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Fiscal Centralization and Decentralization in Russia and China

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Abstract

In this paper we review the fiscal evolution of China and Russia, asking how the process of creating a separate, tax-financed public sector in the two countries differed. We observe that the size of China's budget sector was consistently smaller than in Russia and that budget decentralization was consistently greater. We see both pros and cons in China's decentralization. Local governments that were allowed to keep marginal increases in local tax revenue had incentives to pursue growth-supporting policies, including support for foreign investment and export-oriented production. However, in the absence of financial markets, there were barriers to investment outside the local region, resulting in inefficient use of capital and protectionism. Fiscal deficits and rapid expansion of credit have threatened stability in both countries, but China has proved more successful than Russia in managing macroeconomic policies. Finally, we argue that Russia's status as a petro-state makes management of the public sector particularly difficult. In Russia, recentralization has been associated with expansion of state ownership of enterprises and production by territorial governments, state ministries, state banks, and the natural monopolies.

JEL Classification: H6, H7, P35

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1. Introduction: Fiscal Autonomy in Russia and China

Because of their size, strategic importance, and the magnitude of the institutional changes they have experienced during economic transition, the economic policies and performance of Russia and China provide dramatic experiments for the social scientist. A key element of each country's transition has been the attempt to construct a fiscal system providing a coherent framework for accountability of the government's use of public funds.

At the end of the 1990s, the contrast between China's rapid growth and structural change and Russia's economic decline focused attention on the difference in Chinese and Russian governmental institutions and policies. Today, as Russia enjoys the short-run benefits of exchange rate depreciation and high energy prices, the contrast between the two economies has weakened. Yet, China's rapid structural change and integration into the world market stands in contrast to Russia's continued role as an exporter of raw materials.

In both countries, the early years of transition were associated with fiscal decentralization. In each of the transition economies, fiscal decentralization was a central piece of economic policy reform, for, as reforming economies became more decentralized and market-based, the public finances became the primary instrument for supplying public goods, protecting vulnerable members of society, and maintaining growth and stability. Yet, while fiscal decentralization fostered rapid growth in China, in Russia, *de facto* fiscal decentralization had dire consequences. Russia's decentralization was an unintended consequence of state failure at the center, as the central government transferred more and more of its expenditure obligations onto regional governments that lacked access to tax revenues and administrative capacity.

In both countries, a period of strong decentralization was followed by a recentralization of tax revenues to the center, beginning in 1995 in China and in 1999 in Russia. In China, the tax reform of 1994 established clear tax sharing rules, assigning a growing share of tax revenue to the center. In Russia, too, a new tax code legislated in 1998-2002, assigned the largest sources of tax revenue, notably the value added tax and export taxes to the federal government. In each case, the motivation for re-centralization

was the improvement of institutional infrastructure and creation of a social safety net for the most vulnerable members of society. But much remains to be done in both countries.

Today, the budget structures of the two countries show many formal similarities, but the *de facto* operations of central and sub-national bureaucracies diverge. Most Western discussions of fiscal efficiency start from the assumption that there is a separate, tax-based fiscal system in place. However, neither Russia nor China has succeeded fully in establishing an effective, tax-based system for provision of local infrastructure, pensions, and a social safety net. The reform of the governmental fiscal system in each country is incomplete.

Fiscal systems in Russia and China differ in characteristics that cut across the assignment of responsibilities between the center and sub-national levels. We argue that a key difference between Russian and Chinese fiscal performance lies not only in the degree of decentralization, but, rather, in China's greater success in creating an autonomous fiscal system separate from other economic activity. Although China's delivery of health, educational, and infrastructure services at the local level depends on an array of extra-budgetary fees, the delivery of public services appears to be more transparent than in Russia.

We posit that the Russian fiscal system presents noteworthy shortcomings relative to the Chinese system. These include lack of transparency in the capture of energy revenues, lack of integration of fiscal expenditures into a unified Treasury system, and massive implicit subsidies in relationships between producers and both national and sub-national governments. Further, we argue that, at least in the rapidly-growing coastal provinces of China, the public sector in China is moving more rapidly than in Russia toward a greater orientation to growth-supporting activities. With all its shortcomings, the emerging sub-national public sector in China appears to have stronger incentives to foster the expansion of competitive foreign-assisted and non-state firms than does the Russian state. Although high energy prices currently generate a strong budget surplus in Russia, the Russian government has done little to foster diversification of its economy.

2. The Effects of Fiscal Decentralization

Decentralization of governmental fiscal responsibility has been a component of much economic reform, providing contradictory evidence of the economic consequences. The case for fiscal decentralization rests on the assumption of heterogeneity of regional preferences or the benefits of competition. When communities have heterogeneous tastes, the government closest to the citizens can deliver a bundle of services that reflects community preferences. Similarly, the Tiebout model (1956) posits that, with capital and labor mobility, local governments are motivated by competition with other governments to provide public goods efficiently. Alternatively, centralization may work better when externalities are present, or when the central government is unable to credibly commit to hard budget constraints (Rodden, Eskeland, & Litvack, 2003).

Decentralization in command economies that lack mechanisms for horizontal exchange often proves disastrous (Kornai, 1992: 406). Regional governments devolve into autarkies, capital and labor are not mobile, and the decentralized response to central targets requires destabilizing fiscal bailouts.

Qian and Roland (1996) argue that fiscal decentralization is one of several factors affecting the hardness of local government's budget constraint. Qian and Roland (1998) model fiscal decentralization as a commitment device for the central government when fiscal competition increases the opportunity costs of bailouts. Comparing Russia and China, Blanchard and Shleifer (2001) argue that political centralization in China imposed discipline on regional governments, facing local officials with dismissal in the event of short-run rent seeking.

A common feature of federations is that different levels of government share a common tax base. An implication is that tax policies established by one locality will affect taxes collected by other localities as well as by the center. Such tax externalities can lead to inefficient choices of tax rates by localities for several reasons. First, if there is mobility of producers between jurisdictions, there will be horizontal tax externalities. An increase in one province's tax rate, given the tax rates in other provinces, will lead to an outflow of the tax base to other regions. The consequence is that the marginal cost of public revenues will be perceived by the region to be higher than the true marginal cost.

This induces provinces to set tax rates on mobile resources that are too low from an efficiency point of view.

Second, when central and sub-national governments share a common tax base, there are vertical tax externalities between levels of government that are taxing the same common pool. An increase in a province's tax rate causes its tax base to fall, which in turn causes tax revenues to fall both for the regional and for the central government. The province, in choosing its tax policies, will neglect the adverse effect of its actions on federal revenues. Thus, it will consider its marginal cost of public funds to be lower than the true value, leading it to set too high a tax rate.

Further, when there are information asymmetries between regional governments and the center, additional common pool problems arise in the regional competition for federal transfers. If sub-national spending is financed in total or in part by transfers from the center, while the federal transfers are financed by a general tax on the total tax base, then regions will view federal transfers as a common pool. With information asymmetries, regions have incentives to undertake actions that will increase the in-flow of transfers and shift the tax burden to other regions. Local government may shelter local producers or tolerate an informal economy to reduce central taxes (Cai & Treisman, 2004). The center, in response, may conceal rents, for example, in the off-shore profits of Gazprom.

Looking at the political consequences of decentralization, Weingast (1995) proposes that a properly designed decentralization is one way to make government more accountable to its citizens. He uses the term "market-preserving federalism" for a fiscal decentralization that provides (1) a clearly delineated scope of governmental authority, (2) strong authority of sub-national governments in their jurisdictions, (3) centrally enforced prohibitions of barriers to trade and factor mobility, (4) hard budget constraints on revenue sharing and borrowing, (5) legal protection of the authority of sub-national government including protection from federal confiscation, and, thus, offers (6) incentives for regional governments to compete for investment and entry of new business.

Our view of the Chinese case suggests to us that, in the coastal provinces of China, local governments, which retained most of marginal tax increases, and, thus,

expected to benefit from foreign direct investment and the opening of their local economies to the world market, had incentives to pursue growth-supporting economic policies. In Russia, in contrast, the source of increased governmental revenue depended more on rising prices of energy than on increased productivity in industry. Regions derived little revenue from the rising value of their resources and strove to shelter their income from what they considered federal expropriation.

3. Initial Conditions in Russia and China

Many of the differences we see in Russian and Chinese fiscal institutions today can be attributed to differences in the initial command economies of the Soviet Union and China. On the eve of economic reform, the Soviet Union and China shared many common features of the command economy, including state ownership of industry, collectivized agriculture, the centralized coordination of economic activities by an administrative hierarchy taking its direction from a Communist Party, an absence of true market prices, and the lack of legal alternatives to administrative plans. It is these features that led Russian economists to wryly observe that the centrally-planned system could solve problems that other economies didn't even have.

The socialist fiscal system was implicit in the vertical structure of planning and prices. In the Soviet Union, virtually all investment activity was channeled through the budget. The primary nominal sources of tax revenue were enterprise profits and resource rents, turnover taxes charged on the difference between retail prices of consumer goods and their nominal enterprise cost, and profits of a foreign trade monopoly. Loans from the central bank provided the treasury with an additional, inflationary source of spending, even though administrative pricing transformed this inflation into chronic shortages.

In pre-reform China, too, savings were centralized in the government sector and investment was allocated by the government. The tax system was implicit in the terms of trade established between agriculture and industry. China maintained strict control over labor, a monopoly of agricultural procurement, and monopoly supply of industrial consumer goods. Supplies of food and non-food consumer goods were scarce and subject to strict rationing. Low agricultural procurement prices and high industrial prices allowed

the industrial sector to generate a surplus from profits and taxes equal to 25 percent of GDP (Naughton, 1996: 34).

However, in 1978, China differed from the Soviet Union in its resource endowment and economic structure. China was poor, and agriculture remained the dominant economic activity. Peasants suffered from high rates of under-employment and vulnerability to income shocks. In contrast to the Soviet Union's large, vertically-integrated state enterprises, Chinese industrial output was produced in relatively smaller state firms as well as in small collectives. Infrastructure was weak, and there was little capacity to move commodities between provinces.

Decentralization of the planning system in China was linked to financial decentralization as well. Sub-national governments and firms controlled depreciation allowances and profits of small-scale firms, which they could use for regional investment. Regional governments had instruments to influence the directions of local economic activity and incentives to use resources for growth (Wong, 1985). Thus, Chinese central planners concentrated on a limited menu of tasks and elevated regional self-sufficiency to a virtue.

Qian, Roland, and Xu (2005) and Roland (2000:56-65) capture the stylized difference of Russian and Chinese coordination in their modeling of U-form and M-form organizations. Soviet, vertically-integrated branch divisions represented U-form structures formed along functional lines, while in China, regionally-decentralized, M-form structures could coordinate activities across all industries in a single region. These decentralized arrangements reduced information costs, facilitated small-scale experimentation, and contributed to China's increased flexibility. However, in the absence of horizontal product and input markets, decentralization led to wasteful duplication and barriers to the movement of goods between provinces. Still, Qian, Roland, and Xu identify as a defining characteristic of Chinese decentralization the ability to accommodate decentralized experiments in the pursuit of reform. After the fact, decentralization that linked local tax collection to local expenditure provided incentives to pursue growth-supporting policies. Such experimentation is an important component of China's gradual transition.

4. Evolution of the Chinese Fiscal System: Decentralization and Growth

China's fiscal system has gone through three basic phases. Before 1979, the central government had a formal monopoly over both revenues and expenditures. Between 1979 and 1993, under the economic reforms championed by Deng Xiaoping and his supporters, this fiscal system changed to a fiscal contract system, but there were at least six different types of contracts between provinces and the center, and little consistency between provinces or over time. Provinces generally collected most of the revenue and then turned over a contracted portion to the center – sometimes a quota amount, sometimes a fixed share, sometime a combination of the two. During this period, total fiscal revenues declined significantly as a share of GDP, and the center's share of revenue also declined.

The decentralized, experimental nature of early economic reform is clear in Chinese establishment of Special Economic Zones – export-oriented enclaves that were allowed to detach themselves partially from the central administrative apparatus and to operate with considerable autonomy. Guangdong, which was allowed to set up its own foreign trade corporations, was a pioneer. On the eve of reform, Guangdong seemed to have few advantages. It had few natural resources, a low ratio of arable land per capita, and high rates of rural unemployment. But its coastal location and proximity to Hong Kong presented the opportunity to forge a greater-Hong Kong trade area, linking enterprises to the world market, attracting foreign investment, and employing under-utilized labor. In 1979, the province's political leaders negotiated a lump-sum transfer agreement with the center, under which they promised to transfer a fixed annual tax payment to the center, but would be allowed to retain all the additional revenues collected above that amount (Cheung, 1998, 89-137).

Fujian, too, was permitted to open its economy in 1978. In 1980, Shenzhen, Zhuhai, Shantou, and Xiamen were established as Special Economic Zones, and, in 1984, 14 additional coastal cities were designated as coastal open cities under arrangements that offered lower tax rates, higher local shares of tax revenues, and special institutional and policy environments providing substantial local autonomy (Lin, Tao, and Liu, 2006).

Knight and Shi (1999) document some fundamental relationships and patterns in the Chinese fiscal data during this period. They note a rising share of spending by

provinces (from a third in early 1980s to two-thirds by 1990), and they observe that richer provinces enjoyed more spending, as a share of GDP, and more investment per capita. Fiscal transfers became less equalizing over time, thus transferring risk away from the center to the provinces. The fiscal contract systems often faced the province with a high marginal tax rate, and thus acted as a disincentive for tax collection in the provinces.

In the late 1980s and again in the early-mid 1990s, the central government's fiscal balance was threatened by a declining revenue share, and the CPI inflation rate rose to above 24 percent in 1994. As Figure 1 illustrates, the inflation was not the result of budget deficits – since the total budget deficit never exceeded 1.2 percent of GDP during this period – but, instead, resulted from credit expansion as the state banking system was used to fund essentially state expenditures. Between 1992 and 1995, M2 grew by an average annual rate of 36 percent, mostly due to lending to state-owned enterprises (SOEs) even as their share of output and profitability declined. Each year, an increasing number of state-owned enterprises became unprofitable, often because of the burden of social services, pensions, and excess employment they were forced to provide.

Government credits from local branches of the big four national state-owned banks allowed enterprises to share the costs of structural change, but at the cost of rising debt. While China's inflation rates were low at the time compared to Russia's hyperinflation, they nonetheless threatened macroeconomic stability and the legitimacy of the Chinese Communist Party.

In 1993-94, when the “Socialist Market Economy” policy encouraged a new wave of reform, fiscal reforms were put in place to clarify fiscal revenues and responsibilities, and it included three components: a tax-sharing system, tax modernization, and a reform of tax administration that separated central and provincial tax collection. The new tax-sharing arrangements allocated certain sources of revenues to the center (e.g., customs duties, consumption tax, sales tax, and profit taxes from centrally-controlled enterprises), to the provinces and municipalities (taxes on local enterprise income, house and property taxes, profit turnover taxes) and shared according to a predetermined ratio (the value-added tax, natural resource taxes, stock market trading tax). The tax modernization effort introduced new taxes to replace the former reliance on state enterprise profits, and it had the added effect of placing enterprises with different types of ownership on a relatively

equal and predictable tax structure, while the government also attempted to curtail administrative fees and other forms of extra-budgetary revenues.

Figure 1 illustrates that these reforms quickly reduced official extra-budgetary revenues and expenditures. In the case of official budget revenues, the regional share of total revenues fell by half, forcing regions to depend on transfers from the center to finance their expenditures. Clearly these reforms benefited the center, since they now had greater control over more revenues, but the richer provinces appear to have won an important concession. According to Shah and Shen (2006), 60 percent of the transfers in 2004 resulted from revenue-sharing arrangements and tax rebates, and thus Shanghai became the largest recipient of transfers instead of just the largest net contributor. Of the rest, a majority of transfers were earmarked for special purposes, and with the exception of a few regions like Tibet, Qinghai and Ningxia, poorer provinces now received fewer transfers per capita. The reforms also fostered a gradual increase in total budgetary revenues, which helped to finance higher levels of government expenditure.

Figure 2 illustrates the fiscal effects of these reforms. While the central share of government expenditures remained relatively stable – peaking in 2000 in an effort to avoid a slowdown after the Asian Financial Crisis, the central share of government revenue more than doubled, while the center’s share of reported extra-budgetary revenues declined dramatically. As a share of total government expenditures, the consolidated government deficit rose modestly between 1997 and 2003, but the provincial deficit rose to 40 percent of their expenditures.

China’s fiscal contract reforms in the early 1980s were clearly a decentralization of fiscal authority, but what about these 1994 tax reforms? In spite of the fact that regions must now depend on large central transfers to finance their expenditures, Wong and Bird (2005) still consider China one of the most fiscally decentralized countries in the world. Since 1994, regional and local governments have accounted for approximately 60 percent of total government expenditure, versus a 34 percent average for industrialized economies (and about 38 percent for the U.S., if we include Social Security and Medicare) and a 22 percent average for less-developed countries. But Tsui and Wang (2004) point out that China nonetheless remains politically centralized, since regional and local cadres are still managed by the top through the Target Responsibility System.

Furthermore, while governments at the provincial level and below account for the lion's share of expenditures, the center still collects the vast majority of revenues and many of the transfers from the center to lower levels of government, which are necessary to cover their expenditures, are specific purpose grants (Shah & Shen, 2006).

Most of the attention in the literature has been focused on the initial decentralization. Tsui and Wang (2004) call fiscal decentralization a "handmaiden" to China's growth. Chen (2004) argues that regional and local governments have better information, and so more control over expenditures, leading to improved efficiency in government spending, and thus led to more growth. Feltenstein and Iwata (2005) use national macro data to argue that decentralization led to both faster growth and higher inflation, but they do not separate the effects of fiscal and monetary decentralization. When China recentralized its monetary authority under Zhu Rongji, inflation fell and local governments took the lead in laying off workers from loss-making state-owned enterprises (Qian and Roland, 1998).

Jin, Qian, and Weingast (2005) observe that provincial revenues and expenditures were more closely correlated in the 1980s and 1990s than in the 1970s. This correlation, they argue, shows a relative hardening of budget constraints. They argue that, in China, a hard budget constraint provided local incentives to foster non-state development, increasing tax revenues and reducing state obligations. Local benefits from economic growth also generated policies encouraging foreign direct investment.

Zhang and Zou (1998) present a contrary view of Chinese provincial data, arguing that fiscal decentralization was associated with lower economic growth. Lin and Liu (2000), on the other hand, question Zhang and Zou's econometric model. They show that if the model is extended to include the level of investment, and controlling variables measuring the impact of institutional reforms, then it appears that increased fiscal decentralization is associated with higher economic growth. A recent empirical piece by Jin and Zou (2005) finds that a greater divergence between provincial revenues and expenditures (i.e., a larger role of the center in either taxing or subsidizing the province) is associated with higher provincial growth.

What determines provincial government spending? Guillaumont Jeanneney and Hua (2004) ask why more open Chinese provinces have bigger governments, basing their

argument on Rodrik (1998). Rodrik argues that a region facing higher external risk from foreign trade and investment will have a higher demand for government services to insure against unanticipated shocks. They find that richer provinces in China have a smaller government share and provinces with greater variance of income have a larger government share, but, in addition, the partial effect of greater openness is associated with a larger government share.

Did the fiscal reforms of 1994 help China's growth? Because most of the above studies focused on the contrast between the Maoist era of central planning and the decentralized fiscal contracts of the reform era, their data sets usually ended by the mid-1990s. We focus on relatively recent experience, and examine the effect of fiscal variables on provincial-level growth rates from 1994-2004 for 31 Chinese provinces (including the four municipalities and the autonomous regions), using data collected from the *China Statistical Yearbooks* (CNBS, 1995-2005). Our growth regressions take the following form:

$$g_{it} = \ln\left(\frac{Y_{it}}{Y_{it-1}}\right) = \alpha + X_{it-1}\beta + F_{it-1}\tau + G_{t-1}\gamma + Y_{i0}\theta + \varepsilon_{it}$$

Where Y is real provincial GDP, X is a vector of provincial-level control variables usually associated with growth, F is a vector of provincial-level fiscal variables, G is a vector of national-level fiscal variables, Y_0 is the initial-year value of real provincial GDP, α , β , τ , γ , and θ are vectors of estimated parameters, and ε is the error term. All right-hand side variables are lagged to minimize the endogeneity problem of reverse causality, and to minimize division bias they are usually expressed in real per-capita terms or as a share of revenue or expenditure.

To find our X control variables, we initially regress growth on provincial investment per capita, the educational attainment rate (the share of the over-five population that has completed senior secondary school), the dependency rate, and the real per-capita amounts of foreign direct investment, exports, and imports. Surprisingly, we find that the coefficients for most of these variables are either insignificant or even negative, which is a matter we shall study more closely in later research. For our current purposes, however, we retain only exports per capita.

For our F provincial-level fiscal variables, we use real revenue per capita and its square, since Barro (1990) hypothesizes that the effect of the size of government on growth should be shaped like a inverted-U, along with real transfers from the center per capita, which we approximate as the provincial budget deficit. We include expenditures on capital construction and reported social expenditures on health, education, and social support, both as shares of total provincial expenditures because the per-capita amounts are highly correlated with revenue and transfers. Finally, we include the number of government administrative staff and workers per capita, which we found to be marginally more significant than the administration expenditure share.

Our G national-level fiscal variables include the central government's share of total government revenues, along with total government budgeted expenditures, the total government budget deficit, and total government extra-budgetary expenditures, all three expressed as a share of national GDP. Finally, we include the initial-year provincial GDP (Y_0) to check for convergence between provinces.

We estimate our growth equation using four alternative approaches, in order to check for robustness and because we expect these data all have multi-directional causality. We first estimate it using ordinary least squares (OLS) with a common α intercept. We then use a pooled fixed effect model, which not only estimates separate intercepts for each province but also adjusts for different provincial variances in the error terms. Third, we use a two-stage least squares (2SLS) approach that instruments with initial-year values of the right-hand-side variables, and finally we estimate using the Arellano-Bond Generalized Method of Moments (GMM) approach, in which we difference our equation as follows:

$$\Delta g_{it} = \alpha + \Delta X_{it-1}\beta + \Delta F_{it-1}\tau + \Delta G_{it-1}\gamma + g_{it-1}\rho + \Delta \varepsilon_{it}$$

Results are shown in Table 1. When included with fiscal variables, even exports only have statistically significant values in two out of the four estimations. Provincial revenues appear to have the expected inverted U-shape in three out of the four estimations, though these coefficients are significant in only the first and fourth. In the second estimation the coefficients still have the expected signs, but in the third they don't – even though they are insignificant – so we include only the first-order term. In all four cases, however, if we drop the squared term then the first-order coefficient becomes

negative. At the national-level, the size of government (as measured through expenditures) only has a significant effect in the GMM estimation, though this effect too is negative.

Arguably, the most important result from these four regressions is the fact that the coefficient for the central share of government revenue is consistently positive and significant, which supports the argument that recentralization of revenues contributed to faster growth in the provinces. This result should be taken with a grain of salt, however, since there is no inter-provincial variation in national-level variables, and further study is needed to confirm it.

Transfers from the center have a positive effect on provincial growth, a result which confirms those of Jin and Zou (2005), and in three of the cases the effect is statistically significant. Deficits at the national level have a significant and negative effect, suggesting a prisoner's dilemma of sorts, since one province benefits when it alone runs a deficit but does not when all run a deficit. This also supports the argument that controlling the overall deficit through creation of a harder budget constraint is one of the benefits of China's economic reform.

How the provinces allocate their expenditures does not seem to have a significant and consistent effect on growth, at least not in these regressions. Capital construction expenditures are only significant (and negative, which one would expect if SOEs hampered overall growth) in the 2SLS estimation, while social expenditures are significant in the first two estimations but of different signs. The number of staff and workers in provincial government administration is only significant (and negative) in the 2SLS case.

Finally, the national share of extra-budgetary expenditures appears to be insignificant for growth, as does the initial value of provincial GDP (though it can't be estimated in the fixed-effects and GMM cases). This latter result is consistent with observations elsewhere that the provincial income inequality gap has widened.

We next consider the determinants of each province's revenue, expenditures, and transfers in separate OLS regressions. For revenue and expenditures per capita, we express the left-hand side variable in logs, but transfers from the center can be negative so these are not transformed. We regress these three variables on the log of GDP per

capita, the ratios of FDI and trade (exports plus imports) to provincial GDP, and the ratio of national government revenues to GDP. We include the educational attainment ratio in our revenue equation, the dependency ratio in our expenditure equation, and both in the transfer equation. Finally, we include extra-budgetary revenues in the transfer equation to see if these affect the center's willingness to fund provincial expenditures.

The results are shown in Table 2. All three left-hand side variables appear to be significantly correlated with provincial GDP, though these relationships need to be explored further to determine causality. This correlation is significant, with elasticities for revenue and expenditures of approximately 0.80, and such high correlation between income and the provincial government budget suggests that China's current fiscal system creates incentives for provincial government to follow growth-enhancing policies. Transfers are also significantly correlated with income, which refutes the null hypothesis that overall transfers compensate for inequality between provinces.

Foreign direct investment appears to increase provincial revenues and decreases expenditures, thus reducing transfers from the center. International trade leads to more revenue and more expenditures, which is consistent with the hypothesis of Rodrik (1998) regarding the relationship between government size and global risk, and the net effect of trade on transfers is positive and significant. Higher national budgetary revenues appear to be positively correlated with higher provincial revenues, provincial expenditures, and transfers to the provinces, while extra-budgetary revenues do not have a significant effect on transfers. Higher educational attainment appears to increase provincial revenue, a higher dependency ratio increases provincial expenditures, and these effects on transfers are consistent and significant.

Finally, we run a third set of regressions to consider the determinants of provincial expenditures in three categories: social expenditures, capital construction, and administration. Using OLS, we regress these expenditures per capita on GDP per capita, FDI and trade as a share of provincial GDP, provincial revenues and transfers as a share of GDP, the central government's share of total national-level revenues, the dependency ratio and the educational attainment ratio.

The results in Table 3 show that all three are strongly correlated with both income and transfers from the center. Social expenditures are significantly correlated with the

provincial revenue share as well, but not with the national revenue share. Capital construction expenditures are correlated with the provincial revenue share only weakly, and government administration not at all, but both are negatively correlated with the national revenue share. The first two expenditure regressions also have positive coefficients for both the dependency and educational attainment ratios.

5. Evolution of the Russian Fiscal System: Fiscal Imbalance and Hyperinflation

On the eve of reform, the Russian economy was in crisis. In 1991, repressed inflation worsened and real GDP declined 15 percent. Rising costs and falling enterprise profits cut budget revenues, bringing the government budget deficit to 16.5 percent of GDP. Persistent price controls in the face of rising money supply created a large monetary overhang. Goods disappeared from the shops, reappearing in ubiquitous black markets. Exports fell by 40 percent and imports by 84 percent in dollar terms (Ahrend & Tompson, 2005).

On January 2, 1992, the new Russian government freed most consumer and producer prices, abolished the state foreign trade monopoly, and moved toward external liberalization, while retaining controls on energy exports. The Gaidar government announced expenditure cuts and committed itself to slow the expansion of credit by the Central Bank of Russia. There was an initial one-time jump in the price level of 245 percent in January, 1992 followed by a continuing monthly price increase of approximately 10 percent. However, CBR net credits accelerated sharply after the unpopular central bank chairman Georgy Matyukhin was replaced by Viktor Gerashchenko. Gerashchenko authorized ballooning new credits to agriculture, industry, former Soviet republics, and the federal budget, increasing M2 at 30 percent per month. Price increases followed with an approximate four-month lag. At the end of 1992, the price index stood at 2500 percent of the previous year (Granville, 1995).

Loss of fiscal balance and rising CBR credits together generated hyperinflation. The federal budget deficit peaked at -20.9 percent of GDP in 1992, declining to -10.7 percent in 1993 and -9.8 percent in 1994. During 1992, explicit budget subsidies equaled 25 percent of GDP and Central Bank credits to enterprises amounted to another 19 percent of GDP (Granville, 1995: 68). Russian commercial banks and enterprises

benefited greatly from these inflationary central bank credits since they were extended at interest rates well below the rate of inflation. Recipients of subsidized credits could exchange rubles for dollars, repaying, risk-free for a tidy profit. Subsidized bank credits financed capital flight, as firms in primary industries transferred their production offshore to their own subsidiaries at low transfer prices, paying workers and suppliers with low-interest credits. The World Bank estimates that 18.9 percent of GDP was handed out as central bank credits at highly negative real interest rates in 1992 (Shleifer & Treisman, 2000). According to official data, real GDP fell by one-third between 1992-1994, with a continuing decline during 1995 and 1996.

The process of disinflation put new stresses on the Treasury. In 1993, the Ministry of Finance launched the first short-term treasury bills (GKOs) with maturities from six weeks to twelve months. Over the next three years, these securities grew to a stock of about 159 trillion rubles (\$31 billion). The Central Bank sold these securities at primary auctions to a small number of authorized dealers who could then resell them. (Shleifer & Treisman, 2000: ch. 4). Now, instead of profiting from low interest credits from the central bank, commercial banks holding state securities could get large positive returns by lending the Russian government short-term money at rates of return far above the rate of inflation.

Central bank processes were designed to benefit specific constituencies. Primary issues were limited to about twenty-five authorized dealers, including nineteen commercial banks. The largest holder, with 44 percent of the GKOs in 1996 was the state savings bank, Sberbank, followed by another state-owned bank, Vneshtorgbank, with 22 percent of securities. By prohibiting access of foreign and domestic investors to the primary GKO auctions, the government assured that prices would remain low and rates of return high. Shleifer and Treisman (2000: 64) conclude, “Both systems— inflationary finance and high-yield government securities—generated a transfer to the commercial banks from other parts of the economy.”

As the government reduced budget subsidies and credits, many of the subsidized organization became insolvent and ran up arrears to their suppliers, workers, and to the Treasury. The largest arrears were owed to the electricity and energy sectors, and they, in turn amassed a huge debt to the budget in unpaid taxes. The implicit bargain that

emerged involved using the energy sector to subsidize agriculture, the defence sector, and households without requiring any explicit budgetary expenditure. In exchange, Gazprom and the electric power monopoly gained rights to export and enjoyed tax exemptions on foreign sales.

This implicit bargain created major governance problems. For example, Gazprom paid regional taxes to Yamalo Nenets Autonomous Okrug by giving the territory ownership of natural gas at a price of about \$2 per thousand cubic meters. The territory, in turn, transferred the gas to a commercial enterprise, Itera, owned in part by family members of former prime minister Viktor Chernomyrdin and Gazprom General Director Rem Vyakhirov. Itera then resold the gas at approximately \$60 per thousand cubic meters on the export market (Twiss & McMillan, 2002).

Although implicit subsidies allowed insolvent firms and impoverished households to survive, by 1997, Russia's public finances were in disarray. Federal budget revenue fell from 19 to 12 percent of GDP. Almost half of enterprise transactions were made by barter. The untaxed, informal economy accounted for a significant share of retail sales, and the number of small and medium-sized private firms shrank. Shleifer and Treisman (2000:90) ascribe this unravelling to "the often fierce and unregulated competition between levels of government within the evolving federation...The way authority and property rights were shared among central, regional, and local governments invited a catalogue of abuses and blunted incentives for economic development.

In August 1998, Russia experienced a drastic financial crisis as the government suffered a full scale sovereign default on ruble-denominated public debt. On the eve of the crisis, the country was almost demonetized; ruble money supply was about 15 percent of GDP—considerably smaller than the estimated dollar money stock. About half of industrial output was transacted through barter, and almost half of fiscal revenue was transacted as offsets.

There were many forces contributing to crisis. The price of oil plummeted to less than \$12 a barrel. There were political pressures opposing devaluation, since investors were borrowing short-term abroad and investing long-term at home. Importantly, fiscal imbalance played a key role. In 1998, consolidated budget expenditure (31.7 percent of GDP), exceeded consolidated budget revenue (25.6 percent), by 6 percent of GDP. If we

include the extra-budget funding of pensions, health insurance, and social assistance, then consolidated budget plus extra-budget expenditure (41 percent of GDP) exceeded corresponding revenue (32.9 percent) by 7.1 percent of GDP. Thus, government budget and extra-budget spending still took a large share of GDP.

An infusion of \$4.8 billion in foreign exchange reserves from the IMF disappeared quickly when the CBR cut reserve requirements and extended 32 billion rubles of credits to a few key banks. When short-term government borrowing to finance the budget deficit exceeded foreign exchange reserve, short-term capital left the country. Devaluation fuelled a banking crisis as well, reflecting the currency and maturity mismatch of bank portfolios and the collapse of bank assets among the politically-influential Moscow banks.

In the wake of financial crisis, the Russian government finally took steps to put its fiscal budget in order. A four-fold devaluation of the ruble was associated with a drop in real income of about 25 percent, but it re-kindled production in domestic import substituting industries. With a recovery in energy prices, the government imposed export taxes on hydrocarbons, metals, and other commodities. Tax compliance increased as the government began to enforce tax payment on Gazprom and the large petroleum exporters, requiring cash payment. Tax exemptions were cut; tax revenues increased; and the federal government itself began to reduce its own payment arrears (IMF Statement, 1999).

Tax reform was a slow process. Part I of a new Tax Code clarifying taxpayer rights and obligations passed in 1998. In 1999, the government set up a unified tax authority, and in 2000 the Duma passed four chapters of Part II of the Tax Code. These changes formalized tax-sharing between the federal, territorial, and local levels, assigning larger shares of the major taxes to the federal government. Income taxes were cut to a flat 13 percent and profits taxes from 35 percent to 24 percent.

By 2000, Russian recovery was underway. With rising energy prices, the central bank undertook large-scale purchases of foreign exchange to stem exchange rate appreciation, and federal government budget revenue doubled from 12 percent to more than 20 percent of GDP in 2005—24 percent including a tax payment from the oil company, Yukos. Inflation, which reached 84 percent in 1998, fell to 20 percent in 2000,

but remained stubbornly in double digits until 2005. Russian fiscal balance had shifted from a deficit of 6 percent to a surplus of 9 percent of GDP.

6. Russian Recentralization

A recentralization of Russian budget execution after the election of Vladimir Putin in 2000 was linked to significant administrative reforms aimed at consolidating the power of central political leaders. First, President Putin undertook administrative changes intended to curb the power of provincial leaders. In May, 2000, the federation was divided into seven federal districts, each headed by a presidential representative nominated by the president. Most of these key administrative appointments were drawn from the power ministries (the military and security forces). Next, in July, 2000, the provincial governors were removed from the Federation Council (the upper house of the parliament), with half of the members of the Federation Council to be nominated by provincial legislatures and half by the governors. Finally, in December, 2004, gubernatorial elections were abolished, with governors serving at the will of the president. Thus, in its administrative structures, the form of Russia's government moved closer to China's.

According to law, Russia was hardly a federation. Sub-national governments in Russia were always subject to federal control. A single federal Tax Authority collected tax revenues and transferred them to the Ministry of Finance, which had the authority to determine expenditure priorities. The federal government set tax rates and specified tax sharing rules in an annual federal budget law. The annual budget law specified expenditure mandates for major categories of expenditure. Regions and municipalities had authority to collect taxes on property and land and, for a time, had the right to levy a local sales tax of 5 percent. But own revenues of sub-national units never exceeded 15 percent of regional expenditure. Their shares of retained taxes were determined by the center.

Yet, even today, regions enjoy considerable informal autonomy. There is still a vast difference between the budget system in theory and in practice. These differences are spelled out in Lavrov, Litwack, and Southerland (2001). In the 1990s, a long list of unfunded federal mandates imposed by the federal government on sub-national authorities required local initiatives. Since regional governments were active participants

in the local economy—as shareholders in regional enterprises and banks, in their control of subsidized fuel and energy, and in their regulatory powers—they exercised considerable discretion. Regions sometimes levied taxes in kind—for example, taking delivery of a percentage of enterprise output informally and reselling it (Thornton, 2001). They relied on large enterprises to provide a host of social services—supplying housing, utilities, health and social services. These in-kind services allowed regional governments to capture 100 percent of the in-kind tax, while many of the higher costs could be used to reduce official tax obligations of local producers. Cai and Treisman (2004) model the perverse incentives created by Russian-style federalism, which gave local officials incentives to shelter local producers from central taxes. The dependence of local officials on in-kind services provided by large enterprises had a negative impact on long-run efficiency, creating incentives to shelter large, former state-owned units, protecting them from new, competitive entrants to the market.

Until 2002, regions also enjoyed considerable control over national extra budgetary funds, such as the pension, social welfare, employment, medical insurance, and road funds. In 2002, these funds were integrated into the consolidated treasury system, with the unified social insurance funds collected at the federal level and returned to the regions on a formula basis.

While most of the Western discussion about the Russian budgetary system focuses on the incentives of provincial leaders to evade the rules, the structure of federal direct expenditures, bypassing the treasury system, introduces another set of problems. Many line ministries and natural monopolies—the power ministries, railroads, energy monopolies, government banks, and others—receive direct funding. Each ministry, separately, controls budget spending for its organizations in all regions, including responsibility for a full range of social services, educational organizations, hospitals, and housing for its employees. Writing in 1999, Lavrov and Makushkin estimated that per capita federal direct expenditures were five times larger than the total of public services provided by formal budget funding (with almost half of those expenditures allocated to government employees in the Moscow region).

Most of the recent process of budget reform involves improvement in the capacity of the Ministry of Finance to control and implement budget policy. In the 1990s, much

government spending remained outside the authority of the Ministry of Finance. The core institution responsible for federal budget policy was the Central Budget Department of the Ministry of Finance. However, more than 100 vertically organized line ministries dealt with Branch Departments of the MoF. The Central Budget Department was supposed to coordinate all of these separate branch proposals. Similarly, in 89 regional and 22340 local offices, more than 50,000 Treasury officials attempted to coordinate budget allocations from myriad separate authorities with little information (Diamond, 2002).

As budget reforms transferred most revenue authority to the federal level, the role of the Treasury increased in an attempt to provide a framework for a separate tax-based fiscal system. Today, fiscal management is centralized in the Ministry of Finance, providing modern budgeting processes and procedures and a new treasury system with a unified accounting and financial management framework. Under the new Budget Code, five state funds allocate most of the financial assistance provided to the regions:

- The fund for financial assistance to the regions provides subsidies based on a formal comparison of a region's tax potential and normative social obligations.
- The compensation fund is determined by the number of people in a region who qualify for federal compensation, including federal employees.
- The fund for co-financing social expenditures supplements social services.
- The fund for regional development provides publicly-financed capital investment.
- The fund for regional and municipal finance reform subsidizes local budgetary reform.

A key element in the determination of budget expenditure is the Index of Budgetary Requirements. This index is used to determine an indicator of normalized per capita expenditures. Martinez and Boex (2001) write, "Conceptually, the new approach attempts to break with the Soviet-era practice of filling the gap between a region's normative expenditure needs and the region's fiscal resources, but in practice fails to do so completely."

A step-by-step perusal of the crucial Index of Budgetary Requirements shows what actually happens. Each region's "needs" are assessed by calculated numbers of needy constituents (school children, pensioners, veterans, etc.) and the cost of serving

needs of each group is determined by a regional index of budgetary cost. However, the lists of groups served by budgetary needs include “veterans of social labor” (about 32 million recipients), federal administrators, and security personnel and their families (6 million recipients), and the budget costs of providing each group’s budget needs show considerable difference from other published measures of regional costs of living. Thus, incentive problems persist, but they appear in the political determination of constituencies and in the estimated budgetary costs assigned to each constituency.

The most recent fiscal reform is the monetization of many former free and subsidized social benefits introduced as Law 122 in January, 2005. When the new arrangements were announced, tens of thousands of pensioners and public employees took to the street in mass protests. The goal of monetization is the substitution of 156 kinds of in-kind benefits and 236 categories of recipients with monetary grants. There are many potential gains in efficiency and equity from this change. With monetization, consumers will face the true costs of housing, utilities, transport, and holidays. A shift to money benefits would encourage means testing of social programs. A recent World Bank report estimates that large shares of in-kind and subsidized social benefits were allocated on the basis of public employment rather than social need. For various benefit categories, employment-based benefits accounted for 43 percent of housing and utility services, 71 percent of medical services, 66 percent of spas and holidays, and 47 percent of all social benefits (World Bank, 2005: 91).

Table 4 summarizes the official distribution of tax revenues between government levels in 2004. The federal government has the right to 100 percent of the value added tax and a majority of profit taxes, 100 percent of mineral extraction tax on gas and 95 percent of mineral extraction tax on oil, and 100 percent of the export tax revenues on oil and gas. Currently, federal government revenues, equal to about 24 percent of GDP, exceed regional and local revenues, equal to 15 percent of GDP. Of federal revenues, trade duties (primarily energy export revenues) equal 8 percent of GDP, with other natural resource taxes providing an additional 4 percent (IMF 2005).

The aggregate data on the structure of total expenditures in Table 5 shows a stable pattern of spending by category between 1998 and 2004. There is a large decline in

housing subsidies associated with a large increase in spending on the economy and on “other budget.”

What determines the flow of budget transfers from the Russian central government to its constituent regions? Since 1998, as high export taxes on energy have combined with rising world prices of oil, an increasing share of Russian budget revenue that previously was shared between the federal and sub-national levels is directed solely to the center. The growth of the vertical fiscal gap between the federal and regional levels means that federal budgetary transfers have an increasing impact on regional welfare, inequality, and competitiveness.

We look briefly at recent research on the determinants of government expenditure to ask whether Russian federal expenditures serve to reduce regional inequality, to insure against exogenous shocks, or to compensate regions for low tax capacity. Kwon and Spilimbergo (2005) model the determinants of Russian government expenditures, observing that regional expenditures tend to expand in booms and contract in recessions, providing little inter-regional redistribution or insurance against shocks.

A recent working paper by Thornton and Nagy (2006b) estimates the determinants of regional expenditures using a panel data base of Russia’s regions for 1998-2003. (Their empirical results are summarized, below, with permission of the authors). They find that the strongest determinant of government expenditures is federal administrative employment per capita. However, there is little evidence that federal expenditures serve to reduce levels of regional inequality. Changes in federal transfers are inversely related to changes in measures of “social needs” such as the dependency ratio and the rate of unemployment during the period studied.

Table 6 looks at differences in per capita government expenditures among regions. There is little evidence that government expenditures are directed toward the reduction in income inequalities. A one percent rise in per capita income is associated with a *rise* of 0.7 percent in government expenditures in the region. Government expenditures per capita are higher in regions that benefit from a positive oil shock. Government expenditures are also higher in manufacturing regions when they experience a decline in real exchange rate, which, on net, should increase the competitiveness of domestic producers.

Thornton and Nagy interpret the number of federal administrators and the regional oil share as proxies measuring a region's priority to the center. Government expenditures per capita are positively related to the number of federal administrative employees per capita and the energy share. Dummy variables for Moscow city and Moscow oblast are positive, but only the latter is significant.

Table 7 presents the estimation of the determinants of federal transfers. A primary determinant of federal transfers is the index of budgetary requirements (BRI), which indexes the costs of education, health, and social assistance, but also includes provision of federal administrative and security assistance. The coefficient on an index of regional fuel share times oil price is negative and significant. Federal transfers fall with an increase in tax arrears. The coefficient between federal transfers and unemployment is negative, but insignificant. Again, conditional on other characteristics, Moscow city and Moscow oblast receive significantly more federal transfers per capita than other regions.

Do Russian budget expenditures respond to measures of social need? In Table 8 we look at the determinants of social expenditures, using a regional cross-section for 1999. The dependent variable in the estimates is total expenditure on social needs per capita, including education, health, social policy, and housing. The independent variables are the federal Budgetary Requirements Index, a direct, weighted index of observed categories of social needs (number of school children, number of pensioners, and number of veterans) and the unemployment rate. In these estimates, social expenditures rise with an increase in the BRI. However, they are *negatively* correlated with a direct index of "number of needy" per capita and negatively correlated with the unemployment rate. Again, Moscow city receives significantly higher social expenditures than other regions.

7. Lessons from the Chinese and Russian Fiscal Reforms

China's rapid economic growth of the past two decades makes it easy to see China as a positive example of policies that worked. It does, in fact, appear that China's fiscal reforms got more right than wrong, at least in comparison with Russia. First, we list some of the obvious comparisons that emerge from our survey. Then we elaborate, briefly on the lessons from the comparison.

We posit the following lessons from a comparison of Chinese and Russian fiscal reform:

- Both countries have increased the role of market mechanisms relative to administrative mechanisms in government policy. Yet, both countries depend on large-scale firms to provide implicit social services and, in China, to maintain excess employment. But China's growth is based on a rapid increase in the share of small and medium-sized firms while Russia's small-scale sector has languished.
- Both countries have increased the role of market mechanisms relative to administrative mechanisms in government policy. Yet, both countries depend on large-scale firms to provide implicit social services and, in China, to maintain excess employment. But China's growth is based on a rapid increase in the share of small and medium-sized firms while Russia's small-scale sector has languished.
- In China, re-centralization of budget functions was associated with gradual separation of enterprise activities and the state sector. In Russia, re-centralization has been linked with expanding state ownership and control of enterprises.
- Government budget expenditures were consistently lower in all periods in China than in Russia, whether one focuses on the consolidated central and sub-national accounts or on the federal level alone.
- China's public sector was substantially more decentralized in all periods, measured on two dimensions—the decentralization of public-service administration and the effective separation of the public sector from the producing sector, as signaled by the replacement of market coordination for administrative direction.
- In China, there were many separate municipalities attracting foreign investment and growth. In Russia, foreign direct investment has been channeled primarily through Moscow.
- In China, local governments that were allowed to keep marginal increases in local tax revenue had incentives to pursue growth-supporting policies. These coastal regions enjoyed high growth, assisted by foreign investment and openness to the international market. Central government investment, in contrast, was directed to

- relatively capital-intensive state-owned enterprises. In Russia, high investment risk has fostered a short-run orientation and capital flight.
- Over a period of 25 years, China accomplished an extraordinary structural change from agriculture to industry and from public to private employment. Although Russia has free labor markets and partially-free housing markets, out-migration from poor regions has been slow and one-third of employment is in the public sector.
 - Fiscal deficits and rapid expansion of credit have threatened stability in both countries, but China has proved more successful than Russia in managing macroeconomic policies. Russia's fiscal crisis in 1998 provides a warning to China that macroeconomic mismanagement can destroy growth.
 - Provincial units in both countries are extremely heterogeneous in their resource bases and incomes and transition has increased income disparities in both countries. In Russia, the budget directed to pensions and health insurance is about 7.5 percent of GDP—larger than in China. However, central transfers in both countries are positively related to income levels and changes.

Fiscal Policies in China

In the initial fiscal decentralization of the early 1980s, provinces were given more control over revenues and expenditures, but they also faced unfunded mandates to prop up unprofitable state firms and maintain their social services. The center allowed regions to retain a growing share of revenues. In addition, provinces funded services with increases in extra-budgetary fees and political credits from state-owned banks. While credit expansion fueled inflation, those provinces that retained marginal tax revenues had incentives to encourage economic growth.

The 1994 fiscal reforms recentralized many revenues while expenditures remained decentralized. The resulting system of central transfers to the provinces appears to have resulted in harder budget constraints for the provinces. The strong correlation between provincial incomes and provincial budgets played a strong role in encouraging growth-enhancing policies by provincial governments. Meanwhile, the commercialization of state-owned banks gradually led to a reduction in policy loans to

provincial governments. As China's overall government, including both national and sub-national units, increased its share of GDP from about 12 percent to 20 percent of GDP and the center increased its share of total government revenue to 30 percent, China maintained a macroeconomic environment of low inflation despite the pressures of rapidly accumulating foreign exchange reserves from its large balance of payments surplus.

The decentralization of China's public sector policies afforded notable advantages but also heavy costs. Administrative decentralization was appropriate to the heterogeneity of China's regions, allowing individual regions to undertake local initiatives. Decentralization also fostered the separation of the government and the enterprise by encouraging the substitution of markets and competition for administrative coordination. True, the central government continued to impose constraints on market forces—for example, in the failure to formalize property rights to agricultural land, in the direction of investment to state-owned firms, in regulatory barriers to foreign firms. In the absence of financial markets, there are still barriers to the movement of capital to more productive activities outside of a narrow locality. However, all constituencies appear to benefit from market-supporting change.

On the other hand, decentralization imposes costs as well. Wong and Bird (2005) consider China's present fiscal system to be "unsatisfactory" for a number of reasons. Poorly designed VAT and enterprise income taxes create disincentives for efficient behavior; high taxes on banking hinder financial sector development; and weak tax administration generates corruption. Government funds are often spent inefficiently, the governmental administrative burden remains high, the budgeting process is often completed late, and auditing is weak.

Wong and Bird argue that the decline in officially reported extra-budgetary revenues and expenditures is largely illusory, as extra-budget expenditures go unreported. There are many hidden fees, which are a particular burden in poor rural areas. While official sources claim that extra-budgetary funds have fallen to 15 percent of GDP, Wong and Bird estimate their continuing share at 19 to 27 percent of GDP.

Our regressions also support the conclusion that China's fiscal reform had led to increased fiscal disparities between provinces. Because many public goods are provided

by local governments, basic needs in health care and education are not being met in many parts of China. The lack of public health funding is particularly costly for the rural poor and the migrant workers seeking jobs in growing cities.

Fiscal Policies in Russia

Russia's initial years of transition are a testimony to the devastating consequences of macroeconomic mismanagement. Initially, total budget expenditure remained at approximately 40 percent of GDP, generating a budget deficit equal to almost 10 percent of GDP. Ballooning central bank credits to industrial exporters, agriculture, former Soviet republics, and the federal treasury generated hyperinflation of 2500 percent. The subsequent process of disinflation was equally difficult. Firms accumulated tax arrears, paying their local taxes in-kind, if at all. Government administrations and enterprises ran up payment and wage arrears, and the cost of financing short-term borrowing skyrocketed. In August, 1998, the Russian government defaulted on its ruble debt and devaluation fueled a banking crisis as well. After a four-fold devaluation of the currency that cut per capita income to 75 percent of its previous level, the Russian government finally got its fiscal house in order.

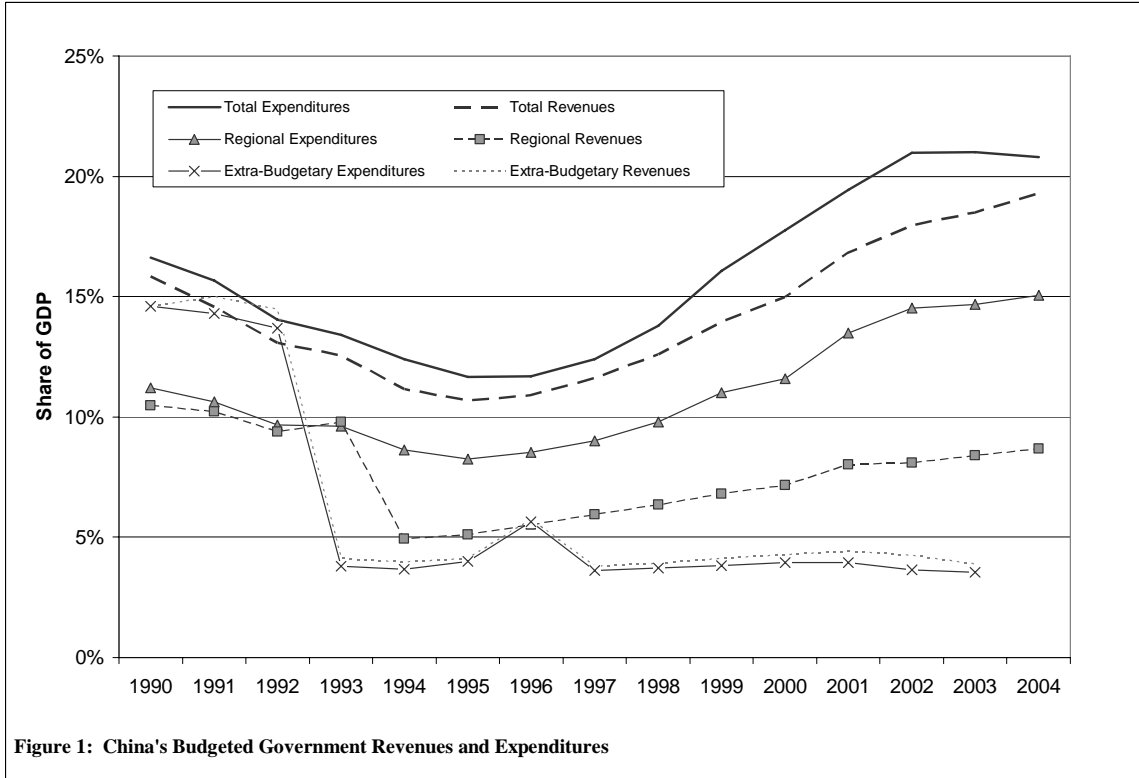
As in China, the government of the Russian Federation transferred most expenditure obligations for health, education, pensions, and utilities to the territorial and municipal levels of government. However, the territories lacked any formal commitment linking their tax retention to their expenditure mandates. Decentralization in Russia was a cat-and-mouse game in which territorial administrations colluded with local enterprises to shelter their income in exchange for in-kind social services covering some portion of the unfunded mandates imposed on local governments. Since legal tax rates added up to more than 100 percent of enterprise value added, new entrants to the market could be expropriated at any time, while local governments had incentives to shelter existing large firms from competitive pressures.

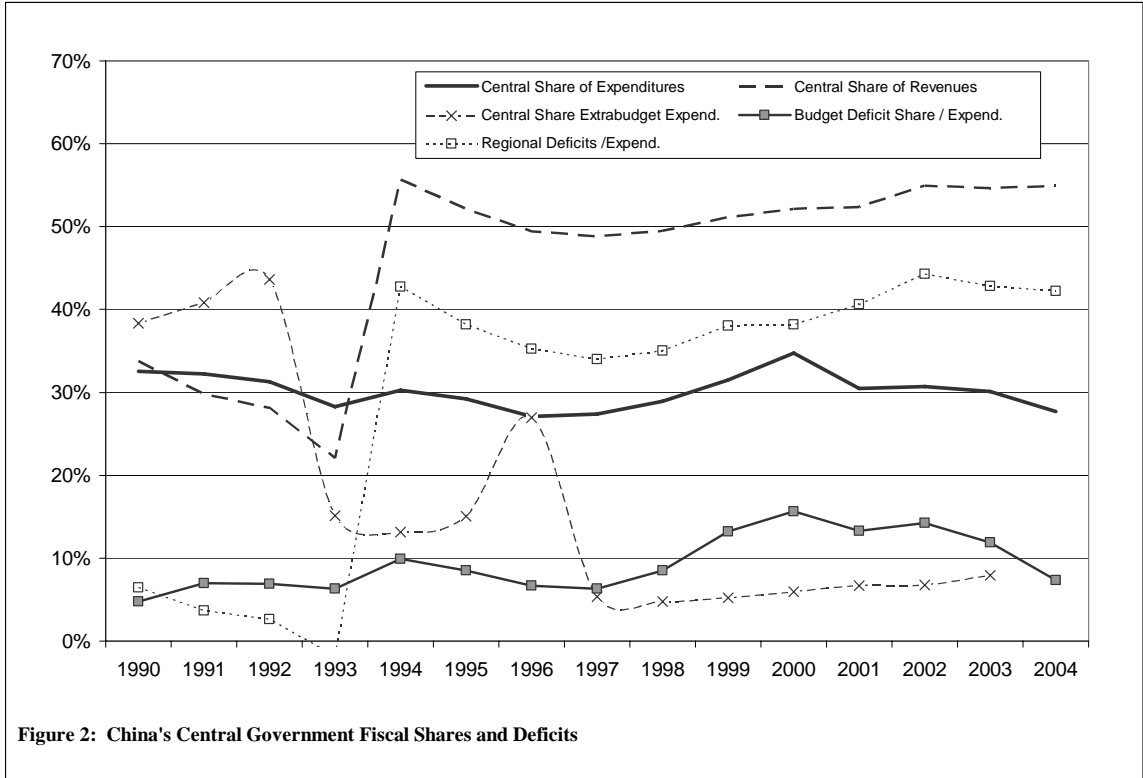
As in China, the Russian bureaucratic system created opportunities for asset stripping of public assets to private entrepreneurs, but in a risky and violent environment, decision-makers with control rights to wealth in Russia had incentives to move their portfolio offshore instead of undertaking profitable production at home.

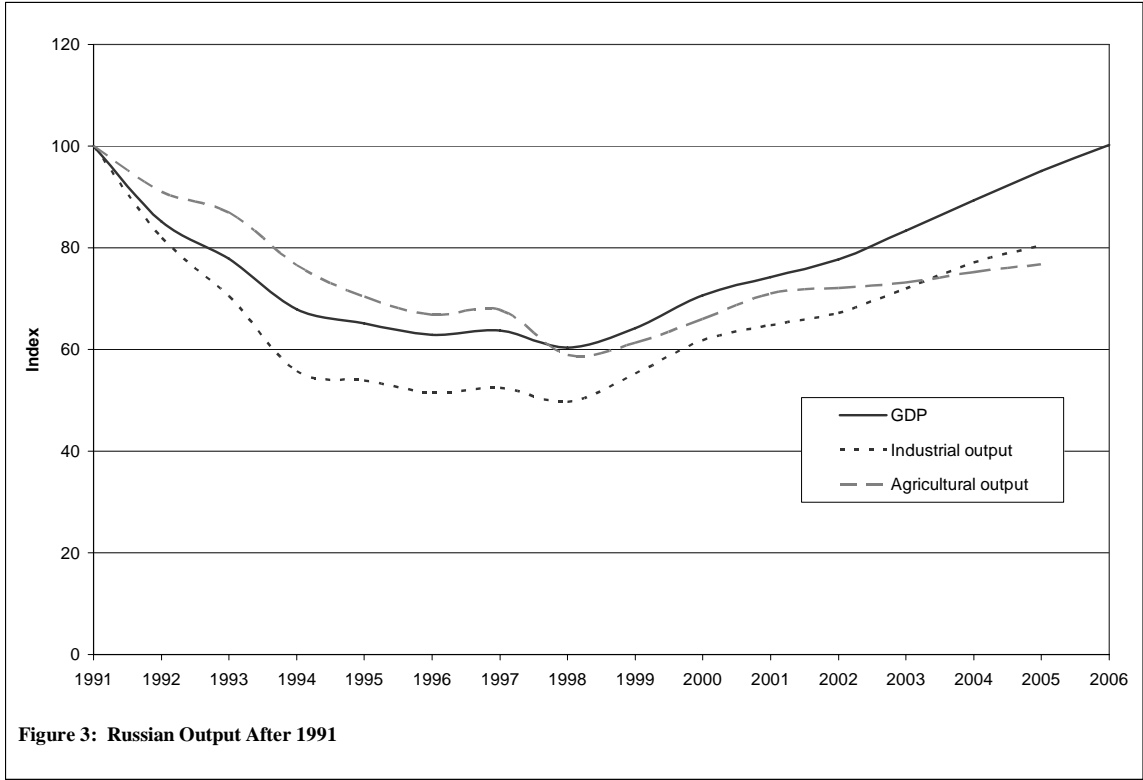
Politically, Russia's current centralization has been associated with the approval of a new budget code and the introduction of measures, such as the monetization of a range of in-kind subsidies that could provide a framework for a strong, accountable public sector. Moreover, a substantial revenue surplus funded by export taxes and extraction fees on energy is supporting a balanced budget, repayment of government debt, and accumulation of a stabilization fund. However, an estimation of the determinants of social expenditure presented here indicates that changes in regional social expenditures move inversely with the number of "needy" and with the unemployment rate in a region. Central transfers to the regions are positively correlated with differences in per capita income, providing no evidence of consumption smoothing.

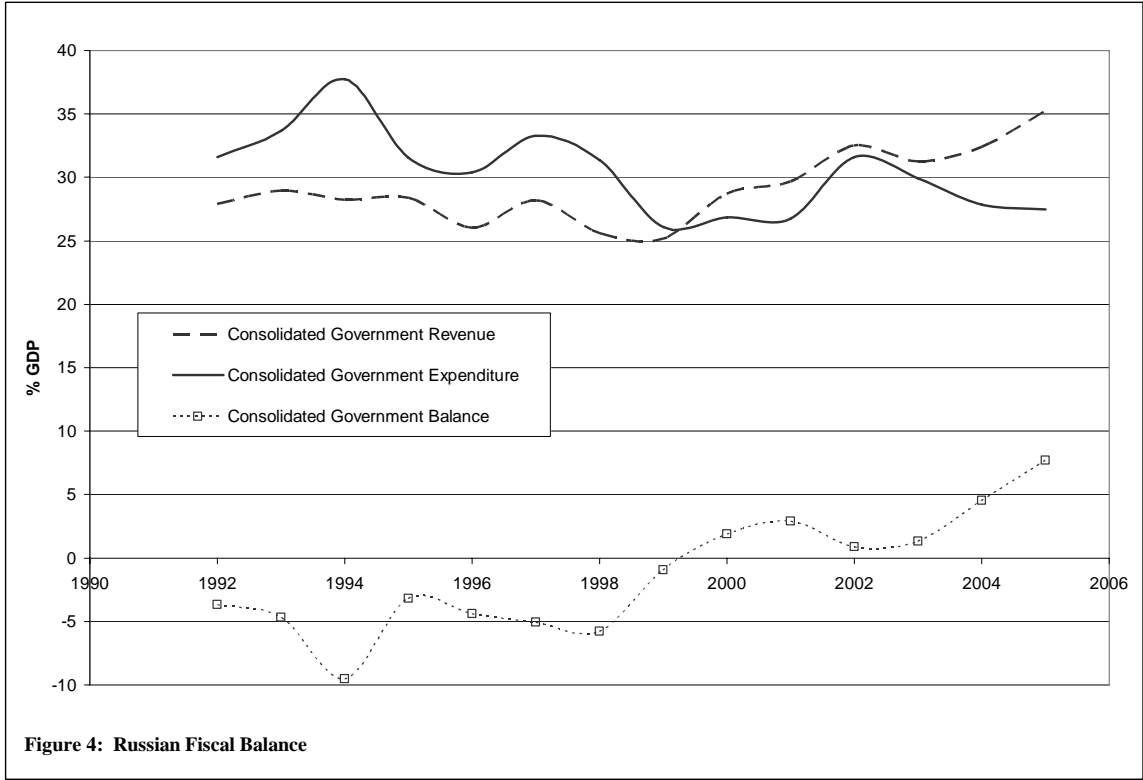
However carefully defined are the formal rules for distribution of social assistance funds, in practice, it appears to be the ad hoc negotiated agreements between the center and regions that account for the largest transfers. Writing in the *Moscow Times* (July, 2005), Alexei Makrushin and Ksenia Yudayeva say, "How did this happen in the era of the Putin power vertical? As strange as it may seem, the biggest threat to fiscal federalism today is coming from the federal government itself. First, the power vertical has in effect eliminated all checks and balances, which makes it relatively easy to change the way financial assistance is divvied up. Second, by appointing governors, the Kremlin is becoming more and more partial in the way it creates budget policy."

In Russia's case, then, neither decentralized nor centralized fiscal policies have succeeded in creating the necessary incentives for increased productivity and structural change. In Russia, recentralization has been associated with expansion of state ownership of enterprises and production by territorial governments, state ministries, state banks, and the natural monopolies. In a resource-owning country in which ownership of the state, itself, is the main asset, the process of creating an accountable public sector is particularly difficult.









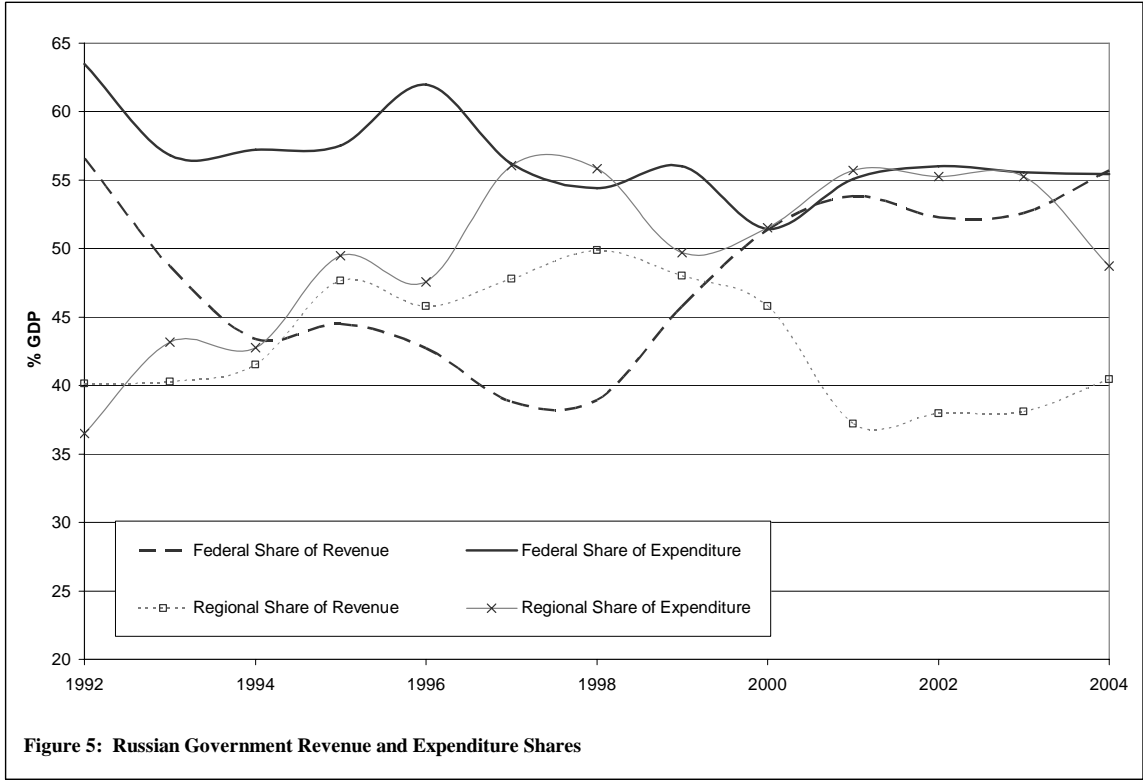


Table 1: Provincial Chinese Growth Regressions

Provincial growth rate regressed on lagged values:	OLS	Pooled Fixed Effects	2SLS	GMM
Exports per capita	0.0055 (0.0073)	-0.0033 (0.0071)	0.0351 (0.0126)***	0.0316 (0.0116)***
Provincial revenue per capita	0.1844 (0.0905)**	0.0511 (0.0672)	-0.0025 (0.0612)	0.4589 (0.1260)***
Revenue squared	-0.4240 (0.1506)***	-0.1214 (0.1033)		-0.6129 (0.2143)***
Provincial transfers per capita	0.1101 (0.0386)***	0.0633 (0.0393)	0.2447 (0.0896)**	0.1084 (0.0629)*
Capital expenditure share	0.0024 (0.0316)	0.0216 (0.0334)	-0.1699 (0.0844)**	0.0296 (0.0358)
Social expenditure share	0.0773 (0.0305)**	-0.0838 (0.0310)**	0.0753 (0.0594)	0.0085 (0.0321)
Administrative staff per capita	-1.1375 (0.3909)**	-1.4576 (0.9394)	-1.2473 (0.6104)**	1.6590 (1.8250)
Central government share of national revenues	0.5215 (0.0569)***	0.5403 (0.0370)***	0.5794 (0.0936)**	0.2558 (0.0853)***
National expenditures share of GDP	-0.0266 (0.0667)	-0.0575 (0.0502)	0.0107 (0.1490)	-0.8835 (0.2424)***
National deficit share of GDP	-1.4513 (0.2351)***	-1.6564 (0.1488)***	-1.4352 (0.6538)**	-0.5145 (0.2868)*
National extra-budgetary expenditures share of GDP	0.1365 (0.2042)	0.0706 (0.1244)	-0.6930 (0.4561)	0.0434 (0.0886)
1994 Provincial GDP	0.0055 (0.0087)		0.0115 (0.0213)	
Lagged growth rate				-0.5024 (0.0378)***
Constant	-0.1693 (0.0321)***		-0.1520 (0.0433)***	0.0550 (0.0046)***
R ²	0.40	0.73	0.19	0.48
Log Likelihood	889.4	1007.0		922.7

Note: standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)

Table 2: Provincial Revenue, Expenditures, and Transfers

Regressed with OLS on lagged values:	Ln(Revenue per capita)	Ln(Expenditures per capita)	Transfers per capita
Ln (Provincial GDP per capita)	0.8005 (0.0463)***	0.8004 (0.0806)***	0.0312 (0.0099)***
Provincial FDI ratio	1.3479 (0.4604)**	-4.4016 (0.8016)***	-0.4302 (0.0887)***
Provincial trade ratio	0.3070 (0.0526)***	0.5037 (0.0853)***	0.0246 (0.0111)**
National revenues as share of GDP	4.1239 (0.6159)***	8.6966 (0.9859)***	0.7666 (0.1125)***
National extra-budgetary revenues as share of GDP			0.1629 (0.5209)
Dependency Ratio		0.0147 (0.0044)***	0.0009 (0.0006)*
Secondary Education Attainment Ratio	2.6235 (0.4445)**		-0.2748 (0.1065)**
Constant	-3.7300 (0.1301)**	-3.9535 (0.2290)***	-0.0929 (0.0467)***
R ²	0.90	0.69	0.27
Log Likelihood	-8.1	-170.3	553.4

Note: standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)

Table 3: Selected Provincial Expenditures

Regressed with OLS on lagged variables:	Social Expenditures Per Capita	Capital Construction Per Capita	Government Administration Per Capita
Provincial GDP per capita	0.0289 (0.0011)***	0.0351 (0.0024)***	0.0057 (0.0010)***
Provincial FDI ratio	-0.0536 (0.0107)***	0.0241 (0.0230)	-0.0037 (0.0095)
Provincial trade ratio	0.0052 (0.0013)***	-0.0086 (0.0028)***	0.0038 (0.0012)***
Provincial revenues as share of GDP	0.1068 (0.0141)***	0.0557 (0.0303)*	0.0028 (0.0125)
Provincial transfers as share of GDP	0.0799 (0.0034)***	0.1672 (0.0073)***	0.0796 (0.0030)***
Central gov't share of national revenues	0.0019 (0.0043)	-0.0236 (0.0092)***	-0.0085 (0.0038)**
Dependency Ratio	0.0002 (0.0001)**	0.0004 (0.0001)***	0.0000 (0.0001)
Secondary Education Attainment Ratio	0.0725 (0.0127)**	0.0555 (0.0273)**	0.0034 (0.0112)
Constant	-0.0290 (0.0046)**	-0.0375 (0.0100)***	0.0060 (0.0041)
R ²	0.92	0.77	0.75
Log Likelihood	1291.46	1030.74	1333.55

Note: standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)

Table 4: Distribution of Russian Tax Revenues, 2004

	Federal	Sub-national	Municipal and Lower Levels
I. Federal taxes and fees			
Tax on profits at rates set for RF	100		
Tax on profits at rates set for Subject		100	
Income tax on individuals		70	30
Value added tax	100		
Alcohol excise	100		
Excises on alcohol products		100	
Excises on beer		100	
Excises on tobacco products	100		
Excises on gasoline, diesel fuel	40	60	
Excises on cars and motorcycles	100		
Import duties	100		
Hydrocarbon extraction tax	100		
Mineral extraction tax oil	95	5	
Mineral extraction tax gas	100	0	
Mineral extraction tax other	40	60	
Mineral extraction tax continental shelf	100		
Water tax	100		
Single social tax	100		
Government export duties	100		
II. Regional taxes*			
Transport tax		100	
Tax on property of organizations		100	
II Local Taxes			
Land Tax			100
Single Agricultural Tax			100
III Other Taxes			
Single tax		90	
Imputed single small-scale tax			100
Production Sharing Agreements, prior to 1995	20	80	
Natural Gas Extraction under PSA	95	5	
Mineral Extraction (Royalties) Continental Shelf	100		

Source: Institute of Economies in Transition, p 97, Table 11

Table 5: Structure of Russian Federal Expenditure

	1998	1999	2000	2001	2002	2003	2004
Social Expenditure (Ed, health, soc policy)	35.4	37.1	33.4	33.3	36.0	35.8	37.2
Expenditure on govt. admin and law	6.5	7.1	6.7	6.9	7.3	7.5	7.5
Expenditure on the economy (incl ind, ag, trans, commun)	9.5	9.0	8.9	17.3	13.3	13.3	13.3
Expenditure on housing	19.3	17.1	17.1	13.0	11.5	11.2	10.
Other	29.3	29.6	33.8	29.5	31.8	32.2	31.4
Total Expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6: Determinants of Russian Total Expenditures

	(1)	(2)
Log per capita federal administrators	0.593 (0.169)***	0.650 (0.189)***
Log share of fuel \times price of oil	0.038 (0.017)**	0.044 (0.016)***
Log share of industry \times real exchange rate	-0.049 (0.024)**	-0.045 (0.020)**
Log income per capita	0.756 (0.133)***	0.720 (0.176)***
dMoscow_city		0.169 (0.334)
dMoscow_oblast		0.351 (0.112)***
Constant	2.593 (1.090)**	2.755 (1.285)**
Observations	248	248
R ²	0.59	0.65

Note: Robust standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)
Variables are deflated using federal average CPI (1998=100).

Table 7: Determinants of Russian Federal Transfers

	(1)	(2)
Log budgetary requirement index	1.650 (0.166)***	1.658 (0.165)***
Log share of fuel \times price of oil	0.005 (0.031)	0.006 (0.031)
Log share of industry \times real exchange rate	-0.273 (0.055)***	-0.271 (0.054)***
Log per capita tax arrears	-0.290 (0.155)*	-0.288 (0.153)*
Log unemployment rate	-0.244 (0.203)	-0.163 (0.226)
dMoscow_city		0.599 (0.241)**
dMoscow_oblast		0.429 (0.099)***
Constant	10.732 (1.319)***	10.492 (1.360)***
Observations	247	247
R ²	0.56	0.56

Note: Robust standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)
Variables are deflated using federal average CPI (1998=100).

Table 8: Determinants of Russian Social Expenditures (1999)

	(1)	(2)
Log budgetary requirement index	0.791 (0.066)***	0.792 (0.064)***
Log per capita nr. of needy	-0.046 (0.022)**	-0.039 (0.022)*
Log unemployment rate	-0.347 (0.088)***	-0.281 (0.089)***
dMoscow_city		0.659 (0.257)**
dMoscow_oblast		0.030 (0.245)
Constant	8.387 (0.236)***	8.178 (0.245)***
Observations	79	79
R²	0.67	0.69

Note: Robust standard errors in parentheses, two-tailed statistical significance at 1%, (*), 5% (**), 10% (*)
Variables are deflated using federal average CPI (1998=100).

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