.

Simulations

Policy choices that need to be made in Stages 1 and 2 of the proposed methodology include the changes in the amount of funds to be assigned to the Equalization Fund in light of any other transfer programs, as well as the level at which to hold regions harmless. After these decisions are made, the remainder of the available

pool of funds must be allocated between the remaining three stages of equalization, namely capacity equalization, encouragement of tax effort, and need-based equalization. Again, there is no absolute need to undertake all three stages. For example, the stage of encouragement of tax effort could be ignored. However, several secondary decisions must be made to fully implement the methodology. For example, in order to implement fiscal capacity equalization, a capacity coefficient has to be selected to determine the equalization threshold. In addition, the needs equalization factors need to be selected and weights need to be assigned.

Eight simulations in total were carried out. Table 8 lists the values to which the choice variables were set for each simulation. To facilitate the comparison of results from alternative simulations, the range of values chosen for the decision variables had to be limited. The size of the Fund to be distributed was set at 30.7 trillion Rubles for all simulations. Further, the "hold harmless" parameter is set equal to zero for four of the simulations and equal to 50 percent for the other four. Clearly, other values could be chosen for this parameter, including 100 percent. By setting, the "hold harmless" parameter at 50 percent, the main impact is that the remaining funds available for the final three stages is reduced accordingly. Also for simplification purposes, all eight simulations assume that of the remaining pool of funds after Stages 1 and 2, 50 percent are allocated to the "expenditure needs-based" equalization. The other 50 percent of these remaining funds are split between "fiscal capacity" equalization and "encouragement of tax effort." But the funds allocated to "encouragement of tax effort" are assumed to be only 10 percent or 0 percent. Also note that the capacity equalization. Coefficient K is always set equal to 1, again for simplification purposes.

Table 8 also provides the weights for the "factors of expenditure needs" used in each of the eight simulations. Different weight, as well as different or additional factors could be introduced. Table 9 presents the simulated levels of per capita transfers to each of the 88 regions. For comparison purposes, we have also included the amount of transfers that each region would receive if they would receive the same share of the Equalization Fund that they did in 1996. Again, the simulations presented in this section should be considered examples of how a reformed Equalization Fund could allocate funds to the regions.

Results

The simulated allocation of the Equalization Fund involves the decision concerning three policy variables. First, we vary whether —and the extent to which— regions are held harmless. Second, we vary the level of encouragement of tax effort. Third, we suggest and illustrate alternative formulas to compute fiscal need. Throughout the interpretation of the simulation results, we need to bear in mind the shortcomings of the data that were used. Most importantly, for several variables data had to be imputed for the autonomous regions. The imputation of data may result in unreliable and inconsistent estimates of transfers for these regions. Table 9 presents the simulated per capita transfers to all the regions under the eight policy scenarios.

Table 10 gives an overview of the incidence of each of the scenarios, by regressing the simulated transfers on a proxy of fiscal effort (per capita GRP), a proxy of fiscal need (the percentage of the population in poverty), and a measure of fiscal effort. The intent of the regressions in Table 10 is to provide some means to evaluate and compare the potential transfers produced by the different policy scenarios. Eventually,

the choice of the transfer mechanism needs to be based more on the type of results that it produces than on the a priori attractiveness of its design. In particular, the evaluation and comparison of potential transfers is imperative to verify that the mechanism being proposed actually accomplishes what it is said to accomplish. For example, if the mechanism being proposed pursues the objective of fiscal capacity equalization, then the parameter estimate on per capita GRP in Table 10 should be expected to be negative. If the mechanism also pursues need-based equalization, then the parameter on the poverty rate in Table 10 should be expected to be positive.

The results in Table 10 suggest that while wealthier regions received smaller equalization transfers capacity in the actual 1996 allocation of FFSR resources, the parameter estimate is not significantly different from zero. Similarly, the positive parameter estimate on poverty suggests needs-based equalization, but again the estimate was found not to be statistically significant. On the other hand, regions with higher levels of fiscal effort received larger FFSR transfers. [10]

The results from the eight simulations are mixed. In all simulations capacity equalization and encouragement of fiscal effort are achieved, while in four out of eight simulations need-based equalization is achieved as well. Table 10 reveals useful information about the incidence of the policies of holding harmless, encouraging tax effort, and using different measures of need.

Concerning the policy choice whether to hold regions harmless, Simulations 1-4 present the case in which the regions are not held harmless. In Simulation 5-8 regions are held harmless for 50 percent of the equalization transfer received for 1997. Any funds

[10] This does not necessarily suggest that the equalization mechanism encourages fiscal effort. For example, the parameter estimate on effort would also be positive if poorer regions (who receive more FFSR funding) consistently display higher levels of fiscal effort.

remaining after doing so are subsequently distributed in Stages 3-5. Because the actual 1996 allocation of FFSR transfers among the regions is generally equalizing, the choice of holding regions harmless will only have a moderate impact on the allocation of transfers.

The second policy choice considered in the simulations is the level at which regions are encouraged to increase their tax effort. In half of the simulations the regions are not rewarded for effort (Simulations 3, 4, 7, and 8) while in the other simulations 10 percent of the Equalization Fund is used for this purpose. Effort encouragement is done with funds otherwise used for the equalization of fiscal capacity. As is to be expected, the regressions in Table 10 indeed show that encouragement of fiscal effort consistently results in a higher coefficient on our proxy of effort, while the coefficients on per capita GRP are consistently higher when capacity equalization is emphasized. Also, in the simulations in which effort encouragement is pursued, the coefficient on the measure of expenditure need is consistently lower. These results should be understood to mean that when encouragement of tax effort is pursued, less equalization of fiscal capacity or equalization based on fiscal need takes places. In other words, there is a direct trade-off between the level of fiscal equalization that can be achieved and the stimulation of fiscal effort. This should be kept in mind when considering the role of encouragement of fiscal effort in the development of a new equalization mechanism for the Russian Federation.

Finally, the third policy choice considered in the simulations is the quantification of fiscal need. Two formulas are suggested to quantify fiscal needs. The first measure (used in Simulations 1, 3, 5, and 7) is based on general demographic characteristics. It employs the share of each region in the national figures for population, elderly, children,

and population below the poverty level. Each of these factors is given a weight of 0.25. The second measure of need (used in the remaining simulations) focuses more on measures of distress for the population: shares of each region in the national figures for poverty, unemployment and population. Each of these factors is given a factor weight of 0.33. The choice of which measure of need to use is a difficult one and such choice will have to be based on a political consensus. The evaluation of the performance of the need-based equalization in the regressions presented in Table 10 has to done with caution. While the regression results would suggest that the second measure of need is slightly more equalizing, this result may be biased. The proxy of need used in the regression (percent of the population in poverty) may simply be more highly correlated with the "distress" elements of the second measure of fiscal needs than with the demographic elements of the first measure.

V. Concluding Remarks

The goal of this note is to present a general methodology for setting up the framework for equalization in the 1998 Russian Federation budget. The methodology is presented in a sequence of stages to emphasize the different goals the Russian Government may want to pursue in the design of the system of equalization transfers. The first stage is introduced to emphasize the fact that funds need to be set aside for specific or categorical transfers to pursue not only equalization objectives but also those of sectoral policies and compensation for federal mandates. The stage of "holding regions harmless" is included in recognition of the political realities that transpired in the discussion of the 1997 budget. The other three stages present general methodologies to

pursue the objectives of equalization of fiscal capacities expenditure need and the encouragement of tax effort. Not all three of these objectives need to be pursued at the same time. This note also uses some of the available data to illustrate how the proposed methodology can be implemented, and, at the same time, we present several simulations of actual transfers for 1998.

TABLE 1

Sources of Funds in the Consolidated Regional Budgets for 1995 and 1996
(In trillions of Rubles)

	Total for 1995	Percent of total	Total for 1996	Percent of total
Total Subnational Revenues	241.8	100.0	338.7	100.0
Own Revenues	66.0	27.3	103.2	30.5
Shared Revenues	140.1	57.9	164.5	48.6
Transfers, *of which*	35.7	14.8	71.0	20.1
- FFSR	*20.4*	*8.4*	*23.6*	*6.9*
- Other transfers	*15.3*	*6.4*	*47.4*	*13.2*

SOURCE: Ministry of Finance / The World Bank.

TABLE 2

Window 1: Formulas for Calculating Capacity Equalization Transfers, 1997

Step 1:

$$\textit{Claim by Region } i = \left[\frac{\text{Avg. P.C. Exp. in Group of Regions}}{\text{Avg. P.C. Exp. in Group of Regions}} \cdot 0.92 \right] \textit{ x Avg. P.C. Exp. in Group} \cdot \textit{P.C. Rev. in Region } i \cdot \textit{Population}$$

Step 2: (For regions with a positive claim in Step 1):

$$\textit{Share of Region } i = S_{ni} = \frac{\text{Claim by Region i}}{\text{Total Claims from all Regions}} \cdot 100$$

Step 3:

$$\textit{Equalization Grant for Region } i = S_{ni} \cdot \textit{Pool of funds for Window I}$$

Note: Data used are from a base year (1991), adjusted for legislative changes.

TABLE 3
Window 2: Formulas for Calculating Need-Based Equalization Transfers, 1997

Step 1:

Claim by Region i = Current Exp. In Region i - (Revenues in Region i + Grant from Window I for Region i)

Step 2: (For those with a positive claim in Step 1):

$$\textit{Share of Region } i = S_{ni} = \frac{\text{Claim by Region i}}{\text{Total Claims from all Regions}}$$

Step 3:

$$\textit{Equalization Grant for Region } i = S_{ni} = \textit{Pool of funds for Window II}$$

Note: Data used are from a base year (1991), adjusted for legislative changes.

TABLE 4
Options for Reform: Fiscal Capacity Equalization

Step 1:

If Real P.C. GRP for Region i < K ·Avg. Real P.C. GRP). Then

Real Claim for Region I = [(*K· Avg. Real P.C. GRP) – Real P.C. GRP for Region*]

· *Population*$_i$

Otherwise, Real Claim = 0

Step 2:

Nominal Claim for Region i = Real Claim for Region i · Cost of Living Index $_i$

Step 3:

$$\textit{Capacity-Based Transfer for Region } i = \textit{Fund}_C = \frac{\text{Nom. Claim i.}}{\sum_i \text{Nom. Claims}}$$

TABLE 5
Options for Reform: Encouraging Tax Effort

Step 1:

$$\textit{Fiscal Effort of Region } i = \frac{\text{Total Revenue Collections by Region i}}{\text{Gross Regional Product of Region i}}$$

Step 2:

If Effort of Region i > Baseline Effort, then

$$\textit{Real Claim for Region } i = (\textit{Effort of Region } I - \textit{Baseline Effort}) \cdot \textit{Population}_I$$

Otherwise, Real Claim = 0

Step 3:

$$\textit{Nominal Claim for Region } i = \textit{Real Claim for Region } i \cdot \textit{Cost of Living Index}_c$$

Step 4:

$$\textit{Effort Transfer for Region } i = \textit{Fund}_E = \frac{\text{Nom. Claim i.}}{\sum_i \text{Nom. Claims}}$$

TABLE 6
Options for Reform: Need-Based Equalization

Step 1:

$$\textit{Real Fiscal Need of Region } I = \sum_{f} \left(\textit{weight}_{f} \cdot \frac{\mathrm{X}ft}{\sum_{i} \mathrm{X}f}\right)$$

Step 2:

$$\textit{Nominal Fiscal Need of Region } i = \textit{Cost of Living Index}_{t} \cdot \textit{Real Claim for Region } i$$

Step 3:

If Nominal Need of Region i > Average Nominal Need, then

Real Claim for Region i = (Nominal Need of Region i – Average Nominal Need)

Otherwise, Real Claim = 0

Step 4:

$$\textit{Need-Based Transfer for Region } i = \textit{Fund}_{N} = \frac{\text{Real Claim for Region i}}{\sum_{i} \text{Real Claims}}$$

TABLE 7

Descriptive Statistics for Selected Social, Economic and Fiscal Variables, by Region, 1996

	Mean	CV	Min	Max
Population (in thousands)	1671.7	0.90	20	8664
Pop. in Poverty (percent of population)	30.3	0.38	16.1	73.2
Unemployed (percent of population)	10.0	0.36	5.2	24.0
Pop. under working age (percent of population)	23.8	0.22	0.3	44.0
Pop. over working age (percent of population)	18.4	0.32	0.1	31.1
Land area (in thousands of km^2)	193.9	1.95	0.6	3103
Per Capita Revenue Collections (thousands of Rubles)	1687.9	1.16	116.0	14976
Per Capita FFSR Transfer (thousands of Rubles)	403.9	1.59	0.0	3446.7
Tax Effort	13.4	0.24	5.0	27.1
Per Capita GRP (millions of Rubles)	9.50	0.83	1.88	58.40
Cost of Living Index	1.00	0.44	0.60	3.16

TABLE 8

Policy Options Used for Simulations

	Simulation							
	1	2	3	4	5	6	7	8
Holding Regions Harmless (in percent)	0	0	0	0	50	50	50	50
Capacity Equalization	40	40	50	50	40	40	50	50
Capacity Coefficient (5)	1	1	1	1	1	1	1	1
Encouraging Tax Effort	10	10	0	0	10	10	0	0
Needs Equalization	50	50	50	50	50	50	50	50
Needs factor weights:								
- *Population*	25	33.3	25	33.3	25	33.3	25	33.3
- *Poverty*	25	33.3	25	33.3	25	33.3	25	33.3
- *Children (pop. under working age)*	25	0	25	0	25	0	25	0
- *Elderly (pop. over working age)*	25	0	25	0	25	0	25	0
- *Land Area*	0	0	0	0	0	0	0	0
- *Unemployment*	0	33.3	0	33.3	0	33.3	0	33.3

TABLE 9
Simulated Equalization Transfers for the Russian Federation, 1998

		Simulated Per Capita Transfers (in Thousands of Rubles)							
	Actual 1996	Sim. 1	Sim. 2	Sim. 3	Sim. 4	Sim. 5	Sim. 6	Sim. 7	Sim. 8
Karel Republic	335.29	0.00	0.00	0.00	0.00	192.79	192.79	192.79	192.79
Komi Republic	63.19	0.00	0.00	0.00	0.00	36.33	36.33	36.33	36.33
Arkhangelsk Oblast	131.09	101.30	138.04	124.07	160.81	132.63	153.40	145.50	166.27
Volgograd Oblast	48.79	0.00	0.00	0.00	0.00	28.05	28.05	28.05	28.05
Murmansk Oblast	16.05	0.00	0.00	0.00	0.00	9.23	9.23	9.23	9.23
Nenets AR	1230.31	145.62	145.62	0.00	0.00	789.73	789.73	707.43	707.43
Leningrad Oblast	50.41	62.55	71.50	58.72	67.67	64.34	69.40	62.18	67.24
Novgorod Oblast	383.23	232.30	232.30	248.08	248.08	351.66	351.66	360.57	360.57
Pskov Oblast	479.33	178.64	178.64	223.30	223.30	376.58	376.58	401.82	401.82
St. Petersburg City	35.18	179.68	190.63	168.05	178.99	121.79	127.98	115.21	121.40
Bransk Oblast	227.15	165.13	165.13	206.41	206.41	223.94	223.94	247.27	247.27
Vladimir Oblast	195.92	98.29	98.29	122.86	122.86	168.21	168.21	182.09	182.09
Ivanov Oblast	335.62	253.76	253.76	317.20	317.20	336.41	336.41	372.27	372.27
Kaluga Oblast	186.88	76.11	76.11	95.14	95.14	150.48	150.48	161.23	161.23
Kostroma Oblast	419.02	10.52	10.52	13.15	13.15	246.89	246.89	248.37	248.37
Moscow Oblast	49.60	445.87	462.10	405.72	421.95	280.53	289.70	257.84	267.01
Orlov Oblast	299.77	57.51	57.51	71.89	71.89	204.87	204.87	213.00	213.00
Riazan Oblast	112.59	0.76	0.76	0.95	0.95	65.16	65.16	65.27	65.27
Smolensk Oblast	154.49	23.47	23.47	29.34	29.34	102.10	102.10	105.41	105.41
Tver Oblast	147.33	31.36	31.36	39.19	39.19	102.44	102.44	106.87	106.87
Tula Oblast	124.38	32.69	32.69	40.86	40.86	89.99	89.99	94.61	94.61
Yaroslav Oblast	4.70	0.00	0.00	0.00	0.00	2.70	2.70	2.70	2.70
Moscow City	0.00	407.98	354.95	270.22	217.20	230.59	200.62	152.73	122.76

TABLE 9 (Continued)
Simulated Equalization Transfers for the Russian Federation, 1998

		Simulated Per Capita Transfers (in Thousands of Rubles)							
	Actual 1996	Sim. 1	Sim. 2	Sim. 3	Sim. 4	Sim. 5	Sim. 6	Sim. 7	Sim. 8
Maiysaya Republic	376.44	146.88	146.88	183.60	183.60	299.47	299.47	320.23	320.23
Mirdovskaya Republic	381.11	175.76	175.76	219.70	219.70	318.48	318.48	343.31	343.31
Chuvaskaya Republic	250.52	141.39	141.39	176.73	176.73	223.96	223.96	243.94	243.94
Kirov Oblast	297.38	0.71	0.71	0.88	0.88	171.39	171.39	171.49	171.49
Nizhniy Novgorod Oblast	78.49	149.55	125.09	149.55	125.09	129.66	115.83	129.66	115.83
Belgorod Oblast	16.67	0.00	0.00	0.00	0.00	9.59	9.59	9.59	9.59
Vorosezh Oblast	195.09	149.56	116.21	169.53	136.18	196.71	177.86	208.00	189.15
Kursk Oblast	151.32	0.00	0.00	0.00	0.00	87.01	87.01	87.01	87.01
Lipetsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tambov Oblast	186.76	182.79	182.79	228.49	228.49	210.70	210.70	236.53	236.53
Kalmytskaya Republic	903.70	473.16	473.16	576.83	576.83	787.06	787.06	845.66	845.66
Tatarskaya AR	0.00	182.52	152.43	89.49	59.39	103.16	86.15	50.58	33.57
Astrakhan Oblast	477.81	183.42	183.42	229.27	229.27	378.41	378.41	404.33	404.33
Volgograd Oblast	128.26	194.29	210.65	204.97	221.33	183.57	192.81	189.60	198.85
Penza Oblast	314.38	218.63	218.63	273.29	273.29	304.34	304.34	335.23	335.23
Samara Oblast	0.00	138.28	117.84	138.28	117.84	78.16	66.61	78.16	66.61
Saradov Oblast	196.82	174.22	188.54	186.09	200.40	211.64	219.74	218.35	226.44
Ulianovsk Oblast	136.11	0.00	0.00	0.00	0.00	78.27	78.27	78.27	78.27
Adigeya Republic	466.52	291.86	291.86	364.82	364.82	433.21	433.21	474.45	474.45
Dagestanskaya Republic	435.40	592.84	721.72	729.27	858.15	585.44	658.28	662.55	735.39
Kabaldino-Balk. Rep.	459.72	439.87	439.87	524.03	524.03	512.95	512.95	560.53	560.53
Karachayevo-Cherk. Rep.	337.50	388.89	388.89	486.11	486.11	413.86	413.86	468.82	468.82
Severo-Osetinskaya Rep.	570.04	369.85	369.85	462.32	462.32	536.82	536.82	589.08	589.08
Ingushetia	494.68	547.30	547.30	684.13	684.13	593.78	593.78	671.12	671.12
Krasnodar Krai	177.23	327.79	325.72	360.74	358.67	287.17	286.01	305.80	304.63
Stravopol Krai	251.25	142.44	149.62	151.52	158.70	224.97	229.03	230.11	234.17
Rostov Oblast	129.85	261.88	258.03	287.19	283.34	222.68	220.50	236.98	234.81

TABLE 9 (Continued)
Simulated Equalization Transfers for the Russian Federation, 1998

		Simulated Per Capita Transfers (in Thousands of Rubles)							
	Actual 1996	Sim. 1	Sim. 2	Sim. 3	Sim. 4	Sim. 5	Sim. 6	Sim. 7	Sim. 8
Baskirskaya Republic	0.00	188.08	175.17	170.16	157.25	106.30	99.01	96.18	88.88
Udmurdskaya Republic	203.48	29.00	29.00	0.00	0.00	133.39	133.39	117.00	117.00
Kurgan Oblast	303.67	148.40	148.40	185.50	185.50	258.49	258.49	279.46	279.46
Orenburg Oblast	140.14	98.50	90.73	93.27	85.50	136.25	131.86	133.30	128.91
Perm Oblast	16.90	124.03	121.59	124.03	121.59	79.82	78.44	79.82	78.44
Sverdlovsk Oblast	0.00	215.71	215.88	215.71	215.88	121.92	122.02	121.92	122.02
Cheliabinsk Oblast	28.89	206.38	199.64	166.82	160.08	133.26	129.45	110.90	107.09
Komi-Permiak AR	476.49	446.79	446.79	558.48	558.48	526.51	526.51	589.64	589.64
Altay Republic	763.85	342.17	342.17	427.71	427.71	632.61	632.61	680.96	680.96
Altay Krai	462.63	370.90	396.36	431.84	457.30	475.65	490.04	510.09	524.48
Kemerovo Oblast	205.44	138.03	97.07	132.23	91.27	196.14	172.99	192.87	169.71
Novosibirsk Oblast	127.94	259.99	282.25	278.13	300.39	220.52	233.10	230.77	243.35
Omsk Oblast	110.66	47.34	5.72	47.34	5.72	90.38	66.86	90.38	66.86
Tomsk Oblast	205.65	0.00	0.00	0.00	0.00	118.25	118.25	118.25	118.25
Tymen Oblast	166.91	37.69	37.69	0.00	0.00	117.28	117.28	95.97	95.97
Hunti-Mansiykiy AR	0.00	132.39	132.39	0.00	0.00	74.83	74.83	0.00	0.00
Jamala-Nenetsky AR	0.00	254.51	254.51	0.00	0.00	143.85	143.85	0.00	0.00
Buriatskaya Republic	381.69	208.74	243.75	260.93	295.94	337.46	357.24	366.95	386.74
Tuvinskaya Republic	887.63	631.40	631.40	789.25	789.25	867.26	867.26	956.48	956.48
Hakasia Republic	170.82	42.81	42.81	53.51	53.51	122.42	122.42	128.47	128.47
Krasnoyjarsk Krai	0.00	142.35	149.09	142.35	149.09	80.46	84.27	80.46	84.27
Taymyrsky AR	1179.55	0.00	0.00	0.00	0.00	678.24	678.24	678.24	678.24
Evenkiyskis AR	3446.75	1485.87	1485.87	1401.06	1401.06	2821.71	2821.71	2773.78	2773.78
Irkutskaya Oblast	1.46	192.46	212.16	192.46	212.16	109.62	120.75	109.62	120.75
Ust-Ordynskiy-Buriat.AR	930.17	848.22	848.22	978.55	978.55	1014.28	1014.28	1087.94	1087.94

TABLE 9 (Continued)
Simulated Equalization Transfers for the Russian Federation, 1998

		Simulated Per Capita Transfers (in Thousands of Rubles)							
	Actual 1996	Sim. 1	Sim. 2	Sim. 3	Sim. 4	Sim. 5	Sim. 6	Sim. 7	Sim. 8
Chita Oblast	256.33	363.90	434.41	427.78	498.29	353.07	392.92	389.17	429.03
Aginsky-Buriatsky AR	711.06	752.34	752.34	940.43	940.43	834.09	834.09	940.40	940.40
Saha Republic (Jakutia)	712.32	205.59	169.24	205.59	169.24	525.79	505.24	525.79	505.24
Primorskiy Krai	22.32	712.04	782.12	825.34	895.42	415.29	454.90	479.33	518.94
Khaberov Krai	254.55	336.31	407.62	355.92	427.23	336.45	376.76	347.54	387.84
Amurskaya Oblast	614.65	240.92	240.92	301.15	301.15	489.59	489.59	523.63	523.63
Kamchatskaya Oblast	303.40	456.65	456.65	553.28	553.28	432.56	432.56	487.18	487.18
Magadan Oblast	1970.90	622.30	622.30	503.13	503.13	1485.00	1485.00	1417.64	1417.64
Skalinskaya Oblast	626.18	604.92	604.92	663.44	663.44	701.96	701.96	735.04	735.04
Jewish AR	752.66	533.88	533.88	667.35	667.35	734.54	734.54	809.97	809.97
Koriakskaya AR	3155.55	1581.25	1581.25	1976.57	1976.57	2708.18	2708.18	2931.62	2931.62
Chokotskaya AR	3428	1986.729	1986.729	1416.564	1416.564	3094.022	3094.022	2771.758	2771.758
Kaliningrad Oblast	77.05	45.59	45.59	56.98	56.98	70.07	70.07	76.51	76.51
Average	**403.85**	**266.04**	**268.82**	**282.44**	**285.22**	**382.58**	**384.16**	**391.85**	**393.43**
CV	**1.59**	**1.26**	**1.26**	**1.22**	**1.23**	**1.41**	**1.40**	**1.37**	**1.37**
Minimum	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Maximum	**3446.75**	**1986.73**	**1986.73**	**1976.57**	**1976.57**	**3094.02**	**3094.02**	**2931.62**	**2931.62**