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Decentralization in Regional Fiscal Systems in Russia

Trends and Links to Economic Performance

Lev Freinkman
Plamen Yossifov

Considering the positive impact decentralization has had on regional economic performance and expenditure structure, Russia's federal government should:

▫ Decisively protect local self-governance and budget autonomy.

▫ Make intergovernmental fiscal relations more transparent.

▫ Develop universal models of interactions between regional and municipal governments.

▫ Impose stricter limits on total debt and budget deficits of subnational governments.
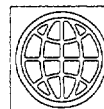
Summary findings

To shed light on decentralization in Russia, Freinkman and Yossifov examine intergovernmental fiscal relations within regions. To analyze trends, they review channels of fiscal allocation within regions — tax sharing and local transfer schemes. To evaluate the potential impact of various fiscal decentralization patterns on regional economic performance (including growth and the budget deficit), they study data on the structure of 89 Russian consolidated regional budgets for 1992–96.

They find that local governments' relative share of Russia's consolidated budget, although substantive (roughly a quarter of the total budget), did not expand after 1994. The federal government's relative role in financing public goods and services declined as the relative role of local governments increased substantially. Local governments collected more revenues in 1996 (6.4 percent of GDP) and spent more than regional governments. They also substantially increased social financing (including health, education, and social protection).

Russia made no progress toward a more transparent system for tax assignments.

The average level of expenditure decentralization is similar for ethnically Russian regions and national republics and okrugs but revenue arrangements differ greatly. "True" decentralization has taken place in oblasts and krais, where local authorities are provided with a bigger share of subnational tax revenues. A redistribution model applies in republics and autonomous okrugs, where greater local outlays have been financed through larger transfers from regional governments.

Regions near each other tend to have similar budget arrangements — the result of intensive interactions between neighbors and probably supported by the activities of regional associations. The size of a region's territory does not influence decentralization outcomes.

Fiscal decentralization seems positively related to the share of education spending in regional budgets. And regions with more decentralized finances tend to experience less economic decline.

But budget control is weaker in more decentralized regions. Instability and lack of transparency in intergovernmental fiscal relations provide subnational governments little incentive for responsible fiscal policy. Further decentralization without greater transparency could bring greater debt and deficits.

Decentralization in Regional Fiscal Systems in Russia: Trends and Links to Economic Performance

Lev Freinkman
Plamen Yossifov[1]

The World Bank*

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1. Introduction

Fiscal decentralization in Russia has been an important dimension of reforms since 1992. The issue has received a lot of attention recently in academic literature (Lavrov, 1995; Le Houerou, 1995; McLure at al, 1995; Treisman, 1998a; Wallich, 1994). As a rule these studies have been focused at three aspects of evolving Russian federalism: delegation of specific revenue and expenditure assignments to regional governments, relationship between federal and regional budgets through various types of explicit and implicit transfers, and cross-regional budget equalization.

The main purpose of this paper is to look at one more aspect of the decentralization process, which relates to inter-government fiscal relations within the regions. The paper focuses on two elements of such process. The first reflects overall trends in allocation of fiscal resources within regional fiscal systems, primarily between regional and municipal levels of the government. We review both channels of fiscal allocation within regions -- tax sharing and local transfer schemes. The second element relates to potential impact of various decentralization patterns on regional economic performance, such as economic growth and budget deficit. We use the data on the structure of 89 Russian consolidated regional budgets in 1992-96 to determine basic statistical characteristics of the decentralization process over the period and to provide correlation and regression analysis of links between decentralization, regional indicators of social and industrial structure, and economic performance.

Section 2 provides a brief description of the data. Section 3 presents an analytical framework used for developing a statistical model. Section 4 reviews trends in the distribution of revenue and expenditure assignments between the federal, regional and municipal governments. Section 5 presents a more detailed analysis of fiscal decentralization in Russian regions through the examination of trends in local governments' shares in main types of consolidated regional budget revenues and expenditures. In Section 6, we suggest simple indicators of fiscal decentralization and subordination at the regional level and conduct their statistical analysis. Finally, in Section 7 we run a panel-data regression analysis of potential determinants of the fiscal decentralization process. We also explore relationships between these indicators and regional economic performance. Section 8 brings main conclusions.

2. Data

This paper was inspired by the work of Lavrov (1996a), for which a special database on the structure of the Russian regional budgets for 1992-95 was collected[1]. Dr. Alexei Lavrov also shared with us the database, which derives from the standard reporting forms filed by regions with the federal Ministry of Finance. He also provided additional budget data for 1996. The database contains data on consolidated budgets for each level of subnational governments (regions, cities of regional status, rayons, cities of rayon status, rural municipalities) for all 89 regions. In a sense we had access to quite a unique data set. Systematic analysis of local budgets in Russia and their relationships with higher level budgets is usually limited by lack of representative data. As a result, the research is based on small samples or case studies (Freinkman and Titov, 1994; Mitcheneck, 1997a; World Bank, 1998; Zhuravskaya, 1997).

The data reflect actual outcomes of annual budget execution (i.e. it is not just agreed budget allocation). According to Russian budget accounting standards, the data include both cash and non-cash components of the actual budget flows, i.e. include budget revenues and expenditures occurred e.g. through barter or cancellation of mutual debts. Also, as is usual for Russian budget statistics, subnational

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[1] Some results of this report were also presented in the paper by Kuznetsova, Lavrov and David (1997).

budgets are separated and do not include financial operations of municipal companies (other than budget subsidies to these companies).

We explored the database with a special focus on decentralization of consolidated regional budgets. The major differences in our approach compared to the one in Lavrov (1996a) include:

(a) We consolidated all types of local governments (i.e. governments below the regional level) and did not try to look at any differences between them. While budget mechanisms in different types of municipalities are quite different (especially between major cities and rural rayons and municipalities), these differences are less important from a decentralization perspective compared to a fundamental contrast between municipalities in general and regional administrations. At the same time, the size of the consolidated budget of all municipalities in each particular region is usually determined by the budgets of few largest cities that amount to 70-80% of the total. Thus, the share of all local budgets in the regional fiscal system could be considered as a proxy for the relative budget role of the largest urban municipalities. As it is shown below, the latter could be a potentially important variable related to the economic performance of regions.

(b) We excluded all interbudgetary transfers within the regions from further consideration. Netting out interbudgetary transfers is important, because the direct summation of total revenues/expenditures results in a substantial double counting and to overestimation of the real amount of fiscal resources being controlled by local governments. Because of a multi-level structure of local governments in Russia, inter-government fiscal flows are quite intensive and could amount to 30% of gross (i.e. including transfers) total local budget revenues (see also Data Appendices).

(c) We excluded the cities of Moscow and St. Petersburg, which have a double status of "region-municipality" from the analysis. Given their weight in the total fiscal flows, such exclusion may change substantially statistical characteristics of the sample and influence conclusions of the analysis.

(d) Compared to the original work by Lavrov (1996a), we tried to develop a more comprehensive statistical analysis of the data, including cross-regional variation of main parameters and factor analysis of decentralization.

(e) Finally, we have used the data to explore the links between decentralization and regional economic performance, which provides an opportunity to compare some conventional predictions of the decentralization theory with actual numbers.

Also, we've had an opportunity to incorporate the 1996 budget outcomes into the database. Given considerable stabilization efforts in Russia in 1995 such an extension may provide important additional information. Data on 1996 reflect some initial post-stabilization fiscal realities, which could be different from the trends observed during the inflationary phase of 1992-95.

All data on the federal budget is based on the reports from the Ministry of Finance with some adjustments done by the staff of the World Bank (Le Houerou, 1995; World Bank, 1998) to incorporate major types of off-budget operations of the central government. As usual in this kind of analysis, we do not consider here main extra-budgetary funds (such as the Pension fund) which operate outside of the traditional government budget.

An important caveat relates to the quality of the data, that was affected by various incentives of local governments to underreport their budget revenues and hide them using all kinds of extrabudgetary accounts (World Bank, 1998). Still, we believe that the data quality is sufficient for adequate evaluation of prevailing trends in the subnational budget system.

3. Analytical framework

Political and fiscal decentralization has recently become a global trend that is widely considered to be supportive of economic growth and more efficient provision of public services (Bahl and Linn, 1992). These gains could derive from informational advantages of local governments, which are better positioned to reflect recipients' preferences in the process of service delivery as well as from competition between local governments (Oates, 1972)[2]. Political dimension of the decentralization is also viewed quite positively because it facilitates establishing and strengthening of democratic institutions (Inman and Rubinfeld, 1997).

By conventional measures fiscal decentralization in Russia has been evolving quite successfully in 90-es. Consolidated regional budgets are now responsible for about a half of total budget spending, while their share amounted to about 15% in late 80-es (Freinkman and Haney, 1997). However, given the relatively large size of most Russian regions, it is not clear if devolution of functions from the center to regions is sufficient for enjoying all decentralization gains mentioned above. If most resources and functions are concentrated within regional governments and not delegated to the local level, there is a risk that the single centralized state would be replaced by numerous centralized entities of smaller size that could neither exploit informational advantages nor be seriously influenced by competitive pressures. In the latter case, another stage of the decentralization process would be required to force regions to share more resources with local governments.

In reality, the Russian environment for decentralization is characterized by wide opportunities for the regions to decide almost unilaterally on specific arrangements for power and budget sharing with municipalities. A legal framework for fiscal federalism at the regional level is quite weak and regional authorities have full discretion not just for determining a desirable degree of centralization and redistribution of fiscal flows but also for frequently changing the rules of the game (World Bank, 1998). Recent analysis of various aspects of economic policy conducted by Russian regional governments suggests high cross-regional variation in both chosen strategies and to-date outcomes of economic development (Lavrov, 1996b) as well as in regional governance regimes (Mitcheneck, 1997b). In such an environment, it seems quite likely to expect a substantial cross-regional variation in actual decentralization patterns. Regions may experiment with more or less centralized schemes depending on their political preferences, specifics of economic structure, and social and geographical features. Given mentioned above predictions of the theory of fiscal federalism, one may expect that the actual degree of regional decentralization would matter: more decentralized regions, all other factors equal, would demonstrate stronger economic growth (less decline).

Thus recent Russian developments provide an interesting statistical material – a relatively large sample of similar government entities that have been pursuing different decentralization policies -- to be tested against some conventional theoretical principles. Traditionally, impact of decentralization on economic performance is studied based on cross-country regressions, which have their own limitations related to high heterogeneity of the sample by too many parameters. Decentralization is a complex multi-dimensional process, and its impact on economic performance is difficult to isolate from influences of various cultural, political, and historical factors. In this respect, the sample of Russian regions is much more homogeneous because, notwithstanding existing cross-regional variation, all regions of Russia have strong common roots in modern history of the Russian/Soviet state. This common cultural and political background may provide more chances for identification and accurate statistical measuring of links and correlations in the sample.

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[2] Zhang and Zou (1997) provide a general model for analyzing the impact of inter-government and inter-sectoral allocation of budget expenditures on economic growth.

There are some country-specific arguments in support of a possible positive link between regional decentralization and regional growth in Russia. Recent experience of the most advanced countries in transition demonstrated that economic recovery and growth is primarily concentrated in the largest cities (urban municipalities) which is associated with more favorable industrial structure, better access to infrastructure and human capital in metropolitan areas. But in Russia, local governments in urban areas of potential economic growth, face economic disincentives that derive from excessive and discretionary centralization of fiscal gains that such a growth may bring.

Under current fiscal arrangements, the rules of tax sharing between the local and regional governments are negotiated annually—or sometimes several times a year. The shares tend to be differentiated sharply across municipalities, with a few largest industrial centers often contributing large shares of main taxes, while rural rayons keep 100 percent and also receive most of regional budget transfers. The sharing rates vary not just between urban and rural districts within the same oblasts, but also between urban districts in different oblasts. In 1993, the city of Tver was permitted to keep 3 percent of profit tax revenues, 4.3 percent of VAT, and 5 percent of personal income tax collected in the city. The rest went to federal and regional budgets. The corresponding rates for the city of Yaroslavl, however, were 12, 10 and 80 percent. (Institute for Local Government, 1994)

Research suggests that urban municipalities are punished for better revenue performance by having their tax shares lowered. One study of the budgets of 35 large cities in 29 Russia's regions in 1992-97 found that for every ruble that a local budget's own revenues increased in a given year, about 90 kopecks were taxed away by reductions in the transfers and tax shares that the superior regional government allowed (Zhuravskaya, 1998). Thus, any increase in the effectiveness of tax collection or increase in local revenues due to growth-promoting policies would be unlikely to make the local governments better off than before.

Analysis of the trends in tax sharing rates for rayon budgets in Yaroslavl oblast in 1994-98 also suggests that urban municipalities are the most affected by the existing system (World Bank, 1998). As in most other Russian regions, all the 12 rural rayons are recipients of transfers within the regional budget system and always have been getting maximum possible tax shares. In contrast, all urban rayons are facing a gradual decline in their tax share. The rate of this decline is not monotonic, influenced by bargaining power of specific municipal leaders, and hardly could be predicted in advance by municipal authorities.

Overall, these examples may suggest that large urban municipalities in Russia are the main beneficiaries from decentralization of regional budgets. Decentralization brings them more resources and more incentives to use them more efficiently. While we believe that in Russia, as in other countries in transition, an average rate of return of budget spending is much higher in urban centers, then decentralization may support growth through simple reallocation of resources from less to more efficient users.[3]

For further justification of this argument, it is necessary to look at differences in the structure of budget spending at various government levels. Different combinations of investment, subsidies, and social spending have a different impact on economic growth. From this perspective, there is an evidence that it is regional governments who are responsible for most enterprise subsidies remained in the Russian fiscal system (Freinkman and Haney, 1997). These subsidies are a serious barrier for restructuring of recipient enterprises, which are usually the largest local companies with a sufficient lobbying power to

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[3] By the same reason, decentralization, by reducing redistribution, may lead to an increase in fiscal inequality across local governments, especially between urban and rural municipalities.

extract budget funds. It sounds plausible that less decentralized regional fiscal systems (i.e. with a higher share of regional governments) would tend to have more subsidies, less enterprise restructuring and less growth.

Recent analysis of the relation between decentralization and growth in developing countries found, contrary to the theoretical predictions, a negative correlation between these two variables. These results hold for three different cases: a cross-country model estimated for 46 developing countries (Davoodi and Zou, 1998), cross-country model for developed and developing countries (Fukasaku and De Melo, 1997), and cross-provincial model for a specific country, China (Zhang and Zou, 1998).[4] Several factors are named that could be responsible for this inconsistency between the theory and the outcome of statistical analysis. They include: (i) wrong composition of expenditure made by local governments, which may in part derive from the fact that local governments in many countries are not elected and thus not responsive to local preferences; (ii) local government autonomy in expenditure decisions may be limited due to excessive interventions of the central government; in other words, simple measures of fiscal decentralization based on a share of subnational governments in consolidated budget expenditures may overestimate actual degree of decentralization; (iii) in some countries (e.g. China) programs of the central government could be more efficient due to nation-wide externalities associated with large infrastructure projects and similar types of spending.

While traditionally decentralization and growth were seen as positively correlated, impact of decentralization on fiscal performance was usually considered as potentially more problematic (Wildasin, 1998). These worries that decentralization may contribute to fiscal imbalance and accumulation of public debt have become stronger recently (Tanzi, 1996) in part as a reflection of subnational debt crisis in Latin America (Dillinger and Webb, 1998). However, available theoretical and empirical work does not provide sufficient support for the validity of these concerns (Hunter and Shah, 1998; Fornasari at al., 1998). In particular, Wildasin (1997) argues that ultimate impact of the decentralization on fiscal performance is highly dependent upon basic characteristics of the system of inter-governmental fiscal relations such as transparency, accountability, and predictability. He also suggests that the size of individual subnational governments could be of critical importance: some subnational governments are just too large to fail and have weak incentives for responsible fiscal policy. The latter leads to a higher probability of their default to be followed by bailout by the central government. Another recent paper (Fornasari at al., 1998), which was also based on the cross-country analysis, shows that the size of subnational government is positively correlated with the size of the national budget deficit. However, the paper examines the effect of an absolute size of subnational governments (as percent of GDP), not their relative size (as percent of the overall government size), which would be a more appropriate measure of decentralization. Also, these results still do not address a more a general question – what is the impact of the decentralization on the overall fiscal performance (consolidated budget deficit)?

From this perspective, it seems interesting to explore the impact of decentralization on fiscal performance within the sample of Russian regions. Changes in a degree of decentralization lead to substantive modifications in institutional setting for the budget management. Peculiar features of budget institutions are likely to bring about changes in fiscal performance (Alesina, 1996). Thus, it is easy to expect some correlation between decentralization and e.g. size of budget deficit. But what may be a sign of such correlation? On one side, following Wildasin's model, one may argue that, given all existing non-

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[4] However, for India the same authors (Zhang and Zou, 1997) found that most measures of decentralization are positively correlated with the state economic growth. In both cases, for China and India, they consider a two-level government model with the municipal level being excluded from analysis. Also, the recent study by Hunter and Shah (1998) provides some but very indirect evidence of positive link between decentralization and growth. They develop an index of good governance and show that the index is positively related to both decentralization and economic growth.

transparency and non-predictability in budget relations between regional and municipal governments, more decentralized regions would have less fiscal discipline and higher budget deficits. On the other side, in the Russian environment, individual local governments have less access to capital markets than regional ones because municipalities have less control over their revenue flow and thus are considered by creditors as more risky. So far, most of subnational debt and deficit in Russia was concentrated at the regional level, which to large extent reflects restricted opportunities of local governments to attract deficit financing (World Bank, 1998). Also, decentralization, by reducing the size of regional governments, effectively limits their opportunities to borrow relatively to the size of the consolidated regional budget. Thus, one may expect that more decentralized fiscal systems, in which local governments control a relatively larger portion of total budget, would carry less debt and deficit.

4. Main trends in fiscal decentralization, 1992-96

The legal framework for local decentralization is provided by several federal laws that in general give regional legislature almost unlimited power for sharing fiscal resources with municipalities (Lavrov, 1996a; Yandiev, 1997). There are two primary channels for decentralization of budget funds: tax sharing and regional budget transfer program (World Bank, 1998). Under current arrangements, the shares of shared taxes that each local budget receives are negotiated annually -- or sometimes several times a year -- between the local and regional governments. As mentioned above, the shares tend to be differentiated sharply across municipalities.

A specific feature of fiscal decentralization in Russia relates to a very limited role of local taxes in subnational budgets. The lion's share, about 75%, of all subnational tax revenues derives from four major federal taxes that are shared on a derivation basis and neither regional nor local governments have leverage regarding tax rates and tax bases of these taxes. Conflicts related to intra-regional allocation of subnational shares of main tax between regional and municipal governments constitute a center part of the whole budget preparation process. Local governments have very limited room for collecting more revenues through additional taxation. In 1996-97, the single largest local tax - tax on upkeep of social assets - amounted to 7-10% of total budget revenues in cities that have used it actively. However, the draft Tax Code provides for elimination of this tax (together with other similar taxes levied on gross turnover). At the same time, insufficient discretion of local governments over their tax sources does generate lack of accountability: local leaders may always argue that higher levels of government deprive them from any instruments to increase revenues and thus improve service delivery. For local governments in areas of potential economic growth, the expectation of punitive extraction by the regional government creates incentives to keep their budget revenues hidden.

Anecdotal evidence suggests that the reported numbers on the size of municipal budgets may exaggerate the actual degree of regional decentralization. This caveat is important for adequate interpretation of the data that follow. Various expenditures could be nominally funded from local budgets while decisions on their allocation may be made at the regional level, with municipalities merely executing regional government decisions. Some regions have recently recentralized some types of expenditures, such as infrastructure investments.

At least among regions, which are recipients of large amounts of federal transfers, regional authorities have much control over the revenue and expenditure patterns of municipal governments. The widespread use of non-cash schemes for budget execution further supports such a trend toward greater regional control since schemes of mutual settlements enjoy significant economies of scale. However, this trend is balanced to some extent with strengthening of practice of local elections and establishment of structures of local-self government, which feel sufficient popular support to stand regional pressures.

Between 1992 and 1996, the relative size of the enlarged Russian government, measured by the size of its budget, has shrunk substantially. However, as seen from Tables 1-6, the observed downsizing of the Russian government was not similar across the different government levels.

The consolidated budget revenues[5] of all levels of the government fell from 33.4% of GDP in 1992 to 27.2% in 1996 (Table 1). During that period, federal government's total revenues shrunk from 20.1% of GDP to 14.5% in 1996, while subnational governments saw little change in the size of their revenues relative to GDP. As a result, by 1996 subnational governments controlled 46.5% of consolidated budget revenues net of interbudgetary transfers, up from 39.8% in 1992 (Table 2). All this decentralization shift happened in 1992-94, while in 1995-96 the share of the federal government regained some ground.

The relative share of local governments in the Russian consolidated budget did not expand much since 1994 and they remain in control of about a quarter of total budget expenditures. However, at the subnational level, the relative size of the local budgets increased at the expense of some compression in regional budgets. 1996 was the first year, when local governments collected more budget revenues (6.4% of GDP) than regional administrations.

As seen in Table 1, the overall decline in consolidated government revenues relative to GDP can be largely attributed to weakening tax collection. Between 1992 and 1996, the consolidated tax revenues of all tiers of the government dropped from 29.6% to 23.2% of GDP. This overall downward trend was driven by two especially sharp drops (each in excess of 4.5 percentage points) in total tax collections that occurred in 1993 and 1995. The systemic problems created by the transition to a market economy substantially eroded the collection base of many taxes. At the same time, tax administration in Russia has been traditionally weak.[6]

In 1996, overall budget revenues from the Profit Tax were only 4.6% of GDP, compared to 8.2% in 1992. The VAT receipts relative to GDP also dived from 10.5% to 7.5% in 1996. The reassertion of property rights however, boosted the revenues from Property Taxes and their volume has been steadily rising to reach 1.7% of GDP in 1996. Over this period, cumulative non-tax revenues - including privatization receipts - failed to increase relative to GDP. In 1996, they summed up to 4% of GDP - a small improvement compared to their 1992 value of 3.7%.

The trends of revenue sharing between the three tiers of government were quite different for the various types of main taxes (Table 2). Throughout the period, local governments' share in VAT has been fairly stable (around 10%), while their allotments of the Profit Tax and the Personal Income Tax revenues have fallen by 3.6 and 10.9 percentage points respectively. Between 1992 and 1996, regional governments enhanced their share in Profit Tax revenues by 8.3 percentage points, while broadly preserving their shares of the Personal Income Tax and the VAT – 24.6% and 15.7% in 1996 respectively.

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[5] Calculated as the sum of total revenues of the three tiers of government net of all budgetary transfers from one government level to another.

[6] Treisman (1998b) provides detailed analysis of factors responsible for poor tax performance.

Table 1. Budget Revenues by Level of Government as Percent of GDP, %

Budget Revenues / Year	1992	1993	1994	1995	1996
Total Revenues	**37.30**	**36.71**	**36.96**	**31.52**	**32.58**
- federal	20.34	14.51	14.43	14.24	14.56
- regional	8.32	11.23	11.98	8.80	8.75
- local	8.64	10.97	10.55	8.48	9.27
Total Revenues Net of Interbudgetary Transfers	**33.38**	**N/A**	**30.08**	**27.03**	**27.18**
- federal	20.08	14.49	14.19	14.16	14.54
- regional	7.02	9.67	8.23	6.89	6.24
- local	6.27	N/A	7.66	5.98	6.40
Transfers from Other Levels of Government	**3.93**	**N/A**	**6.89**	**4.49**	**5.40**
- federal	0.26	0.02	0.24	0.08	0.02
- regional	1.30	1.55	3.75	1.91	2.51
- local	2.37	N/A	2.90	2.50	2.87
Total Tax Revenues	**29.64**	**25.13**	**26.85**	**22.23**	**23.21**
- federal	17.87	11.46	12.97	10.76	11.56
- regional	5.76	7.12	7.08	5.82	5.50
- local	6.00	6.55	6.81	5.65	6.15
Profit Tax	**8.23**	**9.81**	**8.02**	**7.16**	**4.58**
- federal	3.40	3.19	2.81	2.55	1.68
- regional	2.48	3.90	3.12	2.79	1.76
- local	2.35	2.72	2.09	1.82	1.14
VAT	**10.52**	**6.57**	**6.83**	**5.84**	**7.46**
- federal	7.90	4.23	4.59	4.40	5.58
- regional	1.59	1.48	1.44	0.82	1.17
- local	1.03	0.86	0.80	0.62	0.71
Personal Income Tax	**2.27**	**2.56**	**2.87**	**2.23**	**2.55**
- federal	0	0	0.02	0.20	0.23
- regional	0.52	0.59	0.74	0.54	0.63
- local	1.75	1.97	2.11	1.49	1.69
Excise Taxes	**1.10**	**1.04**	**1.22**	**1.48**	**2.85**
- federal	0.53	0.52	0.73	1.08	2.47
- regional	0.46	0.42	0.39	0.31	0.29
- local	0.11	0.10	0.10	0.09	0.08
Property Taxes	**0.28**	**0.32**	**0.79**	**1.03**	**1.67**
- federal	0	0	0	0.05	0.01
- regional	0.15	0.15	0.33	0.43	0.74
- local	0.14	0.17	0.46	0.54	0.92
Natural Resources Tax	**0.64**	**0.50**	**0.40**	**0.75**	**1.02**
- federal	0	0.14	0.06	0.18	0.26
- regional	0.41	0.20	0.18	0.27	0.40
- local	0.23	0.15	0.16	0.30	0.37
Other Taxes	**6.59**	**4.34**	**6.72**	**3.75**	**3.09**
- federal	6.04	3.37	4.75	2.30	1.33
- regional	0.15	0.39	0.88	0.65	0.51
- local	0.39	0.58	1.09	0.80	1.24
Non-Tax Revenues	**3.74**	**N/A**	**3.22**	**4.81**	**3.96**
- federal	2.21	3.03	1.22	3.41	2.98
- regional	1.26	2.55	1.15	1.07	0.75
- local	0.27	N/A	0.85	0.34	0.24

The single most important development throughout the period, was the federal government's reclaim of sizable portions of the Excise Taxes and the Natural Resources Tax. While in 1992, the federal government received 47.9% of the Excise Taxes and none of the Natural Resources Taxes, by 1996 the federal shares in these taxes have risen to 86.8% and 25.1% respectively.

Table 3 shows the relative roles of various types of revenues in the financing of local, regional and federal budgets. The data reveals a serious cross-government disparity between the portions of total revenues derived from the four main shared taxes[7] and the other taxes. Between 1992 and 1996, the combined share of the Profit Tax, VAT, Personal Income Tax and Excises in total revenues of local and regional governments declined by 21.7 and 16.8 percentage points respectively. In 1996, these four main taxes accounted for 39.1% of local and 44% of regional total revenues. In contrast, at the federal level the portion of total revenues derived from the four main taxes increased from 58.1% in 1992 to 68.4% in 1996. At the same time, the corresponding shares of Property Taxes grew more than four times (to 8.4% of the total) at regional and six times (to 9.9%) at the local government level. Share of other taxes declined at the federal level (where they mainly represent foreign trade taxes) but increased at the subnational level (where they represent numerous small taxes and fees, which frequently are region specific).

One possible explanation of this phenomenon is that subnational governments have almost no control over the rates and the tax base of shared tax revenues assigned to them and therefore they do not have leverage to push for expansion in collection of these taxes. In addition, because of the shared nature of these taxes, subnational governments have limited incentives to strengthen tax administration for main taxes. Consequently, one of the few ways in which subnational governments can independently raise more revenues is through more active involvement in the collection of local taxes, first of all the Property and the Land Taxes. From the other hand, it is the federal government who controls the assignment of shares from the shared taxes to the lower levels of government, but has few alternative sources of tax receipts. As a result, in response to growing fiscal pressures, the federal government tends to make regular changes in tax sharing and increase its share in four main shared taxes.

On the expenditure side, the consolidated expenditures[8] of all levels of the government fell from 51.6% of GDP in 1992 to 35.3% in 1996 (Table 4). It is worth mentioning that the magnitude of this decline in government spending was more than twice the size of the negative shocks experienced on the revenue side of government budgets. Thus, the shrinkage of the Russian government was driven not only by the government's sheer inability to generate tax revenues, but also by a considerable stabilization effort by the Russian government. In 1996, the enlarged government experienced a moderate expansion as the share of consolidated budget expenditures in GDP increased by 4.1 percentage points.

The government expenditure items most adversely affected by this scaling down were those of "National Economy" and "Defense". The outlays on "National Economy" - including subsidies to enterprises and housing - decreased from 26.4% of GDP in 1992 to 8.6% in 1996, while the defense expenditures dropped by 1 percentage point. Throughout the period, overall budget expenditures on "Education", "Health and Sports" and "Culture and Mass Media" as percent of GDP remained fairly stable around their 1992 levels.

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[7] The Profit Tax, the VAT, the Personal Income Tax and Excise Taxes that together provide about 75% of total tax revenues of the consolidated budget.

[8] Calculated as the sum of total expenditures of the three tiers of government net of all transfers from one government level to another.

Table 2. Shares of Different Government Levels in Consolidated Itemized Revenues, %

Budget Revenues / Year	1992	1993	1994	1995	1996
Total Revenues	100	100	100	100	100
- federal	54.5	39.5	39.0	45.2	44.7
- regional	22.3	30.6	32.4	27.9	26.9
- local	23.2	29.9	28.5	26.9	28.5
Total Revenues Net of Interbudgetary Transfers	100	100	100	100	100
- federal	60.2	N/A	47.2	52.4	53.5
- regional	21.0	N/A	27.4	25.5	23.0
- local	18.8	N/A	25.5	22.1	23.5
Transfers from Other Levels of Government	100	100	100	100	100
- federal	6.6	N/A	3.5	1.7	0.33
- regional	33.1	N/A	54.4	42.6	46.4
- local	60.3	N/A	42.1	55.7	53.2
Total Tax Revenues	100	100	100	100	100
- federal	60.3	45.6	48.3	48.4	49.8
- regional	19.4	28.3	26.4	26.2	23.7
- local	20.3	26.1	25.3	25.4	26.5
Profit Tax	100	100	100	100	100
- federal	41.3	32.5	35.1	35.6	36.6
- regional	30.1	39.7	38.9	39.0	38.4
- local	28.6	27.7	26.1	25.4	25.0
VAT	100	100	100	100	100
- federal	75.1	64.4	67.2	75.4	74.8
- regional	15.1	22.5	21.1	14.0	15.7
- local	9.8	13.1	11.7	10.6	9.5
Personal Income Tax	100	100	100	100	100
- federal	0	0	0.6	9.0	9.2
- regional	22.8	23.2	25.8	24.2	24.6
- local	77.2	76.8	73.6	66.8	66.3
Excise Taxes	100	100	100	100	100
- federal	47.9	50.5	60.1	72.8	86.8
- regional	41.9	40.2	32.0	21.3	10.3
- local	10.2	9.3	7.9	5.8	2.9
Property Taxes	100	100	100	100	100
- federal	0	0	0	5.0	0.8
- regional	52.4	45.5	41.8	42.3	44.1
- local	47.6	54.5	58.2	52.8	55.1
Natural Resources Tax	100	100	100	100	100
- federal	0	29.1	15.3	24.4	25.1
- regional	63.9	40.6	44.9	36.4	39.0
- local	36.1	30.3	39.7	39.2	35.9
Other Taxes	100	100	100	100	100
- federal	91.8	77.8	70.7	61.3	43.1
- regional	2.3	8.9	13.1	17.3	16.6
- local	5.9	13.3	16.2	21.4	40.2
Non-Tax Revenues	100	100	100	100	100
- federal	59.3	N/A	38.0	70.9	75.1
- regional	33.6	N/A	35.7	22.2	18.8
- local	7.1	N/A	26.3	7.0	6.1

Table 3. Shares of Itemized Revenues in Total Revenues
at Different Levels of the Government, %

Budget Revenues / Year	1992	1993	1994	1995	1996
Transfers from Other Levels of Government	**10.53**	**N/A**	**18.63**	**14.24**	**16.57**
- federal	1.28	0.12	1.67	0.55	0.12
- regional	15.64	13.84	31.30	21.73	28.66
- local	27.41	N/A	27.46	29.45	31.00
Total Tax Revenues	**79.45**	**68.46**	**72.65**	**70.52**	**71.26**
- federal	87.84	79.00	89.85	75.54	79.43
- regional	69.26	63.41	59.09	66.17	62.81
- local	69.51	59.68	64.50	66.59	66.39
Profit Tax	**22.07**	**26.72**	**21.71**	**22.70**	**14.05**
- federal	16.71	21.99	19.49	17.88	11.51
- regional	29.79	34.71	26.04	31.74	20.10
- local	27.26	24.80	19.83	21.42	12.33
VAT	**28.21**	**17.88**	**18.46**	**18.53**	**22.89**
- federal	38.82	29.14	31.80	30.93	38.33
- regional	19.15	13.15	12.00	9.32	13.37
- local	11.94	7.84	7.57	7.29	7.63
Personal Income Tax	**6.08**	**6.98**	**7.77**	**7.06**	**7.83**
- federal	0	0	0.12	1.41	1.61
- regional	6.23	5.29	6.20	6.12	7.16
- local	20.26	17.94	20.03	17.54	18.24
Excise Taxes	**2.96**	**2.83**	**3.31**	**4.68**	**8.73**
- federal	2.60	3.61	5.09	7.55	16.97
- regional	5.55	3.72	3.27	3.58	3.34
- local	1.30	0.88	0.92	1.01	0.89
Property Taxes	**0.76**	**0.87**	**2.14**	**3.26**	**5.12**
- federal	0	0	0	0.36	0.09
- regional	1.79	1.29	2.76	4.93	8.41
- local	1.56	1.58	4.37	6.39	9.92
Natural Resources Tax	**1.72**	**1.35**	**1.08**	**2.39**	**3.14**
- federal	0	1.00	0.42	1.29	1.76
- regional	4.92	1.80	1.50	3.11	4.56
- local	2.68	1.37	1.50	3.48	3.96
Other Taxes	**17.65**	**11.82**	**18.17**	**11.88**	**9.49**
- federal	29.70	23.26	32.92	16.12	9.16
- regional	1.84	3.46	7.33	7.36	5.88
- local	4.51	5.26	10.31	9.46	13.42
Non-Tax Revenues	**10.02**	**N/A**	**8.72**	**15.25**	**12.17**
- federal	10.89	20.88	8.48	23.91	20.45
- regional	15.10	22.75	9.61	12.10	8.53
- local	3.09	N/A	8.05	3.96	2.61

The observed downsizing of the government varied across the different levels of administration. While federal government expenditures shrunk from 39.2% of GDP in 1992 to 19.6% in 1996, expenditures of regional and municipal governments rose by 1.8 and 1.5 percentage points of GDP respectively. As a result, by 1996 subnational governments accounted for 44.6% of consolidated public expenditures net of interbudgetary transfers (Table 5). Throughout the whole period, the overall size of the local government tier exceeded that of the regional one. Between 1992 and 1996, the share of local governments in consolidated budget expenditures net of interbudgetary transfers rose from 14.9% to 26.2%, while the corresponding regional share increased from 9.1% to 18.4%.

While quite substantive, the relative size of local budgets in Russia did not expand since 1994. Local governments have been responsible for about a quarter of the consolidated budget expenditures (net of transfers) and for more than a half of total subnational budget expenditures. At the same time, the relative role of local governments has been substantially increasing in financing of social sectors, including education, health, and social protection. With a growing share of federal budget spent on debt service, the role of the federal government in financing public goods and services increasingly becomes less important.

This process of fiscal decentralization brought a swift change in the proportions of itemized expenditures, financed by the different levels of government. Between 1992 and 1996, the federal government's share in spending on "National Economy" fell from 80.8% to 27.5% (Table 5). At the same time, since 1994 local governments have become the biggest spenders on this expenditure item and by 1996 their share in total outlays on "National Economy" was in excess of 40%. As seen in Table 6, throughout the whole period local governments consistently allocated more than 35% of their budgets on subsidies. This makes the category "National Economy" their number one spending priority, which relates to continuing pressures for subsidies in housing that is a sector under municipal responsibility. Regional governments have been spending on subsidies relatively less than municipalities but still the largest part (about 30%) of their budgets. However, recipients of regional subsidies are quite different from those who are subsidized by municipalities. Regional budgets subsidize primarily the largest local industrial enterprises as well as traditional former state farms in agriculture. Therefore regional subsidies are considered to be more distortive as they have a stronger negative impact on economic restructuring and growth (Freinkman and Haney, 1997).

"Social Protection" was one of the few spheres of public expenditures that modestly expanded as a share of GDP over the years. The 0.7 percentage points increase was accompanied by a dramatic downward shift of expenditure responsibilities. Over the period, local governments share in consolidated budget expenditures on "Social Protection" jumped from 7.8% in 1992 to 42% in 1996.

Regional and local governments further increased their involvement in spheres that they have traditionally dominated. Between 1992 and 1996, local governments' share in consolidated budget expenditures on "Education" rose by more than 15 percentage points to reach 67.5% in 1996. This expenditure item was the second largest in local budgets after outlays on "National Economy" and accounted for more than one quarter of their spending (Table 6).

Table 4. Budget Expenditures by Level of Government as Percent of GDP, %

Budget Expenditures / Year	1992	1993	1994	1995	1996
Total Expenditures	**56.06**	**46.14**	**46.14**	**36.06**	**40.98**
- federal	40.91	25.10	24.24	18.45	22.17
- regional	7.38	10.51	11.71	9.08	9.42
- local	7.77	10.54	10.20	8.53	9.40
Total Expenditures Net of Interbudgetary Transfers	**51.63**	**N/A**	**38.64**	**31.19**	**35.30**
- federal	39.24	22.53	20.39	16.31	19.57
- regional	4.70	N/A	8.15	6.52	6.49
- local	7.69	10.19	10.10	8.36	9.23
Transfers to Other Levels of Government	**4.43**	**N/A**	**7.51**	**4.87**	**5.68**
- federal	1.67	2.57	3.84	2.14	2.59
- regional	2.68	N/A	3.56	2.56	2.92
- local	0.08	0.35	0.10	0.17	0.16
National Economy	**26.42**	**13.45**	**10.60**	**8.34**	**8.56**
- federal	21.35	6.53	3.22	2.20	2.35
- regional	2.31	3.31	3.68	2.96	2.77
- local	2.76	3.61	3.70	3.19	3.43
Education	**3.58**	**4.06**	**4.51**	**3.48**	**3.82**
- federal	1.21	0.79	0.90	0.55	0.56
- regional	0.52	0.77	0.86	0.69	0.69
- local	1.85	2.50	2.75	2.24	2.58
Health and Sport	**2.47**	**3.11**	**3.25**	**2.37**	**2.61**
- federal	0.28	0.33	0.38	0.23	0.27
- regional	0.70	0.94	1.08	0.79	0.86
- local	1.49	1.85	1.78	1.35	1.48
Social Protection	**1.08**	**0.74**	**0.78**	**1.28**	**1.76**
- federal	0.77	0.38	0.39	0.24	0.55
- regional	0.22	0.26	0.27	0.40	0.47
- local	0.08	0.10	0.12	0.64	0.74
Administration and Justice	**1.84**	**2.32**	**2.96**	**2.40**	**2.78**
- federal	1.48	1.85	2.41	1.51	1.77
- regional	0.10	0.14	0.18	N/A	0.53
- local	0.26	0.33	0.37	N/A	0.48
Culture and Mass Media	**0.61**	**0.57**	**0.73**	**0.55**	**0.59**
- federal	0.31	0.20	0.29	0.17	0.21
- regional	0.13	0.17	0.21	0.17	0.17
- local	0.17	0.20	0.23	0.21	0.21
Defence	**4.50**	**4.20**	**4.67**	**3.04**	**3.47**
- federal	4.50	4.20	4.67	3.04	3.47
- regional	0	0	0	0	0
- local	0	0	0	0	0
Loans	**5.04**	**N/A**	**2.72**	**0.99**	**0.91**
- federal	4.61	1.70	2.30	0.58	0.28
- regional	0.20	N/A	0.34	0.34	N/A
- local	0.23	N/A	0.08	0.06	N/A
Other Expenditures	**6.09**	**N/A**	**8.42**	**8.73**	**10.78**
- federal	4.72	6.55	5.83	7.77	10.12
- regional	0.52	N/A	1.51	N/A	N/A
- local	0.85	N/A	1.08	N/A	N/A

Table 5. Shares of Different Government Levels in Consolidated Itemized Expenditures, %

Budget Expenditures / Year	1992	1993	1994	1995	1996
Total Expenditures	100	100	100	100	100
- federal	73.0	54.4	52.5	51.1	54.1
- regional	13.2	22.8	25.4	25.2	23.0
- local	13.9	22.8	22.1	23.7	22.9
Total Expenditures Net of Interbudgetary Transfers	100	100	100	100	100
- federal	76.0	N/A	52.8	52.3	55.4
- regional	9.1	N/A	21.1	20.9	18.4
- local	14.9	N/A	26.1	26.8	26.2
Transfers to Other Levels of Government	100	100	100	100	100
- federal	37.6	N/A	51.2	43.9	45.7
- regional	60.5	N/A	47.5	52.6	51.5
- local	1.8	N/A	1.3	3.5	2.9
National Economy	100	100	100	100	100
- federal	80.8	48.6	30.4	26.3	27.5
- regional	8.7	24.6	34.8	35.4	32.4
- local	10.5	26.8	34.9	38.2	40.1
Education	100	100	100	100	100
- federal	33.8	19.5	19.9	15.9	14.5
- regional	14.5	18.9	19.1	19.7	18.0
- local	51.8	61.6	61.0	64.4	67.5
Health and Sport	100	100	100	100	100
- federal	11.3	10.5	11.8	9.9	10.2
- regional	28.5	30.2	33.4	33.4	33.1
- local	60.2	59.3	54.8	56.7	56.8
Social Protection	100	100	100	100	100
- federal	71.8	52.0	50.3	18.5	31.2
- regional	20.4	34.9	34.9	31.1	26.8
- local	7.8	13.2	14.8	50.3	42.0
Administration And Justice	100	100	100	100	100
- federal	80.5	79.6	81.4	63.1	63.7
- regional	5.5	6.1	6.2	N/A	19.0
- local	14.0	14.3	12.4	N/A	17.3
Culture and Mass Media	100	100	100	100	100
- federal	51.2	34.8	39.6	31.6	34.7
- regional	21.2	30.2	28.9	30.8	29.3
- local	27.6	35.0	31.5	37.6	36.0
Defence	100	100	100	100	100
- federal	100	100	100	100	100
- regional	0	0	0	0	0
- local	0	0	0	0	0
Loans	100	100	100	100	100
- federal	91.5	N/A	84.6	58.9	30.3
- regional	4.0	N/A	12.5	34.6	N/A
- local	4.5	N/A	3.0	6.5	N/A
Other Expenditures	100	100	100	100	100
- federal	77.5	N/A	69.2	89	94
- regional	8.5	N/A	18.0	N/A	N/A
- local	14.0	N/A	12.8	N/A	N/A

Table 6. Shares of Itemized Expenditures in Total Expenditures
at Different Levels of the Government, %

Budget Expenditures / Year	1992	1993	1994	1995	1996
Transfers to Other Levels of Government	**7.9**	**N/A**	**16.3**	**13.5**	**13.9**
- federal	4.1	10.2	15.9	11.6	11.7
- regional	36.3	N/A	30.4	28.2	31.1
- local	1.0	3.3	1.0	2.0	1.7
National Economy	**47.1**	**29.1**	**23.0**	**23.1**	**20.9**
- federal	52.2	26.0	13.3	11.9	10.6
- regional	31.3	31.5	31.4	32.6	29.5
- local	35.5	34.2	36.2	37.4	36.5
Education	**6.4**	**8.8**	**9.8**	**9.6**	**9.3**
- federal	3.0	3.2	3.7	3.0	2.5
- regional	7.0	7.3	7.3	7.5	7.3
- local	23.8	23.8	27.0	26.2	27.4
Health and Sport	**4.4**	**6.7**	**7.0**	**6.6**	**6.4**
- federal	0.7	1.3	1.6	1.3	1.2
- regional	9.5	8.9	9.3	8.7	9.2
- local	19.1	17.5	17.4	15.8	15.8
Social Protection	**1.9**	**1.6**	**1.7**	**3.5**	**4.3**
- federal	1.9	1.5	1.6	1.3	2.5
- regional	3.0	2.4	2.3	4.4	5.0
- local	1.1	0.9	1.1	7.5	7.9
Administration And Justice	**3.3**	**5.0**	**6.4**	**6.7**	**6.8**
- federal	3.6	7.4	9.9	8.2	8.0
- regional	1.4	1.3	1.6	N/A	5.6
- local	3.3	3.2	3.6	N/A	5.1
Culture and Mass Media	**1.1**	**1.2**	**1.6**	**1.5**	**1.4**
- federal	0.8	0.8	1.2	0.9	0.9
- regional	1.7	1.6	1.8	1.9	1.8
- local	2.2	1.9	2.3	2.4	2.3
Defence	**8.0**	**9.1**	**10.1**	**8.4**	**8.5**
- federal	11.0	16.8	19.3	16.5	15.7
- regional	0	0	0	0	0
- local	0	0	0	0	0
Loans	**9.0**	**N/A**	**5.9**	**2.8**	**2.2**
- federal	11.3	6.8	9.5	3.2	1.2
- regional	2.7	N/A	2.9	3.8	N/A
- local	2.9	N/A	0.8	0.8	N/A
Other Expenditures	**10.9**	**N/A**	**18.3**	**24.2**	**26.3**
- federal	11.5	26.1	24.1	42.1	45.7
- regional	7.0	N/A	12.9	N/A	N/A
- local	11.0	N/A	10.6	N/A	N/A

We next turn to Tables 7 and 8, which present data on the size of budget deficits/surpluses for different government levels.

Table 7. Budget Balance by Level of Government as Percent of GDP, on a Cash Basis

Budget Balance / Year	1992	1993	1994	1995	1996
Consolidated Budget Balance	**-18.77**	**-9.43**	**-9.18**	**-4.54**	**-8.41**
- federal	-20.56	-10.59	-9.80	-4.21	-7.61
- consolidated regional	1.79	1.15	0.62	-0.34	-0.80
- regional	0.93	0.72	0.27	-0.28	-0.67
- local	0.86	0.43	0.35	-0.05	-0.13

Table 8. Budget Balance before Transfers by Level of Government as Percent of GDP, on a Cash Basis

Budget Balance / Year	1992	1993	1994	1995	1996
Consolidated Budget Balance	**-18.77**	**-9.43**	**-9.18**	**-4.54**	**-8.41**
- federal	-19.15	-8.04	-6.20	-2.15	-5.03
- consolidated regional	0.39	-1.40	-2.98	-2.40	-3.37
- regional	2.31	N/A	0.08	0.37	-0.25
- local	-1.42	N/A	-2.44	-2.38	-2.84

Between 1992 and 1996, the federal budget deficit, measured on a cash basis, fell from 20.6% of GDP in 1992 to 7.6% in 1996. At the same time, subnational governments have succeeded to maintain cash budget surpluses up to 1995, when both local and regional governments run into deficits. In 1996, local governments deficit as percent of GDP stood at 0.1%, whereas the corresponding figure on regional level was 0.7%.

5. Decentralization at the regional level

This section is focused on the distribution of tax assignments and expenditure responsibilities between local and regional governments in Russian regions. In contrast to the previous section that analyses relative shares of three government levels, tables below describe a relative role of local governments in consolidated regional budgets, i.e. excluding the federal level.

Table 9 presents average values of local governments' shares in the four main shared taxes: the Profit Tax, the VAT, the PIT and Excises, together with selected summary statistics for the period 1992-96. Over this period the collective share of these four taxes in local governments' total tax revenues fell from 87.4% in 1992 to 58.9% in 1996.

Table 9. Shares of Local Governments in Total Consolidated Regional Revenues and in Select Consolidated Regional Tax Revenues, %

Summary Statistics / Year	1992	1993	1994	1995	1996
1. Share in Total Consolidated Regional Revenues *					
1.1. Mean	66.59	N/A	62.37	67.83	70.25
	(1.44)	N/A	(1.18)	(1.27)	(1.43)
1.2. Standard deviation	13.24	N/A	10.73	11.7	13.02
1.3. Coefficient of variation	0.20	N/A	0.17	0.17	0.19
1.4. Minimum value	15.73	N/A	26.81	22.76	11.96
1.5. Maximum value	98.02	N/A	85.35	97.76	96.69
1.6. Valid Number of Observations	85	N/A	83	85	83
2. Share in Profit Tax revenues					
2.1. Mean	62.51	56.48	57.40	55.79	55.77
	(2.13)	(2.02)	(2.16)	(2.23)	(2.25)
2.2. Standard deviation	19.68	18.63	19.90	20.58	20.66
2.3. Coefficient of variation	0.31	0.33	0.35	0.37	0.37
2.4. Minimum value	22.82	21.08	21.59	19.70	7.28
2.5. Maximum value	99.99	100	100	100	100
2.6. Valid Number of Observations	85	85	85	85	84
3. Share in VAT revenues					
3.1. Mean	53.82	51.75	49.06	58.15	55.71
	(3.32)	(2.96)	(2.85)	(3.21)	(2.82)
3.2. Standard deviation	30.46	27.13	26.00	27.40	26.00
3.3. Coefficient of variation	0.57	0.52	0.53	0.47	0.47
3.4. Minimum value	0	0	0	0	0
3.5. Maximum value	100	100	100	100	100
3.6. Valid number of observations	84	84	83	73	85
4. Share in Personal Income Tax revenues					
4.1. Mean	85.00	88.33	87.37	87.76	88.68
	(1.9)	(1.74)	(1.8)	(1.81)	(1.74)
4.2. Standard deviation	17.20	15.99	16.63	16.42	15.93
4.3. Coefficient of variation	0.20	0.18	0.19	0.19	0.18
4.4. Minimum value	40.75	46.61	40.10	40.70	42.20
4.5. Maximum value	100	100	100	100	100
4.6. Valid number of observations	82	84	85	82	84
5. Share in Excise Tax revenues					
5.1. Mean	32.95	36.25	41.78	45.5	46.19
	(3.96)	(3.83)	(3.99)	(3.95)	(4.16)
5.2. Standard deviation	36.08	34.88	35.94	35.8	37.64
5.3. Coefficient of variation	1.09	0.96	0.86	0.79	0.81
5.4. Minimum value	0	0	0	0	0
5.5. Maximum value	100	100	100	100	100
5.6. Valid number of observations	83	83	81	82	82

Standard error of the mean in parentheses.

The cities of Moscow and St. Petersburg, Chechnya and Ingushetia excluded from the sample.

* Calculated as a ratio of the sum of the total revenues of all tiers of local government minus the revenues from transfers from one local government to another and the sum of the total revenues of local and regional governments minus the transfers from regions to local governments and from local governments to regions.

The average share of local governments in Profit Tax proceeds decreased by 6.7 percentage points between 1992 and 1996. This was caused by an one-time, permanent fall in its value in 1993, after which the average share of local governments in Profit Tax revenues stabilized at the new lower level around 56%.

Over the same period, the average share of local governments in VAT revenues was quite volatile. Until 1995, it followed a downward trend dropping by more than 4.7 percentage points, only to regain grounds in 1995 and fall slightly in the next year. Overall, despite the nominal gain of 1.9 percentage points, the 1992 and 1996 average shares of local governments in VAT are not statistically different at the 95% level of confidence. Meanwhile, the cross-regional disparities in the share of VAT revenues assigned to local governments diminished, as evidenced by 10 percentage point drop in the value of the respective coefficient of variation. Despite this tendency, the variation in VAT sharing rates remained higher compared to those for the Profit Tax and the PIT, i.e. municipal VAT shares still fell into a maximum band – from zero to one hundred percent.

The average share of local governments in Personal Income Tax revenues increased by 3.7 percentage points in 1992-96. This was caused by one-time rise in its value in 1993, after which the average share of local governments in the PIT stabilized at around 88%. It is worth noting that the timing of this one-time jump in the local share of the PIT coincided with the fall in their share in the Profit Tax. Regional disparities in the allocation of the PIT were the smallest among the main taxes and the respective coefficient of variation remained stable over the period at 0.19, which suggests quite stable rules of sharing for this tax.

Compared to other main taxes, local governments experienced the largest expansion in their share of excises (by more than 13 percentage points). However, cross-regional allocation of excises still remained the most diversified. In a number of regions municipalities get nothing or a negligible portion of excises.

On the expenditure side, Table 10 presents data on the average local governments shares in four of the most important expenditure items, which collectively accounted for more than 87% of total municipal outlays in 1996.

The visual inspection of Table 10 reveals that with the exception of the "Health and Sports" category, local governments' involvement in public expenditures has uniformly grown over time[9]. Overall, cross regional variation in expenditure sharing is much lower that the one for taxes. It means that patterns in expenditure allocation are much more similar in various regions compared to revenue allocation, which seems much more unstable from tax to tax and from year to year.

Between 1992 and 1996, the average share of local governments in consolidated regional expenditures on "National Economy" has increased by 3.9 percentage points.

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[9] The differences in the means of the three variables in 1992 and 1996 are statistically significant at the 95% level of confidence in paired-samples t-tests of the equality of the respective means.

Table 10. Shares of Local Governments in Total Consolidated Regional Expenditures and in Select Consolidated Regional Expenditures, %

Summary Statistics / Year	1992	1993	1994	1995	1996
1. Share in Total Consolidated Regional Expenditures *					
1.1. Mean	63.93	N/A	63.51	67.32	68.97
	(1.31)	N/A	(1.08)	(1.09)	(1.17)
1.2. Standard deviation	12.12	N/A	9.86	10.03	10.83
1.3. Coefficient of variation	0.19	N/A	0.16	0.15	0.16
1.4. Minimum value	14.91	N/A	26.81	33.34	36.59
1.5. Maximum value	83.94	N/A	84.27	88.30	90.71
2. Share in expenditures on National Economy					
2.1. Mean	61.89	59.29	62.92	64.74	65.79
	(1.71)	(1.79)	(1.73)	(1.5)	(1.69)
2.2. Standard deviation	15.77	16.54	15.94	13.87	15.60
2.3. Coefficient of variation	0.25	0.28	0.25	0.21	0.24
2.4. Minimum value	21.96	18.33	16.25	27.76	28.25
2.5. Maximum value	89.98	100	100	90.49	93.72
3. Share in expenditures on Education					
3.1. Mean	85.56	85.14	87.26	86.06	87.59
	(0.77)	(0.8)	(0.76)	(0.81)	(0.71)
3.2. Standard deviation	7.11	7.36	6.98	7.45	6.54
3.3. Coefficient of variation	0.08	0.09	0.08	0.09	0.07
3.4. Minimum value	55.98	53.56	59.05	50.98	59.24
3.5. Maximum value	95.78	100	100	94.64	96.50
4. Share in expenditures on Health and Sports					
4.1. Mean	69.94	69.98	69.41	69.24	68.68
	(1.41)	(1.44)	(1.53)	(1.4)	(1.47)
4.2. Standard deviation	13.00	13.30	14.10	12.88	13.53
4.3. Coefficient of variation	0.19	0.19	0.20	0.19	0.20
4.4. Minimum value	17.91	17.26	18.40	18.20	13.33
4.5. Maximum value	88.16	100	100	90.54	92.18
5. Share in expenditures on Social Protection					
5.1. Mean	22.34	26.31	30.77	67.46	70.79
	(2.17)	(2.36)	(2.2)	(1.97)	(2.13)
5.2. Standard deviation	20.04	21.72	20.31	18.15	19.63
5.3. Coefficient of variation	0.90	0.83	0.66	0.27	0.28
5.4. Minimum value	0	2.06	2.41	1.18	0.34
5.5. Maximum value	100	100	100	96.30	99.59

Standard error of the mean in parentheses.

The valid number of observations in all cases is 85, except for the local governments share in total consolidated regional expenditures in 1994 (83).

The cities of Moscow and St. Petersburg, Chechnya and Ingushetia excluded from the sample.

* Calculated as a ratio of the sum of the total expenditures of all tiers of local government minus the expenditures on transfers from one local government to another and the sum of the total expenditures of local and regional governments minus the expenditures on transfers from regions to local governments and from local governments to regions.

Despite its already high value (85.6% in 1992), by 1996 the average share of local governments in consolidated regional expenditures on "Education" gained additional 2 percentage points. This expenditure category has been a firm prerogative of local governments in practically all regions – between 1992 and 1996 the values of the respective coefficient of variation remained exceptionally low at around 0.09. Also, compared to other types of expenditures, the minimum value across regions of the average share of local governments in public spending on "Education" was remarkably high: 56% in 1992 and 59.2% in 1996.

The single most notable expansion of local governments' expenditure responsibilities was in the sphere of "Social Protection". Between 1992 and 1996, the average share of local governments in consolidated regional expenditures on "Social Protection" rose from 22.3% to 70.8%. As noted by Lavrov (1996a) however, this seemingly drastic change in policies may at least in part might reflect a 1994 change in the budget classification, which moved the formerly separate category "Allowances for Children and Other Social Transfers to the Population" in the expenditure item "Social Protection". Between 1992 and 1996, the regional disparities in local governments involvement in "Social Protection" diminished substantially, as the respective coefficient of variation fell by nearly 70 percentage points right after the steep rise of the average share of local governments in consolidated regional expenditures on "Social Protection" in 1995.

A more detailed look at local governments' involvement in "Social Protection" by economic region[10] however, shows that the Northern Region did not participate in the observed rapid decentralization of this type of expenditures. As the data in Table 11 shows, up to 1994 the Northern Region was in line with the rest of the country by degree of decentralization of the "Social Protection" expenditures. But in 1994, it did not follow the countrywide rapid expansion of local governments' involvement in that sphere. And even though the average share of local governments in consolidated regional expenditures on "Social Protection" in the North Region consequently doubled to 36.5% in 1996, it was still half of the national average.

Table 11. Average Shares of Local Governments in "Social Protection"
Expenditures in the Northern Region and in the Russian Federation, %

Average Shares / Year	1992	1993	1994	1995	1996
1. Average Share of Local Governments in Consolidated Regional Expenditures on Social Protection in the Northern Region	18.38 (7.86)	15.19 (3.61)	17.45 (4.34)	34.84 (12.3)	36.52 (13.85)
2. Average Share of Local Governments in Consolidated Regional Expenditures on Social Protection in the Russian Federation	22.34 (2.17)	26.31 (2.36)	30.77 (2.2)	67.46 (1.97)	70.79 (2.13)

Standard error of the mean in parentheses.

[10] The official statistics divide the constituents of the Russian Federation in 11 economic regions based on their geographic location. For example, the Northern Region includes Komi Republic, Karelia Republic, Arkhangel'sk Oblast, Nenets Autonomous Okrug, Vologda Oblast and Murmansk Oblast.

Section 6. Measures of regional decentralization and subordination.

To evaluate the level of fiscal decentralization within the Russian regions, we examine the distribution of total expenditure responsibilities and revenue assignments between regional and local governments. We construct two simple measures of the level of fiscal decentralization, using the data respectively from the revenue and expenditure side of consolidated regional budgets:

- The ratio between local governments total revenues[11] and the consolidated regional budget revenues[12]

- The ratio between local governments total expenditures[13] net of transfers to regions and the consolidated regional budget expenditures[14]

The measure of fiscal decentralization on the expenditure side of consolidated regional budgets is defined in such a manner to provide information about the share of local governments in final budget outlays[15] (purchases of goods and services from the rest of the economy).

Furthermore, we explore the degree of subordination of local to regional budgets using the following measure -- the ratio between regional transfers to local governments and local governments total expenditures[16].

Thus, the two measures of fiscal decentralization within regions refer to the downward shift of control over budget revenues and expenditures from regional to local governments. The measure of fiscal subordination is used to describe the dependence of local governments on transfers from regions .

The statistical analysis presented below is conducted with data on 85 of the 89 regions of the Russian Federation. The regions removed from the sample are Chechnya, Ingushetia, Moscow City and St. Petersburg City. The first two are dropped because of the poor quality or lack of data on most of the variables. As mentioned above, the special status of the last two as federal cities puts the issue of fiscal decentralization out of context.

Table 12 presents the values of the two measures of fiscal decentralization together with selected summary statistics for the period 1994 – 1996.

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[11] Calculated as the sum of the total revenues of all tiers of local government minus the revenues from transfers from one local government to another.

[12] Calculated as the sum of the total revenues of local and regional governments minus the revenues from transfers from regions to local governments and from local governments to regions.

[13] Calculated as the sum of the total expenditures of all tiers of local government minus the expenditures on transfers from one local government to another.

[14] Calculated as the sum of the total expenditures of local and regional governments minus the expenditures on transfers from regions to local governments and from local governments to regions.

[15] Our database does not provide data on regional transfers to the federal government and consequently this type of interbudgetary transfers is not netted out of the consolidated regional budget expenditures.

[16] Calculated as the sum of the total expenditures of all tiers of local government minus the expenditures on transfers from one local government to another.

Table 12. Measures of Fiscal Decentralization, %

Summary Statistics / Year	1994	1995	1996
1. Ratio between local governments total revenues and the consolidated regional budget revenues			
1.1. Mean	62.37	67.83	70.25
	(1.18)	(1.27)	(1.43)
1.2. Standard deviation	10.73	11.7	13.02
1.3. Coefficient of variation	0.17	0.17	0.19
1.4. Minimum value	26.81	22.76	11.96
1.5. Maximum value	85.35	97.76	96.69
1.6. Valid number of observations	83	85	83
2. Ratio between local governments total expenditures before transfers and the consolidated regional budget expenditures			
2.1. Mean	62.8	65.94	67.67
	(1.08)	(1.05)	(1.15)
2.2. Standard deviation	9.83	9.71	10.63
2.3. Coefficient of variation	0.16	0.15	0.16
2.4. Minimum value	26.81	33.34	36.59
2.5. Maximum value	84.27	83.8	86.58
2.6. Valid number of observations	83	85	85

Standard error of the mean in parentheses.

Throughout the sample period, there was a clear tendency toward greater fiscal decentralization on both sides of consolidated regional budgets. Between 1994 and 1996, the average share of local governments in consolidated regional budget revenues has increased by 7.9 percentage points, while at the same time the relative size of their outlays in consolidated regional public expenditures has risen by 4.9 percentage points[17]. Before 1995, the average expenditure share of local governments was broadly in line with their share in budget revenues. This trend was reversed in 1995-96. In 1996 local governments received 70.3% of all revenues but financed only 67.7% of consolidated regional budget expenditures. This was related to noticeable expansion of regional budget deficits.

The breakdown of Russian regions by administrative type into republics, oblasts and krais[18], and autonomous okrugs[19] unravels interesting patterns in the degrees of fiscal decentralization across groups. Tables 13 and 14 present data on the average ratio between local governments total revenues and the consolidated regional budget revenues and local governments share in the consolidated regional final expenditures by administrative type of region.

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[17] These changes in the means for both variables are statistically significant at the 99% level in paired-samples t-tests of the equality of the respective means.

[18] Oblasts and krais were pooled together because of the numerous similarities between them.

[19] Including one autonomous oblast - Yevreyskaya Autonomous Oblast.

Table 13: Revenue Decentralization by Administrative Type of Region, %

Measure of Fiscal Decentralization / Year	1994	1995	1996
1. Ratio between local governments total revenues and the consolidated regional budget revenues in:			
1.1 Republics			
- Mean	53.78	61.27	68.12
	(1.93)	(3.32)	(3.38)
- Minimum	41.73	22.76	40.78
- Maximum	66.60	97.76	96.69
- Valid number of observations	19	19	19
1.2 Oblasts and Krais			
- Mean	66.41	71.40	73.89
	(0.96)	(0.97)	(1.12)
- Minimum	50.74	56.09	56.98
- Maximum	79.79	88.12	91.82
- Valid number of observations	55	55	54
1.3 Autonomous Okrugs			
- Mean	55.84	61.34	54.68
	(6.17)	(5.17)	(5.96)
- Minimum	26.81	33.51	11.96
- Maximum	85.35	84.93	77.27
- Valid number of observations	9	11	10

Standard error of the mean in parentheses

Table 14: Expenditure Decentralization by Administrative Type of Region, %

Measure of Fiscal Decentralization / Year	1994	1995	1996
1. Ratio between local governments total expenditures before transfers and the consolidated regional budget expenditures in:			
1.1 Republics			
- Mean	55.75	60.16	62.29
	(1.82)	(1.9)	(2.38)
- Minimum	42.33	42.12	42.78
- Maximum	76.23	71.25	81.57
- Valid number of observations	19	19	19
1.2 Oblasts and Krais			
- Mean	66.29	68.66	70.14
	(0.91)	(0.93)	(1.16)
- Minimum	46.07	46.21	46.15
- Maximum	79.24	81.87	86.58
- Valid number of observations	55	55	55
1.3 Autonomous Okrugs			
- Mean	56.39	62.29	64.65
	(5.71)	(5.14)	(4.86)
- Minimum	26.81	33.34	36.59
- Maximum	84.27	83.80	84.84
- Valid number of observations	9	11	11

Standard error of the mean in parentheses

The data in Tables 13 and 14 unequivocally show the substantial and persistent gap between the degrees of fiscal decentralization on both sides of consolidated regional budgets in oblasts and krais and the other types of regions. In all years, oblasts and krais, i.e. ethnically Russian regions, boasted the highest average ratios between local governments total revenues and expenditures before transfers and the consolidated regional budget revenues and final expenditures respectively, with the pair wise differences in the corresponding means being statistically significant at the 95% level of confidence[20] in 1994 and 1995. Oblasts and krais are also the most homogenous group in terms of the achieved degree of fiscal decentralization – the standard error of the mean for this type of regions is more than 6 times smaller than that of autonomous okrugs and 3 times that of republics. The observed differences among the group means were somewhat subdued in 1996, when the difference in the means of the degree of revenue decentralization in oblasts and krais and republics seized to be statistically significant. The same was also true for the difference in the means of the degree of expenditure decentralization in oblasts and krais and autonomous okrugs in 1996.

Table 15 presents the values of the two measures of fiscal subordination of regional and local governments together with selected summary statistics for the period 1994 – 1996. As Table 15 shows, interbudgetary transfers from higher levels of the government were a significant source of revenues for

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[20] Comparison of means conducted with One-way Analysis of Variance supplemented with Least-significant Difference Tests.

both regional and local governments throughout the whole period. Between 1994 and 1996, the ratio of regional transfers to total expenditures of local governments fluctuated in a narrow band of 35%. At the same time, with the exception of 1995 the ratio of federal transfers to total regional expenditures stayed around 42.5%. In 1995 federal transfers to regional governments were substantially reduced. The seven percentage points drop in the average value of the above ratio coincided with a drastic increase in regional disparities – in one year the coefficient of variation jumped by 43%. This apparent shock to the system of federal transfers quickly disseminated and by 1996 both the mean of the ratio of federal transfers to total regional expenditures and its coefficient of variation returned to their pre-1995 values.

Table 15. Measures of Fiscal Subordination of Subnational Governments in the Period 1994 – 1996, %

Summary Statistics / Year	1994	1995	1996
1. Ratio between regional transfers to local governments and local governments total expenditures			
1.1. Mean	36.87	33.40	34.85
	(1.71)	(1.65)	(1.78)
1.2. Standard deviation	15.48	15.18	16.39
1.3. Coefficient of variation	0.42	0.45	0.47
1.4. Minimum value	0	3.01	0
1.5. Maximum value	91.73	74.77	82.45
1.6. Valid number of observations	82	85	85
2. Ratio between federal transfers to regional governments and total regional expenditures			
2.1. Mean	42.35	35.36	42.58
	(2.38)	(2.8)	(2.46)
2.2. Standard deviation	21.41	25.51	22.24
2.3. Coefficient of variation	0.51	0.72	0.52
2.4. Minimum value	1.61	0	0.04
2.5. Maximum value	96.05	99.71	88.95
2.6. Valid number of observations	81	83	82

Standard error of the mean in parentheses

Table 16 presents data on the average degree of fiscal subordination of local to regional governments by administrative type of region.

Table 16: Fiscal Subordination of Local Governments by Administrative Type of Region, %

Measure of Fiscal Subordination / Year	1994	1995	1996
1. Ratio between regional transfers to local governments and local governments total expenditures in:			
1.1 Republics			
- Mean	48.18	43.05	44.70
	(4.36)	(4.22)	(4.31)
- Minimum	18.81	7.08	0
- Maximum	91.73	68.46	75.39
- Valid number of observations	19	19	19
1.2 Oblasts and Krais			
- Mean	32.83	29.30	31.85
	(1.2)	(1.13)	(1.26)
- Minimum	16.80	14.98	11.85
- Maximum	59.79	52.74	54.31
- Valid number of observations	55	55	55
1.3 Autonomous Okrugs			
- Mean	37.74	37.23	32.81
	(9.74)	(7.75)	(9.10)
- Minimum	0	3.01	0
- Maximum	72.09	74.77	82.45
- Valid number of observations	8	11	11

Standard error of the mean in parentheses

Between 1994 and 1996, there were substantial differences in the importance of regional transfers as sources of funds for local budgets in oblasts and krais and the other types of regions. Oblasts and krais have maintained the lowest average ratio between regional transfers to local governments and local governments' total expenditures. The difference in the average values of this variable in republics and oblasts and krais is statistically significant at the 95% level of confidence in all years in One-way Analysis of Variance supplemented with Least-significant difference tests of the equality of the corresponding means. Overall, regional transfers were most important for local governments in republics, followed by autonomous okrugs, and oblasts and krais.

This finding, combined with the results from the analysis of the measures of fiscal decentralization by administrative type of regions, outlines two distinctive patterns in the downward transfer of fiscal responsibilities in the Russian Federation. In both cases, local governments end up with more budget resources and a wider range of expenditure responsibilities. In the case of oblasts and krais however, this is achieved by entitling local authorities to a bigger share of the consolidated regional budget revenues, whereas in republics and autonomous okrugs (before 1996) the expansion of local outlays has been financed by larger interbudgetary transfers from regional governments. Thus, we have

identified two different patterns of fiscal evolution in Russian regions: the former could be called "true decentralization", the latter may be described as a "redistribution model".

Table 17 presents data on the average ratio between federal transfers to regional governments and total regional expenditures in different administrative types of regions.

Table 17: Fiscal Subordination of Regional Governments by Administrative Type of Region, %

Measure of Fiscal Subordination / Year	1994	1995	1996
1. Ratio between federal transfers to regional governments and total regional expenditures in:			
1.1 Republics			
- Mean	51.19	44.77	47.55
	(7.49)	(7.42)	(6.18)
- Minimum	1.61	0	0.04
- Maximum	96.06	98.62	88.95
- Valid number of observations	17	18	19
1.2 Oblasts and Krais			
- Mean	37.30	27.95	40.70
	(1.93)	(2.25)	(2.62)
- Minimum	10.34	1.85	4.37
- Maximum	75.13	69.72	82.19
- Valid number of observations	55	55	53
1.3 Autonomous Okrugs			
- Mean	56.45	59.19	43.11
	(9.05)	(11.14)	(9.13)
- Minimum	8.86	3.18	4.44
- Maximum	78.40	97.23	87.68
- Valid number of observations	9	9	10

Standard error of the mean in parentheses

As seen from the table, in 1994 and 1995 oblasts and krais received much less federal assistance than both republics and autonomous okrugs[21]. In 1995, the mean of the ratio of federal transfers to total regional expenditures in autonomous okrugs was more than twice the average in oblasts and krais. In 1996, the federal government finally adopted a more equitable allocation scheme of federal assistance among the different types of regions. A plausible explanation of the huge discrepancies between the amount of grants received by republics and autonomous okrugs, and oblasts and krais until 1996 is that the federal government tried to use the transfers as the "carrot" in its policy to discourage the attempts of non-Russian regions to become independent states (Treisman, 1996).

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[21] The differences in the average ratios between federal transfers to regions and total regional expenditures in republics and oblasts and krais, and in autonomous okrugs and oblasts and krais are statistically significant in both years at the 95% level of confidence.

Next, we turn to the coefficients of correlation between different measures of fiscal decentralization and subordination (Table 18).

Table 18: Coefficients of Correlation between Measures of Fiscal Decentralization and Subordination in Russian Regions

Covariates / Year	1994	1995	1996
Ratio between local governments total expenditures before transfers and the consolidated regional budget expenditures - Ratio between local governments total revenues and the consolidated regional budget revenues	0.89 (83)	0.80 (85)	0.76 (83)
Ratio between local governments total expenditures before transfers and the consolidated regional budget expenditures - Ratio between regional transfers to local governments and local governments total expenditures	-0.33 (82)	-0.10* (85)	-0.09* (85)
Ratio between federal transfers to regional governments and total regional expenditures - Ratio between local governments total revenues and the consolidated regional budget revenues	-0.48 (81)	-0.33 (82)	0.004* (80)
Ratio between federal transfers to regional governments and total regional expenditures - Ratio between regional transfers to local governments and local governments total expenditures	0.50 (80)	0.60 (83)	0.53 (82)

Numbers in parenthesis represent the number of regions used in the correlation analysis.
Unless otherwise indicated, all correlation coefficients are significant at the 99% level of confidence.
* Statistically insignificant at the 95% level of confidence.

As seen from the first row of Table 18, there is a strong positive correlation between the share of local governments in consolidated regional final expenditures and the ratio of local governments total revenues to the consolidated regional budget revenues. However, the statistical link between the two measures of fiscal decentralization weakened over time, dropping from 0.89 in 1994 to 0.76 in 1996. One possible explanation of the above trend might derive from quickly expanding deficits of some but not all regional budgets: local governments' share in expenditures in such cases does not correspond to their share in revenues.

The second raw of Table 18 suggests that there is no link between the incidence of regional transfers and degree of fiscal decentralization. High dependence of local governments on regional transfers indicates neither high nor low decentralization level.

Another interesting finding of the correlation analysis is that in 1994-95 the size of federal grants to regions relative to the consolidated regional expenditures was negatively correlated with the share of local governments in consolidated regional expenditures (third raw of Table 18). In 1996, this correlation coefficient became statistically insignificant. At the same time, however, the sizes of the federal and regional transfers relative to the total regional and local governments total expenditures, respectively, remained strongly positively correlated (see the last row of Table 18).

Thus, the impact of federal transfers on fiscal decentralization at the regional level was mixed. On one hand, federal aid was by no means concentrated in regions with the highest degree of fiscal decentralization, but on the other, larger federal transfers to regions resulted in larger transfers from regions to local governments, and thus indirectly promoted some decentralization. In the preceding section, we identified two distinct patterns of fiscal decentralization prevalent in Russian regions of different administrative type. In oblasts and krais, the downward shift of expenditure responsibilities is generally financed through increases in the share of local governments in consolidated regional revenues – "true decentralization". In autonomous okrugs and republics, however, relatively more funds for local budgets are provided by regional governments via interbudgetary transfers – "decentralization through transfers". Consequently, the results of the correlation analysis suggest that federal transfers to regions promoted the process of fiscal decentralization in autonomous okrugs and republics and slowed down it in oblasts and krais.

Section 7. Decentralization and Economic Performance.

The panel-data regression analysis conducted in this section addresses the following specific issues related to the nature and impact of fiscal decentralization within Russian regions:

- What are the main social and economic determinants of the degree of fiscal decentralization within Russian regions?

- Is there a link between regional fiscal decentralization and public expenditures policy (measured through the structure of the consolidated budget expenditures)?

- Does the degree of fiscal decentralization have an influence over regional economic performance?

In the initial stages of our empirical investigation of these problems, we have considered the following set of social and economic variables as potential determinants of the degree of fiscal decentralization within Russian regions:

A. Geographic and administrative characteristics:

- Geographic location (regions divided in 11 zones, so called "economic regions", based on their location)
- Territory of region as percent of the total territory of the Russian Federation (%)
- Population density in 1994 (persons per square kilometer)
- Administrative type (republic, oblast and krai, autonomous okrug)

B. Social variables:

- Share of the poor population (%) - 1994 and 1995 data only
- Money income as percent of the subsistence minimum
- Unemployment rate (%) - 1994 and 1995 data only
- Share of rural population in 1994 (%)
- Rate of infant mortality (number of babies per 1000 live births, who died before reaching the age of one)
- Infant mortality in 1990 – used as a reference variable that reflects specific social characteristics of Russian regions prevalent before the transition to market economy
- Life expectancy (years)

C. Economic variables:

- Real (1991 Rubles) per capita GDP - 1994 and 1995 data only
- Annual real per capita income (1991 Rubles)
- Annual rate of inflation (%)
- Real industrial output growth (as % of previous year)
- Growth of investment (as % of previous year)
- Percent of arrears in enterprise payables (1995 and 1996 data only)

D. Fiscal variables:

- Federal transfers to regions as percent of total regional expenditures (%)
- Regional transfers to local governments as percent of local governments' total expenditures (%)
- Share of expenditures on National Economy in the consolidated regional budget expenditures (%)
- Share of expenditures on Education in the consolidated regional budget expenditures (%)
- Share of expenditures on Health and Sport in the consolidated regional budget expenditures (%)
- Share of expenditures on Social Protection in the consolidated regional budget expenditures (%)
- Real (1991 Rubles) per capita consolidated regional expenditures on National Economy
- Real (1991 Rubles) per capita consolidated regional expenditures on Education
- Budget arrears as percent of consolidated regional budget expenditures (%) - 1995 and 1996 data only
- Tax arrears as percent of the consolidated regional tax revenues (%) - 1995 data only
- Accumulated debt as percent of consolidated budget revenues net of transfers (%) - 1995 and 1996 data only
- Local governments budget balance (negative sign indicates a deficit) as percent of local governments total expenditures (%)
- Regional budget balance (negative sign indicates a deficit) as percent of total regional expenditures (%)
- Consolidated regional budget balance (negative sign indicates a deficit) as percent of consolidated regional budget expenditures (%)

The statistical analysis presented below is conducted with the data on 85 of the 89 regions of the Russian Federation. The regions removed from the sample are Chechnya, Ingushetia, the cities of Moscow and St. Petersburg. The first two are dropped because of the poor quality or lack of data on most of the variables. The special status of the last two as federal cities puts the issue of fiscal decentralization out of context. We use the values of the above listed variables over the period 1994-1996 for each of the remaining 85 regions to construct the panel used in the subsequent regression analysis. If there is no data on a particular variable for a given region in a given year, missing values are recorded in the data set. In the case of variables such as the rate of infant mortality in 1990 and the percent of rural population in 1994, for which we are only interested in how their values in some base year (1990 and 1994 respectively) affect the future outcomes of the dependent variable, we record the base values of these variables three times in the data set – once for every year in the sample. The summary regression results tables presented in this section are constructed using the following convention. We first identify the preferred regression model of the dependent variable using standard econometric techniques. We then test for the presence of heteroskedasticity and correlation in regression residuals using the White test for general heteroskedasticity[22] and the Durbin-Watson test[23] for first-order serial correlation. If the resulting

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[22] The test statistics are computed using auxiliary regressions, in which the squared residuals from the regressions presented in Tables 19, 20 and 21 are regressed on a constant, the explanatory variables from the original regressions and all possible (nonredundant) cross products of the explanatory variables, with the exception of those involving dummy variables.

value of the White test statistic is significant at the 95% level of confidence, in the summary tables we report the White heteroskedasticity-consistent standard errors of the OLS coefficients. Due to the short time-dimension of our panel and the somewhat arbitrary construction and hence obscure interpretation of the Durbin-Watson statistic in panel data models (see footnote 24), no attempts have been made to correct for the possible existence of serial correlation in OLS residuals. Nevertheless, in all regression models presented below we show the estimated value of the Durbin-Watson statistic.

Table 19 presents the final results from our regression analysis of the determinants of fiscal decentralization within Russian regions. The regression output in Table 19 identifies a common set of factors that influence the degree of fiscal decentralization on both the revenue and expenditure sides of consolidated regional budgets. The measures of revenue and expenditure decentralization are both negatively related to the rate of infant mortality in 1990 and the rate of inflation in regions. The first variable is an indicator of the social and economic development of Russian regions prior to the transition[24]. In our view, it reflects fundamental historical differences in regional wellbeing - such as real incomes, quality of and access to health care, development of infrastructure, ethnic and religious customs, etc.[25] The second variable is an indicator of the degree of macroeconomic instability inflicted on regional economies. For 1994-96 the inflation indicator also reflects regional peculiarities of price liberalization: usually during this period, inflation was higher in regions, where during the initial years of reforms (1992-93), regional administrations imposed stronger price control, thus delaying both liberalization and economic restructuring.

The OLS estimates of the influence of the rate of infant mortality in 1990 on the degrees of revenue and expenditure decentralization in regions are (-0.94) and (-0.87) respectively. Thus, if we take two regions with identical rates of inflation, geographic location and administrative status, where the values of the rate of infant mortality in 1990 differed by one basic point (one death per 1000 live births), the predicted shares of local governments in consolidated budget revenues and final expenditures in the region with higher rate of infant mortality would be approximately 0.9 percentage points smaller than those in the other region. The OLS coefficients of the rate of inflation in the two regressions are (-0.03) and (-0.02) respectively, suggesting a much weaker influence of the degree of macroeconomic instability on the decentralization outcome. All reported coefficients are statistically significant at the 99% level of confidence.

When we tried to substitute the rate of infant mortality in 1990 with the values of the same variable over the period of 1994-1996 as an explanatory variable, it provided the above regressions with much lower OLS coefficients[26] (in the magnitude of (-0.4) and (-0.2) respectively) and also it worsened the overall fit of the two regressions. Thus, only the historical differences in regional standards of living, captured by the interregional disparities in the rate of infant mortality prior to the transition, help explain the variation in fiscal decentralization in the subjects of the Russian Federation.

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[23] In panel data models, the estimation of the Durbin-Watson statistic requires prior transformations of the regression output. First, the residuals for the different cross-sections are stacked on top of one another, separated by additionally included "N/A" values. Then, the standard formula of the Durbin-Watson statistic is applied to this augmented set of residuals.

[24] In the economic literature infant mortality is often used to construct of composite measures of poverty. Please, note a reliable indicator of pre-transition regional poverty in Russia is not available.

[25] Tuva Republic, Evenk Autonomous Okrug and Altay Republic had the highest infant mortality rate in 1990 that exceeded 30 deaths per 1000 newborns. North Osetia Republic, Smolensk Oblast, Chuvashia Republic and Voronezh Oblast had the lowest infant mortality rate, below 14.

[26] Marginally statistically significant at the 95% level of confidence in the case of the measure of revenue decentralization and insignificant in the second regression.

Table 19. Determinants of Fiscal Decentralization

Regressors / Dependent Variable	Local governments total revenues as percent of the consolidated regional budget revenues	Local governments total expenditures before transfers as percent of the consolidated regional budget expenditures
Constant	91.18 (18.3)	83.84 (21.32)
Infant mortality in 1990	-0.94 (-3.16)	-0.87 (-3.62)
Inflation	-0.03 (-4.85)	-0.02 (-3.44)
Dummy Republic	-8.71 (-4.64)	-8.61 (-6.22)
Dummy Autonomous Okrug	-10.55 (-3.55)	-6.84 (-3.05)
Dummy Northern Region	-5.66 * (-2.15)	
Dummy Ural Region		7.05 (4.12)
Dummy Western Siberia Region		7.47 (3.7)
Dummy Eastern Siberia Region	6.66 (2.59)	10.67 (4.97)
Sample	1994 1996	1994 1996
Total Panel (Unbalanced) Observations	251	253
Adjusted R-squared	0.31	0.32
Durbin-Watson	0.97	0.64
White's Heteroskedasticity Test	49.52 (0.00) **	44.32 (0.00) **
Standard Error of Regression	10.18	8.45
Root Mean Squared Residual 1994	8.76	7.57
Root Mean Squared Residual 1995	9.72	7.97
Root Mean Squared Residual 1996	11.45	9.31

Notes:
Unless otherwise indicted, numbers in parenthesis are t-statistics calculated with the White heteroskedasticity consistent standard errors of OLS coefficients.
Unless otherwise indicated, OLS coefficients are statistically significant at the 99% level of confidence.
* Statistically significant at the 95% level of confidence
** P-value

The available regional data on infant mortality for 1994-96 demonstrate unusually large and unstable (with almost chaotic fluctuations from year to year) changes in this variable after the beginning of transition.[27] This may be explained by a scale and nature of impact of transition on social development, which was massive and quite uneven across regions and across different time periods. Also, the first years of transition were accompanied by major migration flows and deterioration in a quality of demographic statistics.

Even after controlling for regional differences in the standard of living, economic mismanagement and geographic location, the administrative type of regions remains an important predictor of the degrees of fiscal decentralization. On the revenue side, the OLS coefficients of the dummy variables Autonomous Okrugs and Republics are (-10.6) and (-8.7), while on the expenditure side the corresponding OLS estimates are (-6.8) and (-8.6). These results imply that the predicted values from the two regressions of the shares of local governments in consolidated budget revenues and final expenditures are significantly lower in autonomous okrugs and republics than in oblasts and krais.

Finally, the regressions suggest that regional location is another significant variable to explain variation in fiscal decentralization. Regions located in three geographic areas (Urals, Western and Eastern Siberia) on average have much higher degree of decentralization when it is measured as a share of local governments' expenditures. There are two possible explanations of this phenomenon. First, regions located next to each other tend to have similar budget arrangements and fiscal policy. This similarity derives from horizontal inter-government interactions that are supported through activities of local associations of regional governments. Second, on average regions in both Western and Eastern Siberia are the regions with the largest territory. The size of region's territory might be in itself an important determinant of decentralization: larger territory requires more delegation of authority to local governments and thus decentralization.

To test the latter hypothesis, we re-estimate the two decentralization regressions adding the relative size of region's territory, measured as percent of the total territory of the Russian Federation, to the explanatory variables discussed above. On the revenue side of fiscal decentralization, using the full sample of 85 regions we obtain positive and statistically significant at the 99% level of confidence OLS coefficient (1.25) of the relative size of region's territory. However, when we re-estimate this augmented regression using all possible sub-samples of 84 regions as a check of the robustness of the OLS coefficients (see the discussion in the following paragraph), we discover that the explanatory power of the relative size of region's territory critically hinges upon one extreme realization of that variable. In particular, the territory of the Sakha Republic constitutes 18.2% of the total territory of the Russian Federation and it is also the region with one of the highest levels of revenue decentralization (in 1996 the share of local governments in consolidated regional budget revenues was 93.5%). The removal of this apparent outlier from the sample, renders the OLS coefficient of the relative size of region's territory statistically insignificant even at the 95% level of confidence. Thus, after controlling for regional differences in the standard of living, economic mismanagement, geographic location and administrative status, the size of region's territory is not an important determinant of the degree of revenue decentralization. On the expenditure side of fiscal decentralization, using the full sample of 85 regions we obtain a much smaller and statistically insignificant at the 90% level of confidence OLS coefficient (0.13) of the relative size of region's territory. Finally, the population density - when used in place of the relative size of region's territory - does not show up significantly in any of the two regressions. In summary, the

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[27] For instance, a correlation coefficient between mortality in 1994 and in 1995 amounts to 0.39 and between 1994 and 1996 – to 0.46.

empirical evidence strongly rejects the hypothesis that the differences in the size of regions' territories can help explain the observed heterogeneity of fiscal decentralization outcomes.

It is worth noting that our results suggest that a positive correlation between decentralization and regional level of economic development exists only as a general trend that could be tracked down with some lag. We did not find any correlation between decentralization and current indicators of regional wealth such as local real per capita incomes, share of poor households, etc.

Next, we check the robustness of the OLS coefficients presented in Table 19 by evaluating their dependence on the particular set of cross-sectional units used in the panel-data analysis. To achieve this, we re-estimate the regressions of the shares of local governments in consolidated regional budget revenues and final expenditures with all possible sub-samples of 84 out of 85 regions and plot the resulting OLS coefficients and their 95% confidence intervals[28]. If the observed negative link between fiscal decentralization and the incidence of poverty and macroeconomic instability in regions hinges on any one extreme realization of these variables in a given region, then the elimination of this outlier from the sample should make the corresponding OLS coefficient statistically insignificant. Following this convention, we are able to show that the coefficients of the rate of infant mortality in 1990 and the rate of inflation remain statistically significant regardless of which sample of 84 regions we use in the estimation of the two regressions, thus confirming the statistical robustness of the coefficients presented in Table 19.

The overall fit of the estimated regressions of the measures of revenue and expenditure decentralization is 0.31 and 0.32 respectively. The lower panel of Table 19 also contains information on the values of the root mean squared residuals[29] of the two regressions for each year covered by the panel. The root mean squared residual is a measure of the average misfit of the estimated panel-data regression to the actual values of the dependent variable in that particular year. Thus, if the overall R-squared of the panel-data regression hinges on the good fit of the data in only one year, then there should be substantial differences between the intertemporal values of the root mean squared residual. The values of the root mean squared residuals of the two regressions presented in Table 19 are increasing with time – from 8.8 and 7.6 percentage points in 1994 to 11.5 and 9.3 percentage points in 1996. This comes as no surprise given the fact that the degrees of fiscal decentralization were shown to depend predominantly on fundamental factors - such as administrative type of regions, geographic location and infant mortality at the start of the transition - that do not change over time. Using constant base values of the explanatory variables to forecast the future behavior of the degrees of revenue and expenditure decentralization will inevitably worsen the fit of the regression over time as the statistical noise present in the relationship compounds. At the same time, we expect that the stabilization policy of the federal government in 1995 could bring about modifications in regional budget arrangements in 1996 and cause some changes in the link between regional decentralization and its major determinants.

Table 20 presents the results from the analysis of the hypothesized link between the structure of consolidated regional budget expenditures and the degree of fiscal decentralization in regions. As seen from the first column of Table 20, the share of expenditures on Education in the consolidated regional budget expenditures depends positively on the rate of infant mortality in 1990 and negatively on the real per capita income in regions. The OLS coefficient of the rate of infant mortality in 1990 is substantive in

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[28] In all robustness tests presented in this paper, if the full-sample regressions yield statistically significant value of the White test of general heteroscedasticity, the 95% confidence intervals of the sub-sample estimates of OLS coefficients are constructed using White heteroskedasticity consistent standard errors.

[29] The root mean squared residual for a particular year is calculated by first estimating the regression with the data for all three years in the sample. We next sum the squared OLS residuals from this regression for each year and divide the result by the number of cross-sectional units with valid data on all variables in that particular year.

Table 20. Impact of Decentralization on the Structure of Budget Expenditures

Regressors / Dependent Variable	Share of expenditures on Education in the consolidated regional budget expenditures	Share of expenditures on National Economy in the consolidated regional budget expenditures
Constant	4.80 (3.02)	43.07 (40.24)
Infant mortality in 1990	0.38 (4.43)	
Percent of rural population in 1994	0.11 (6.22)	-0.17 (-5.37)
Local governments total revenues as percent of the consolidated regional budget revenues	0.12 (5.96)	
Local governments budget deficit as percent of local governments total expenditures	-0.10 (-3.62)	0.10 * (2.17)
Real per capita income	-0.0003 (-4.36)	
Dummy North Region	4.05 (4.25)	-7.17 (-5.15)
Dummy North Caucasus Region		-3.15 (-3.02)
Dummy Volgo-Vyatka Region		-4.97 (-4.62)
Dummy Ural Region	1.59 (3.19)	-3.54 (-4.61)
Dummy Eastern Siberia Region		-5.15 (-2.75)
Sample	1994 1996	1994 1996
Total Panel (Unbalanced) Observations	243	255
Adjusted R-squared	0.46	0.36
Durbin-Watson	0.89	0.90
White's Heteroskedasticity Test	85.91 (0.00) **	62.69 (0.00) **
Standard Error of Regression	2.88	5.73
Root Mean Squared Residual 1994	2.14	4.88
Root Mean Squared Residual 1995	3.51	5.87
Root Mean Squared Residual 1996	2.65	6.07

Notes:
Unless otherwise indicated, numbers in parenthesis are t-statistics calculated with the White heteroskedasticity consistent standard errors of OLS coefficients
Unless otherwise indicated, OLS coefficients are statistically significant at the 99% level of confidence
* Statistically significant at the 95% level of confidence
** P-value

value (0.38) and statistically significant at the 99% level of confidence. The coefficient in front of the real per capita income implies that an one thousand 1991 Rubles difference in the annual per capita income in two otherwise identical regions will result in a 0.3 percentage points smaller predicted share of expenditures on Education in the consolidated budget outlays of the wealthier region. Thus, regions with higher incidence of poverty (both in terms of real incomes and overall standard of living) spend a bigger proportion of their consolidated budgets on Education.[30] Less urbanized regions also tend to allocate a larger share of their budget expenditures to the sphere of Education, as seen from the positive coefficient (0.11) in front of the share of rural population in 1994.

Even after controlling for regional disparities in the incidence of poverty and for certain other demographic and geographic factors, the degree of revenue decentralization remains an important determinant of the share of expenditures on Education in the consolidated regional budget expenditures. The OLS coefficient of the ratio between local governments total revenues and the consolidated regional budget revenues is positive (0.12) and highly statistically significant. This result seems to support the theoretical proposition that lower levels of government tend to be more responsive to the social needs of the population and thus decentralization promotes a more efficient allocation of resources. Furthermore, our regression analysis indicates that in times of budget revenue shortfalls local governments cushion the negative impact of the lack of funds on social expenditures by expanding budget deficits. The OLS coefficient in front of the ratio of local governments budget balance to local governments total expenditures is (-0.10) and is statistically significant at the 99% level of confidence. Thus, local governments with larger budget deficits, for which the value of the above ratio is negative (negative budget balance represents a deficit) and high in absolute terms, tend to allocate a bigger share of consolidated budget expenditures on Education.

Next, we check the robustness of the OLS coefficients discussed above by evaluating their dependence on the particular set of cross-sectional units used in the panel-data analysis. To achieve this, we re-estimate the regression of the share of expenditures on Education in the consolidated regional budget expenditures with all possible sub-samples of 84 out of 85 regions and plot the resulting OLS coefficients and their 95% confidence intervals. If the observed positive link between the dependent variable and the degree of revenue decentralization hinges on any one extreme realization of the latter for a given region, then the elimination of this outlier from the sample should make the corresponding OLS coefficient statistically insignificant. As seen from Figure 1 however, the OLS coefficient of the share of local governments in the consolidated regional budget revenues remains statistically significant regardless of which sample of 84 regions we use, thus confirming the statistical robustness of the corresponding full-sample OLS coefficient. The same is also true for the other explanatory variables.

The adjusted R-squared of the regression of the share of expenditures on Education in consolidated regional budget expenditures is 0.46 and the values of the root mean squared residuals of the regression in different years are quite close to each other. Thus, the overall fit of the estimated model is good and consistent over the time span of the panel. The conducted White's test of general heteroskedasticity in regression residuals returns a highly significant value and consequently all reported t-statistics are calculated with the White heteroskedasticity-consistent standard errors of OLS coefficients.

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[30] This is consistent with the results of other studies (Stewart, 1996; Freinkman and Haney, 1997) that main social expenditures in subnational budgets are relatively well protected against budget squeeze and vary much less than expected between poor and wealthy regions.

**Figure 1: OLS Coefficients and 95% Confidence Intervals of Local
Governments Share in Consolidated Regional Budget Revenues
Estimated with All Possible Sub-Samples of 84 Regions**

Local Governments Share in Consolidated Regional Revenues

——— OLS Coefficient
----- 95 % Confidence Interval
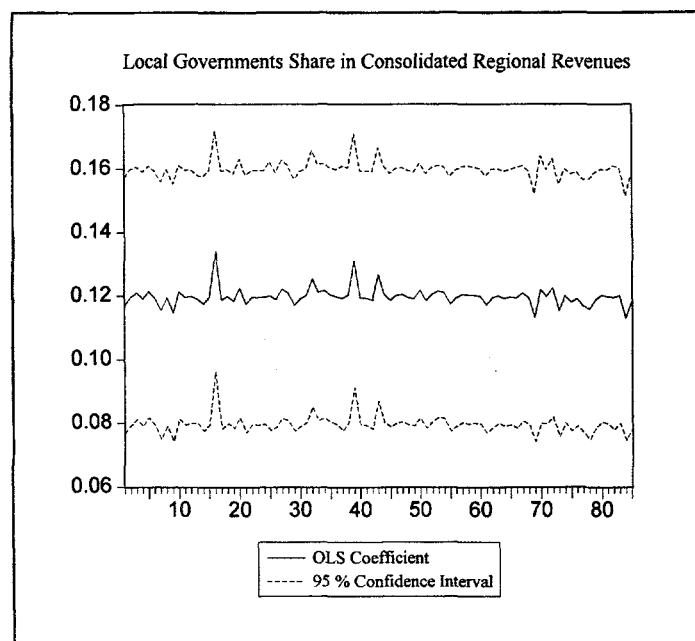
The second column of Table 20 shows the results of the regression analysis of the share of expenditures on National Economy in the consolidated regional budget expenditures. In contrast to the share of education expenditures, spending on enterprise and housing subsidies is not related to any of the measures of population's wellbeing in regions. Besides being contingent on the geographic location of regions, the share of expenditures on National Economy in the consolidated regional budget expenditures tends to be higher in more urbanized regions. The OLS coefficient in front of the share of rural population in 1994 is (-0.17) and statistically significant at the 99% level of confidence. Our interpretation of this result is that it mainly reflects the dynamics of housing subsidies that are a dominating component in National Economy spending item. In Russia, housing subsidies are disproportionally concentrated in urban areas and therefore local authorities in regions with higher share of urban population are forced to allocate a bigger share of their budgets on expenditure on National Economy.

A central result of this regression is the finding that the share of expenditures on National Economy in consolidated regional budget expenditures is negatively related to the size of local governments budget deficit. The OLS coefficient in front of the ratio between local governments budget balance and local governments total expenditures is positive (0.10) and statistically significant at the 95% level of confidence. Local governments with larger budget deficits, for which the value of the above ratio is negative (negative budget balance represents a deficit) and high in absolute terms, tend to allocate a smaller share of consolidated budget expenditures on National Economy. Thus, local governments are not keen on expanding subsidy provision at the expense of the expansion in deficit. In other words, local governments' response to growing deficits would be likely to include cuts in subsidies but at the same time they would keep educational spending relatively protected. This finding is also broadly consistent the argument that local governments in Russia are less likely that regional administrations to spend taxpayers money on large enterprise subsidies (Freinkman and Haney, 1997).

Next, we check the robustness of the above OLS coefficients by evaluating their dependence on the particular set of cross-sectional units used in the panel-data analysis. Applying the same techniques used in the construction of Figure 1, we are able to show that the OLS estimate of the coefficient of the share of rural population in 1994 remains statistically significant regardless of which sample of 84 regions is used in its estimation. This is not the case however for the coefficient of the ratio between local governments budget balance and local governments total expenditures. In all sub-samples the above coefficient is positive and close to its full-sample value (0.10), but seven of the sub-samples render it statistically insignificant at the 95% level of confidence. Thus, while the positive relation between the share of expenditures on National Economy in regional budget expenditures and the relative size of local governments' budget balance is a definitive characteristic of regional fiscal systems in the Russian Federation, the strength of this link in the panel is derived from the presence of a number of data outliers. Consequently, the full-sample estimate of the coefficient of the ratio between local governments budget balance and local governments total expenditures should be used with caution.

The adjusted R-squared of the regression of the share of expenditures on National Economy in consolidated regional budget expenditures is 0.36. The rising values of the root mean squared residuals of the regression over the time span of the panel indicate that the fit of the regression was best in earlier years. The conducted White's test of general heteroskedasticity in regression residuals returns a highly significant value and consequently all reported t-statistics are calculated with the White heteroskedasticity-consistent standard errors of OLS coefficients.

Table 21 presents the results from the analysis of the link between fiscal decentralization and regional economic and fiscal performance. The second column of Table 21 suggests that, as one may expect, real industrial growth relates positively to the purchasing power of the population and is negatively influenced by macroeconomic instability. The large value of the OLS coefficient in front of the real per capita income implies that an one thousand 1991 Rubles difference in the annual per capita income in two otherwise identical regions will result in an 1 percentage point higher rate of real industrial growth in the wealthier region. The OLS estimate of the influence of the rate of inflation on real industrial output growth is (-0.03). The central finding in this regression is the positive link between the real growth of industrial output and the degree of revenue decentralization. The value of the OLS coefficient of the ratio between local governments total revenues and consolidated regional budget revenues is (0.15) and is statistically significant at the 95% level of confidence.

Table 21. Impact of Decentralization on Fiscal and Economic Performance

Regressors / Dependent Variable	Consolidated regional budget balance as percent of the consolidated regional budget expenditures	Real industrial output growth (% to previous year)
Constant		74.93 (15.11)
Percent of rural population in 1994	-0.17 * (-2.23)	
Local governments total revenues as percent of the consolidated regional budget revenues	-0.15 (-5.44)	0.15 * (2.32)
Regional transfers to local governments as percent of local governments total expenditures	0.22 (2.62)	
Inflation	0.04 (9.05)	-0.03 (-6.14)
Real per capita income		0.001 (3.1)
Sample	1994 1996	1994 1996
Total Panel (Unbalanced) Observations	250	243
Adjusted R-squared	0.34	0.19
Durbin-Watson	1.64	2.25
White's Heteroskedasticity Test	85.61 (0.00) **	26.21 (0.00) **
Standard Error of Regression	8.80	10.79
Root Mean Squared Residual 1994	7.90	10.43
Root Mean Squared Residual 1995	7.13	13.05
Root Mean Squared Residual 1996	10.75	7.59

Notes:
Unless otherwise indicated, numbers in parenthesis are t-statistics calculated with
the White heteroskedasticity consistent standard errors of OLS coefficients
Unless otherwise indicated, OLS coefficients are statistically significant at the 99%
level of confidence
* Statistically significant at the 95% level of confidence
** P-value

The OLS coefficients of real per capita income and the rate of inflation are statistically robust as they remain statistically significant and close in value to the full-sample estimates, when re-estimated with all possible sub-samples of 84 out of 85 regions. Figure 2 presents the OLS coefficients and the 95% confidence intervals of the share of local governments in consolidated regional budget revenues. In all sub-samples the above coefficient is positive and close to its full-sample estimate, but on one occasion (when the Altay Republic is removed from the sample) it becomes marginally insignificant at the 95% level of confidence. Consequently, while the positive link between revenue decentralization and the real

industrial output growth is well documented by the data, caution should be used in interpreting the magnitude of this relation.

Figure 2: OLS Coefficients and 95% Confidence Intervals of Local Governments Share in Consolidated Regional Budget Revenues Estimated with All Possible Sub-Samples of 84 Regions
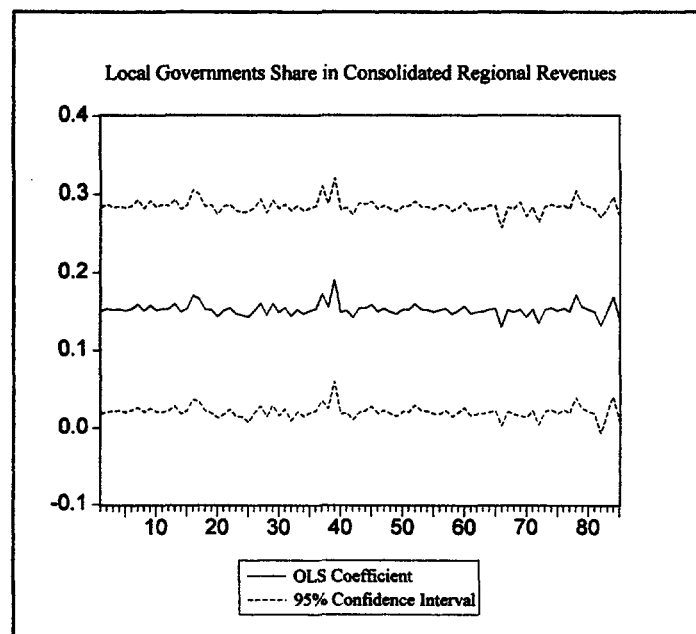
The adjusted R-squared of the regression of real industrial output growth is 0.19 and there is no trend in the values of the root mean squared residuals of the regression over the time span of the panel. The conducted White's test of general heteroskedasticity in regression residuals returns a statistically significant value at the 95% level of confidence and consequently all reported t-statistics are calculated with the White heteroskedasticity-consistent standard errors of OLS coefficients.

Table 21 also describes the link between the degree of revenue decentralization and the size and sign of the consolidated regional budget balance. The relative size of the consolidated regional budget balance is negatively related to the degree of regional decentralization. The value of the OLS coefficient of the measure of revenue decentralization is (-0.15) and is statistically significant at the 99% level of confidence. Thus, regions that assign a bigger share of total budget revenues to local governments have a less favorable budget balance position (if we take two regions with identical rates of inflation, share of rural population and relative size of regional transfers to local governments total expenditures, the region that assigns a bigger share of budget revenues to local governments will have a smaller predicted budget surplus or a large deficit than the more centralized one).

However, regions that channel a bigger portion of funds to local governments through interbudgetary transfers tend to have a more favorable consolidated budget balance. The coefficient in front of the relative size of regional transfers to local governments total expenditures is positive (0.22) and highly statistically significant. Combination of these two coefficients may be interpreted in a way that decentralization overall weakens fiscal control in regional systems but all other factors being equal, a

higher role of transfers mitigates this impact of decentralization. Regional transfers tend to be a more efficient instrument of budget control within decentralized budget systems compared to tax revenue sharing.

Finally, the relative size of regional budget balance is positively related with the rate of inflation and negatively with the share of rural population in regions. The respective OLS coefficients are (0.04) and (-0.17) and are both statistically significant at the 95% level of confidence.

Next, we check the robustness of the OLS coefficients discussed above by evaluating their dependence on the particular set of cross-sectional units used in the panel-data analysis. Applying the same techniques used in the construction of Figures 1 and 2, we are able to show that the OLS estimates of the coefficients of the rate of inflation, the share of local governments in consolidated regional budget revenues and the relative size of regional transfers to local governments total expenditures remain statistically significant, regardless of which sample of 84 regions is used in their estimation. This is not the case however for the coefficient of the share of rural population in 1994. In all sub-samples the above coefficient is negative, but three of the sub-samples render it statistically insignificant at the 95% level of confidence. Consequently, the full-sample estimate of the coefficient of the share of rural population in 1994 (-0.17) should be interpreted with due diligence. Figure 3 demonstrates the statistical robustness (in terms of independence from data outliers) of the OLS estimate of the coefficient of the share of local governments in consolidated regional budget revenues.

Figure 3: OLS Coefficients and 95% Confidence Intervals of Local Governments Share in Consolidated Regional Budget Revenues Estimated with All Possible Sub-Samples of 84 Regions
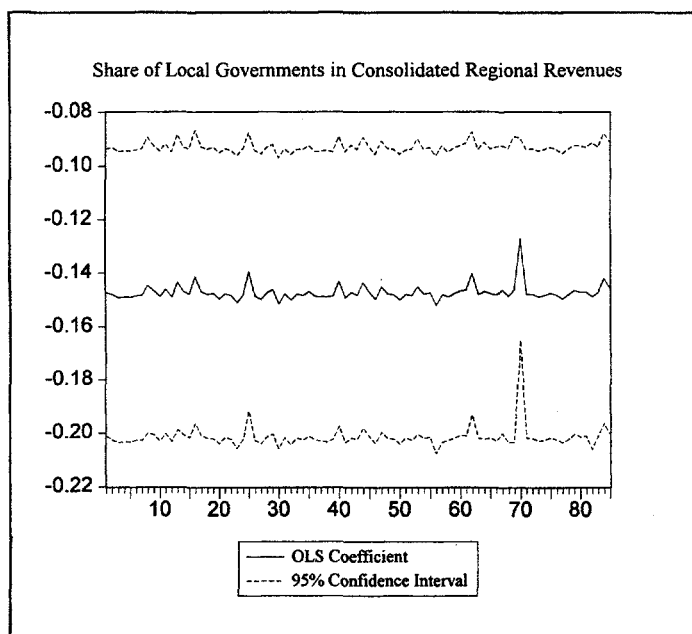
The adjusted R-squared of the regression is 0.34 and the values of the root mean squared residuals of the regression indicate that the fit of the estimated model was particularly good in 1994 and 1995, but worsened in the following year. The conducted White's test of general heteroskedasticity in regression residuals returns a statistically significant value at the 95% level of confidence and

consequently all reported t-statistics are calculated with the White heteroskedasticity-consistent standard errors of OLS coefficients.

8. Conclusions.

The analysis of the data on the structure of regional budgets for 1992-96 suggests that, while quite substantive, the relative share of local governments in the Russian consolidated budget did not expand since 1994 and they remain in control of about a quarter of total budget expenditures. However, at the subnational level, the relative size of the local budgets increased at the expense of some compression in regional budgets. 1996 was the first year, when local governments collected more budget revenues (6.4% of GDP) and spent more than regional administrations. At the same time, the relative role of local governments has been substantially increasing in all sorts of social financing including education, health, and social protection. With a growing share of federal budget spent on debt service, the role of the federal government in financing public goods and services increasingly becomes less important.

The cross-regional variation in degree of decentralization of subnational budgets is high and so far does not show any decline. Variation in revenue sharing is much more serious than variation on the expenditure side, where common and stable patterns in expenditure assignments are quite noticeable (e.g. in education and health). All major taxes remain to be shared between three government levels, and no progress has made towards a more transparent system of tax assignments.

Main factors that could explain this variation in the degree of decentralization are the level of poverty and an administrative status of the region. Regions, which have been historically less wealthy, have a more centralized budget system. This seems to represent a global phenomena: urbanization, growth in education, and decentralization are closely inter-related, and all positively related to growth.

There is a major difference in budget arrangements between ethnically Russian regions and national republics and okrugs. In both cases, the average level of expenditure decentralization is similar but the contrasts on a revenue side are striking. In the case of oblasts and krais, decentralization has been evolving through the provision of local authorities with a bigger share of subnational tax revenues, whereas in republics and autonomous okrugs (before 1996) the expansion of local outlays has been financed through larger interbudgetary transfers from regional governments. We describe two various patterns of fiscal evolution: the former could be called "true decentralization", the latter may be described as a "redistribution model".

There is also a significant correlation between decentralization and geographic location. Regions situated in close proximity tend to have similar budget arrangements. Interactions between neighbors in the area of budget settings seem to be quite intensive and probably are supported through activities of local regional associations. The size of region's territory does not influence the decentralization outcome.

The analysis provides quite robust and statistically significant estimates of the impact of decentralization on fiscal and economic performance. In particular, when we control for other social variables such as real per capita income, fiscal decentralization is positively related to the share of education spending in regional consolidated budgets. Regions with more decentralized finances tend to have a lower economic decline. These results seems to be fully consistent with conventional predictions of the decentralization theory that underline potential positive growth impact of decentralization.

At the same time, negative correlation between decentralization and regional budget balance suggests that overall budget control is weaker in more decentralized regions. Instability and non-

transparency of inter-governmental fiscal relations at the regional level in Russia does not provide individual governments with sufficient incentives for responsible fiscal policy. Under existing fiscal arrangements, there is a risk that further decentralization could be accompanied by additional growth in public deficit and debt.

Given current positive impact of decentralization in Russia on growth and expenditure structure, the federal government should be more decisive in protecting local self-governance and budget autonomy. It should develop and enforce some universal models of interactions between regional and municipal governments that - within the limits of the Constitution - would provide for more stability and predictability in formation of local budgets and expand minimum requirements on local shares in main taxes. To address potential negative fiscal impacts of decentralization, the federal government has to impose stricter limits on the size of subnational governments' current budget deficit as well as on the overall stock of their debt.

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APPENDIX 1: Budget Revenues by Level of Government

/ mln. current Rubles /

Budget Revenues / Year	1992	1993	1994	1995	1996
Total Revenues	7087890	62956115	225736973	513808943	716729480
- federal	3865500	24883100	88132100	232117348	320307776
- regional	1581210	19257679	73163015	143457475	192489685
- local	1641180	18815336	64441858	138234120	203932019
Total Revenues Net of Interbudgetary Transfers	6341454	N/A	183673998	440654824	597950853
- federal	3816100	24853300	86660854	230852255	319915976
- regional	1333971	16592346	50264032	112282721	137326207
- local	1191383	N/A	46749112	97519848	140708670
Transfers from Other Levels of Government	746436	N/A	42062975	73154119	118778627
- federal	49400	29800	1471246	1265093	391800
- regional	247239	2665333	22898983	31174754	55163478
- local	449797	N/A	17692746	40714272	63223349
Total Tax Revenues	5631258	43097151	163986662	362316500	510714154
- federal	3395300	19656800	79187126	175345255	254419807
- regional	1095213	12211898	43235455	94919773	120908773
- local	1140745	11228453	41564081	92051472	135385574
Profit Tax	1564355	16822332	49007033	116646509	100690719
- federal	645900	5471600	17177304	41504403	36855317
- regional	471115	6684070	19050582	45527378	38681807
- local	447340	4666662	12779147	29614728	25153595
VAT	1999443	11259243	41680491	95226882	164055392
- federal	1500700	7251000	28025154	71787639	122776879
- regional	302792	2532278	8780230	13363949	25727697
- local	195951	1475965	4875107	10075294	15550816
Personal Income Tax	431025	4394486	17548546	36299400	56129966
- federal	0	0	108164	3269453	5143127
- regional	98458	1019594	4532897	8786503	13789278
- local	332567	3374892	12907485	24243444	37197561
Excise Taxes	209697	1780439	7468805	24059709	62603074
- federal	100500	898600	4485639	17527221	54364461
- regional	87830	715513	2391839	5130624	6432197
- local	21368	166326	591327	1401864	1806416
Property Taxes	53890	546696	4840812	16727397	36710926
- federal	0	0	0	831425	298287
- regional	28235	248826	2021871	7069226	16185905
- local	25656	297870	2818941	8826746	20226734
Natural Resources Tax	121760	851973	2439097	12271205	22507838
- federal	0	248000	373964	2996888	5642115
- regional	77768	346024	1095885	4462422	8780583
- local	43992	257949	969248	4811895	8085140
Other Taxes	1251237	7441973	41026378	61064101	68016239
- federal	1148200	5787600	29016901	37428226	29339621
- regional	29017	665584	5363151	10558458	11311306
- local	74020	988789	6646326	13077417	27365312
Non-Tax Revenues	710196	N/A	19687336	78338324	87236699
- federal	420800	5196500	7473728	55507000	65496169
- regional	238758	4380448	7028577	17362948	16417434
- local	50638	N/A	5185031	5468376	5323096
GDP	19000000	171500000	610700000	1630100000	2200200000

Notes:

1. The 1992, 1993 and 1994 data on "Total Revenues" on federal level have been augmented with the revenues accrued in the following off-budget accounts: "Road and Ecological funds" and "Foreign Economic Activity".

2. The category "Other Taxes" on federal level is obtained as the difference between "Total Tax Revenues" and the sum of all itemized tax revenues shown in the above table.

3. The category "Other Taxes" on regional and municipal level is obtained directly from regional budget data. In 1992 and 1994 this category includes inter alia the revenues from the Land tax and Gosudarstvennaia poshlina.

4. The category "Non-Tax Revenues" is calculated as the difference between "Total Revenues" and the sum of "Total Tax Revenues" and "Interbudgetary Transfers, Received".

5. Regional and municipal data for 1996 do not include the revenues of a number of "closed cities", which budgets were not included in the official statistics for previous years.

6. The 1996 figure of Municipal Total Tax Revenues is an estimate, based on the municipal budget data

APPENDIX 2: Budget Expenditures by Level of Government

/ mln. current Rubles /

Budget Expenditures / Year	1992	1993	1994	1995	1996
Total Expenditures	**10652046**	**79136666**	**281797011**	**587851384**	**901666566**
- federal	7772300	43042900	148006980	300682605	487730641
- regional	1402813	18018044	71512993	148072692	207204439
- local	1476933	18075722	62277038	139096087	206731486
Total Expenditures Net of					
Interbudgetary Transfers	**9810435**	**N/A**	**235950128**	**508489455**	**776687684**
- federal	7455500	38638200	124530211	265838751	430654280
- regional	893412	N/A	49757657	106309492	142865748
- local	1461523	17478014	61662260	136341212	203167656
Transfers to Other Levels of					
Government	**841611**	**N/A**	**45846883**	**79361929**	**124978882**
- federal	316800	4404700	23476769	34843854	57076361
- regional	509401	N/A	21755336	41763200	64338691
- local	15410	597708	614778	2754875	3563830
National Economy	**5020573**	**23061487**	**64706923**	**136006447**	**188338823**
- federal	4056900	11202100	19646313	35819955	51775100
- regional	438676	5674635	22488737	48211021	61033324
- local	524997	6184752	22571873	51975471	75530399
Education	**679703**	**6968581**	**27528711**	**56700424**	**84097340**
- federal	229700	1356400	5487311	9023343	12231344
- regional	98249	1317678	5250503	11177017	15122035
- local	351753	4294503	16790897	36500064	56743961
Health and Sport	**468953**	**5338754**	**19820376**	**38709964**	**57494614**
- federal	52800	563000	2340921	3828008	5843945
- regional	133703	1611264	6620973	12935045	19014275
- local	282449	3164490	10858482	21946911	32636394
Social Protection	**204686**	**1265023**	**4775064**	**20850750**	**38791956**
- federal	147000	657600	2403178	3864953	12104451
- regional	41819	441003	1666283	6487823	10377977
- local	15867	166420	705603	10497974	16309528
Administration and Justice	**350326**	**3982490**	**18082220**	**39099609**	**61179795**
- federal	282000	3171300	14712791	24654896	38965289
- regional	19264	241678	1121637	N/A	11649041
- local	49062	569512	2247792	N/A	10565465
Culture and Mass Media	**115970**	**978755**	**4463105**	**9004354**	**13071548**
- federal	59400	340300	1768418	2847969	4540463
- regional	24541	295580	1289253	2769236	3825785
- local	32030	342875	1405434	3387149	4705300
Defence	**855000**	**7210000**	**28499629**	**49565077**	**76356954**
- federal	855000	7210000	28499629	49565077	76356954
- regional	0	0	0	0	0
- local	0	0	0	0	0
Loans	**957897**	**N/A**	**16629519**	**16169517**	**20113400**
- federal	876300	2909600	14062395	9524891	6087923
- regional	38333	N/A	2071447	5591244	N/A
- local	43264	N/A	495677	1053382	N/A
Other Expenditures	**1157327**	**N/A**	**51444581**	**142383313**	**237243254**
- federal	896400	11227900	35609255	126709659	222748811
- regional	98826	N/A	9248824	N/A	N/A
- local	162101	N/A	6586502	N/A	N/A
GDP	**19000000**	**171500000**	**610700000**	**1630100000**	**2200200000**

Notes:

1. The category "Administration and Justice" sums the data from "State administration" and "Law enforcement" expenditure classifications.

2. The category "Other Expenditures" is formed as the difference between "Total Expenditures" and the sum of all itemized expenditures shown in the above table.

3. The 1993 figures of the category "Administration and Justice" do not include data on law enforcement expenditures on regional and municipal level.

4. The 1993 figure of the "Health and Sport" category does not include data on sport expenditures.

5. The 1992, 1993 and 1994 data on "Total Expenditures" on federal level have been augmented with the expenditures from the following off-budget accounts: "Foreign Economic Activity" and "Road and Ecological funds".

6. Regional and municipal data for 1996 do not include the expenditures of a number of "closed cities", which budgets were not included in the official statistics for previous years.

7. "Total municipal Expenditures" is defined as the sum of total expenditures of municipalities net of transfers among municipalities.

8. Due to the missing data, the 1993 figures on interbudgetary transfers were estimated based on the revenue side data other municipalities, adjusted for measurement errors.

APPENDIX 3: Budget Balance by Level of Government

/ mln. current Rubles /

Budget Balance / Year	1992	1993	1994	1995	1996
Consolidated Budget Balance	-3566233	-16180551	-56060038	-74042441	-184937086
- federal	-3906800	-18159800	-59874880	-68565257	-167422865
- consolidated regional	340567	1979249	3814842	-5477184	-17514221
- regional	176320	1239635	1650022	-4615217	-14714754
- local	164246	739614	2164820	-861967	-2799467
GDP	19000000	171500000	610700000	1630100000	2200200000

APPENDIX 4: Budget Balance before Transfers by Level of Government

/ mln. current Rubles /

Budget Balance / Year	1992	1993	1994	1995	1996
Consolidated Budget Balance	-3566233	-16180551	-56060038	-74042441	-184937086
- federal	-3639400	-13784900	-37869357	-34986496	-110738304
- consolidated regional	73167	-2395651	-18190681	-39055945	-74198782
- regional	438482	N/A	506375	5973229	-5539541
- local	-270141	N/A	-14913148	-38821364	-62458986
GDP	19000000	171500000	610700000	1630100000	2200200000

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