

Lücke, Matthias

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**The Scope for Competition
among Regional Governments
in the Russian Federation**

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Kiel Institute of World Economics
Department IV
D-24100 Kiel (Germany)

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EXECUTIVE SUMMARY

1. The purpose of this paper is to discuss whether greater regional autonomy, and the ensuing opportunities for competition among regional governments, can promote economic reform in Russia. This issue is relevant for several reasons. First, the diversity of economic conditions across Russia suggests that the optimal time path of economic transformation may vary across regions. Second, it would be difficult to define, a priori, a model to be followed. Institutions in market economies are far from uniform, having evolved over long periods of time in response to specific national conditions. Competition among regions may help to discover institutional innovations that are particularly appropriate under the given circumstances. Third, the ability of national political institutions in Russia to ensure implementation of their decisions has been seriously weakened. At the same time, regional governments have de facto taken over important responsibilities in many areas of economic policy.
2. This paper starts by reviewing the most prominent theoretical approaches to the issue of competition among jurisdictions. The fiscal federalism literature finds benefits from decentralization mainly in the optimal provision of regional public goods. At the same time, many contributions point out possible distortionary effects of inter-jurisdictional competition on the allocation of public goods unless regional governments rely exclusively on benefit taxation for their income. By contrast, the more recent "Leviathan" literature emphasizes the disciplinary role of inter-regional factor movements on bureaucrats who are likely to pursue their own agendas rather than the common good. Finally, inter-jurisdictional competition may also be viewed in the Hayekian sense as a discovery procedure that makes it possible to obtain information that would otherwise remain unknown.
3. We then review the role of regions in the economic transformation of Russia since early 1992. The continuing conflict between the government and parliament over economic policy has led to wide-spread uncertainty about which legal rules are in force in many crucial areas. The ensuing institutional anarchy has particularly affected the intergovernmental relationships. Since early 1992 the national government has also pushed down responsibility for a variety of expenditures such as consumer price subsidies, certain social security payments, airports, utilities, and housing for military personnel to oblast level governments, without providing for compensation in the form of increased transfers. Thus regional governments have acted as a buffer between the majority of the population caught in the economic relationships and the habits of thinking of the old system, and the often unpredictable developments in Moscow, and have helped to stabilize the evolution of events during a time of severe economic, social, and political upheaval. In doing so, however, they relied mainly on defensive strategies to protect regional interests, and used command methods familiar from the old system. Without clearly defined rights and obligations, they were by and large unable to actively promote economic reforms that had become stuck at the national level. This raises the question of whether, under more favourable circumstances, the regions in Russia could play a more active role in economic transformation.
4. We then undertake an empirical analysis of the determinants of inter-regional differences in preferences regarding political and economic reform. Some studies suggest that there exists a North-South divide in political preferences along the lines of resource-rich vs. industrial rustbelt regions. If this is true, the economic case for decentralization in Russia would be weakened to the extent to which economic reform is sought as a vehicle for income redistribution, rather than as a means for satisfying diverging preferences for the provision of particular public goods. Our empirical

analysis indicates that agricultural areas (i.e. regions with high per capita output of important agricultural commodities) tend to be more conservative, while areas with high per capita household income in 1991 tend to be more supportive of reform (*ceteris paribus*). A priori, agricultural areas would not be expected to suffer relatively strongly as a result of economic reform, while pre-reform household income need not be a good predictor of post-reform per capita income. Hence we conclude that, although the presence of distributional concerns cannot be discarded, the regional variations in support for economic and political reform also reflect different "genuine" political preferences.

5. The potential benefits of decentralization and inter-regional competition in Russia are thus straight-forward: Diverging regional preferences regarding economic reform indicate that decentralization of the relevant decision-making powers would improve the welfare of regional populations. Similarly, widely different local conditions suggest that the optimal time paths of economic transformation may differ across regions, and inter-jurisdictional competition may help to detect locally appropriate solutions. Finally, effective democratic control of governments is not yet well-established in Russia. Therefore any effective controls on the behaviour of government bureaucrats, such as factor migration in the context of inter-jurisdictional competition, would be highly welcome.
6. It is beyond the scope of this paper to devise a detailed blueprint for future intergovernmental relations in Russia. Our discussion of the limitations of inter-regional competition in Russia leads us to draw three main lessons, however. First, the effectiveness of inter-regional competition will depend on a constitutional framework that can only be provided by the central political institution. This should include not only basic human rights, but also economic rights such as the free movement of people, goods, and money throughout Russia. In addition, there are also areas such as the legal system and macroeconomic policy where inter-regional differences in preferences are probably small, and which may therefore be delegated to the centre to avoid duplication of effort.
7. Second, an economic case may be made for requiring all regions to share in the financial burdens resulting from Russia's communist legacy. Apart from economic considerations, there is also the possibility of political upheaval if powerful groups stand to suffer excessive income losses. In all likelihood, burden-sharing will require a substantial inter-regional redistribution of income that may well have to be organized through the centre.
8. Third, an institutional framework should be created that takes into account the existing inter-regional differences in political preferences and in the need for inter-regional cooperation. It seems advisable, conceptually, to reconstruct the federal system from bottom to top, and to allocate responsibilities to the centre only if this is in the interest of a very large majority of regions. More limited inter-regional cooperation that involves only sub-groups of regions may occur through specialized supra-regional, medium-level government institutions that are controlled by the participating regions.

1. Introduction

Even more than in other former planned economies, successful transformation of the economic system in the Russian Federation involves a sea change in political and economic institutions. A short, and far from exhaustive list includes the restructuring of government budgets at the national, regional and municipal levels, the introduction of financial discipline in enterprises and the financial system, and the ownership of the means of production. The required changes are particularly far-reaching and difficult to implement because Russia is practically without living memory of market-type relations between economic agents.

This raises the question of whether such changes can be imposed from above, i.e. by the central government (with the possible support of foreign economic advisors). At least three objections come to mind. First, the diversity of economic conditions in the country suggests that the time path of institutional change may vary across regions. Second, it would be a hazardous task to define, a priori, the model to be followed. Institutions in market economies are far from uniform, having evolved over long periods of time in response to specific national conditions. Third, while Western attention so far has focussed on the federal (central) institutions in Moscow, their ability to ensure that decisions taken at the national level are implemented locally is now severely limited. Arguably, therefore, the activities of regional (oblast-level) governments are at least of equal importance for the ultimate success, or otherwise, of economic transformation in Russia.

An alternative view of institutional change proceeds from the Hayekian notion of institutions as spontaneous social inventions. This view suggests that, with appropriate incentives, individual institutions will adjust to changes in their environments, and new institutions will be created spontaneously when old ones turn out to be unreformable. The implied process of trial and error can only be sustained in the presence of competition among existing and newly created institutions. This view is particularly attractive in relation to the present situation in Russia because it allows specific national circumstances to influence institutional change and, additionally, permits regional diversity.

The purpose of this paper is to discuss whether greater regional autonomy, and the ensuing opportunities for competition among regional governments, can promote economic reform in Russia. The theoretical background is provided by the fiscal federalism debate: First, economic transformation in Russia will lead to substantial shifts in relative income positions, and thus to demands for protection and compensation. Second, certain inevitable government expenditures have to be financed at the national level (like the conversion of the defence sector), requiring a substantial fiscal burden to be distributed among the regions. Therefore a strong constitutional framework may well be

needed to keep free rider problems in check and ensure that competition among regional governments does not lead to the progressive impoverishment of disadvantaged regions.

This paper starts by reviewing the theoretical and empirical literature on the benefits and limitations of government decentralization and inter-jurisdictional competition. (Section 2.). Then the role is described that the regions have played so far in the economic transformation of the Russian Federation (Section 3.). In the following two sections the conclusions drawn from the survey of the literature in Section 2. are applied to the current situation in the Russian Federation. First, an attempt is made to assess empirically the extent to which interregional differences in popular support for reform stem from genuine differences in political preferences, rather than from distributional concerns (Section 4.). Second, the opportunities for, as well as limits to inter-regional competition in Russia are discussed with a view to throwing some light on the appropriate constitutional framework, and guiding principles for the assignment of functions to the various tiers of government. (Section 5.). Several lessons are finally drawn from this discussion for the future re-ordering of inter-governmental relations in Russia (Section 6.).

2. Decentralization of Government and Inter-Regional Competition: Benefits and Limitations

The economic arguments in favour of decentralization derive mainly from two sources.¹ The first is the theory of fiscal federalism, for which the Musgravian distinction between the allocation, stabilization, and distribution functions of government still provides a suitable starting point. The conclusion of this literature is, briefly, that the macroeconomic stabilization function should rest with the central government. Likewise, central government has a leading role to play in the distribution function, partly because of the potential mobility of the poor. There may, however, be an efficiency argument for some local poor relief (Oates, 1991, p. 4). By contrast, preferences regarding the provision of public goods are likely to differ across regions, particularly in countries as diverse as Russia. Allocation decisions should therefore be taken by those regional units whose citizens will benefit from a particular decision (Boss, 1993).

Hence benefits from decentralization are seen to stem mainly from the optimal allocation of resources in the production of public goods when regional preferences differ. On the other hand, a large number of contributions to the fiscal federalism literature point to potentially large distortionary effects of inter-jurisdictional competition on the provision of

¹ In a brief summary such as the present one it is obviously impossible to do full justice to the very diversified literature that has sprung up particularly in recent years. The purpose of this section is to identify lessons which are reasonably robust to the precise formulation of the underlying assumptions, and which may therefore be drawn upon in the present policy-oriented discussion.

public goods.² Such findings (including whether there is over- or underprovision of public goods) are highly sensitive to the underlying assumptions, especially regarding the tax system. Nevertheless it may be concluded that unless there is pure benefit taxation, competition among jurisdictions will be distortionary more often than not in welfare analytic terms. Pure benefit taxation (such as a head tax), however, is a very restrictive and even implausible assumption if regional authorities are to have any substantial responsibilities and, therefore, financing needs (Musgrave, 1991).

The resulting bias of traditional welfare analysis against decentralization is challenged by a more recent literature that emphasizes the disciplinary role of inter-jurisdictional competition with respect to government activities. The central assumption is that government bureaucrats tend to pursue their own agenda rather than the common good. Empirical studies have shown that, under specific circumstances, budget-maximising behaviour (or, perhaps, plain inefficiency) on the part of bureaucrats may be contained through tight electoral control (Pommerehne, 1989). Frequently, however, direct democracy such as through obligatory referenda may be infeasible or ineffective, especially at levels of government above the municipality. Then the ability of mobile factors of production to emigrate from a high-tax area may exert a similar disciplinary effect. Bureaucrats would find their power to increase taxes and expenditures constrained as the exit of mobile resources leads to a shrinking tax base. In representative democracies, they might also run the risk of not being reelected by voters whose incomes are diminished by the exit of mobile resources (Sinn, 1990).

A related point has been made in the Hayekian tradition by Vihanto (1992). He argues that competition among regional governments may be viewed as a discovery procedure that is likely to unearth information that would otherwise not be available. Hence the possible distortionary effects of competition among jurisdictions (which are known, in principle at least, or may be estimated) have to be weighed against the (a priori unknown) benefits from making discoveries that would otherwise not be made.

The empirical evidence on the Leviathan hypothesis, i.e. the effectiveness of inter-jurisdictional competition in containing the size of government expenditures, is mixed. The studies reviewed in Pommerehne (1989) point to a clearly discernible relationship between the institutional arrangements governing decision-making on taxes and expenditures on the one hand, and the size of government and the cost of specific government services on the other. The contrast here is between direct and representative democracy, however, rather than between decentralized and centralized government. Only if decentralized government implies more stringent control over bureaucrats by the

² Recent contributions include Oates and Schwab (1988), Taylor (1992), and several papers reviewed by Wildasin and Wilson (1991).

electorate may Pommerehne's findings be interpreted as supporting the Leviathan hypothesis. Similarly, Oates (1991) concludes a survey of empirical studies by suggesting that the degree of centralization has only a weak impact, at best, on the size of government. Measures other than decentralization should be sought if one's objective is to contain the size of government. Jansen (1991) undertakes an extensive econometric analysis of the determinants of local government spending in the U.S. and finds that, after accounting for a variety of conceptual and statistical problems, the evidence in favour of the Leviathan hypothesis is rather weak.

This brief survey is sufficient to demonstrate that the costs and benefits of decentralization depend on the circumstances of each country. Judging the desirability, or otherwise, of inter-regional competition therefore presupposes empirical study. Because of the great importance of distributional issues, the conclusions may also depend crucially on value judgements.

3. The Position of Regions in the Economic Transformation of Russia

The transformation of former planned economies requires policy measures in the areas of macroeconomic stabilization, economic restructuring and institutional change (Siebert, 1991). The optimal timing and sequencing of reforms in these three areas has been extensively discussed under the heading of gradualism vs. shock therapy. By now a majority view appears to have emerged that, on the one hand, the interdependence of the issues requires the simultaneous adoption of policy measures in all three areas. On the other hand, the weakness of existing institutions and the lack of administrative capacity especially in the former Soviet Union make it imperative to concentrate on a limited number of reform projects at any given time. The upshot of these arguments is the "minimum bang" strategy (Williamson 1992). It implies that right from the start of reform, a "critical" mass of changes should be introduced that is at the same time large enough to be consistent and credible, and still sufficiently small to be feasible in the face of limited administrative capacity (Lücke 1993a).

The policy of the Russian political leadership since the beginning of 1992 has differed substantially from this prescription.³ At the national level, attempts at macroeconomic stabilization have been thwarted by the failure of government and parliament to agree on a strategy for consolidating the federal budget. Structural adjustments have been hampered by the unwillingness of the political leadership to allow domestic relative prices to adjust fully to the world market relationships. Energy prices in particular are still controlled and remain far below the world market level, in spite of the January 1992

³ Brief descriptions of developments in Russia since the dissolution of the Soviet Union may be found in DIW et al., various issues.

"general" price liberalization and the nominal liberalization of coal and oil prices in the first half of 1993.

In the area of institutional reform some progress has been made with privatization in services and industry. Nominal changes in ownership alone, however, will not transform socialist enterprises into capitalist firms. It is of crucial importance to eliminate, simultaneously, the lack of financial discipline, sometimes termed the "soft budget constraint", which characterized enterprise behaviour under the old system (Kornai, 1993).⁴ The required changes in the financial and legal systems, however, have not been introduced. In sum, while the traditional system of intermediation is clearly gone for good, attempts at economic reform have become bogged down due to the inability of the government and parliament to agree on, and implement a consistent programme for market-oriented reform.

The continuing conflict between the government and parliament over economic policy has led to wide-spread uncertainty about which legal rules are in force in many crucial areas. The relationship between the central and regional (oblast-level) governments has been a particularly prominent victim of the ensuing institutional anarchy. During Soviet times, the regions within the Russian Federation were *de facto* little more than administrative units, independent of their legal status as autonomous republics, krais, or oblasts. Throughout the former Soviet Union, a complicated system of direct and indirect inter-regional transfers was used by the "centre" to channel savings into centrally directed investment, and to ensure that regional standards of living did not diverge excessively (Orlowski, 1992; 1993). Details of the transfer system remained secret (and are still difficult to ascertain today), and there was not even an open debate permitted about the system in general terms.

The dissolution of the Soviet Union has entailed the disintegration of the transfer system among its former constituent republics. Direct (budgetary) transfers were terminated immediately. Now the gradual adjustment of relative prices in inter-state trade to world market relationships is doing the same to indirect transfers, which occurred mainly through underpriced energy exports from Russia.

Within Russia, the traditional transfer system through the central government has been undermined by several separate developments. For a number of years now, increased freedom of debate has enabled the populations of resource-rich areas particularly in Siberia to demand (and go on strike for) restrictions on the implicit outflow of funds from their areas, given their own miserable living conditions. Recently many regions have

⁴ The traditional system of interactions among economic agents is often referred to as central planning. Naishul (1993) has pointed out that during the last two decades at least, the term "bureaucratic market" is more appropriate to characterize the system of intermediation.

obtained the right to an enlarged share of the revenue from the sale of local natural resources. This is equivalent to giving regions a greater share of the resource rent.⁵

Since early 1992, the national government has been pushing down responsibility for several types of expenditure to oblast level governments without providing compensation in the form of increased transfers. Such expenditures included not only consumer price subsidies for some basic foodstuffs and cash payments to certain vulnerable groups, but also capital investment projects of national importance such as airports, utilities, and housing for military personnel (Wallich, 1992, p. 42). Local governments (which are in turn funded largely by oblast-level budgets) have also had to take over many social services previously provided by enterprises.

Saddled with new tasks but without the proper means to fulfil them, oblast-level governments have increasingly defaulted on the transfer of locally collected taxes to the central government. At present, these regions have only limited control over their tax revenue. They have recently been allowed (within certain limits) to set the rate of the regional portion of the corporate profit tax, which is of dubious value when enterprises are frequently lossmaking or otherwise default on payments. They also receive fixed shares of the revenue from the personal income tax, some excises, resource taxes, and other, less important taxes over whose bases or rates they have no control. The federal government continues to hold exclusive control, however, over several important taxes such as the value added and export taxes (Wallich, 1992, p. 31; DIW et al., 1994, pp. 18ff.).

The relatively small size of many oblast-level units has entailed a need for cooperation among regions, both in terms of coordinating policies (such as on intra-regional trade) and jointly representing regional interests vis-à-vis the central government. Regional governments responded to this need quickly by setting up regional associations almost throughout the territory of the Russian Federation (Radvanyi, 1992; Jarygina, Martschenko, 1993, pp. 217ff.). While the scope of the activities and the political clout of these regional associations differ considerably, their spontaneous formation suggests that regional governments are both aware of and willing to realize the benefits of cooperation.⁶

This brief review of the role of regions in the economic development of Russia since early 1992 supports the view articulated by Schlögel (1994) that during a time of severe

⁵ In a related development, many regions enforced restrictions on extra-regional exports by local enterprises when the inter-regional payments system broke down in early 1992 and both foodstuffs and critical industrial inputs could often be obtained only through barter deals.

⁶ The experience of the Siberian Agreement illustrates both the opportunities for effective representation of regional interests, and the pitfalls of excessive politicization (Hughes, 1993). In a sense, the "regional associations" in Russia may be compared to new types of specialized, supra-regional institutions set up in many Western countries to perform tasks not adequately dealt with either at the national or the local level. These include e.g. public transport authorities in metropolitan areas, boards of education, and bodies running specialized hospitals (cf. Oates, 1991).

economic, social, and political upheaval, regional governments have played a crucial role in stabilizing the evolution of events. They have provided a buffer between the majority of the population caught in the economic relationships and the habits of thinking of the old system, and the often unpredictable developments in Moscow. In providing stability, however, many regional governments relied on defensive strategies to protect their interests, and used command methods familiar from the old system. Without clearly defined rights and obligations, they were by and large unable to actively promote economic transformation at the regional level.⁷

This raises the question of whether, in a reformed policy environment, regions can make a more constructive contribution to economic transformation. Since many regional administrations are dominated by unreformed cadres of the old regime, fundamental reform may also be required at the level of the regional units themselves. This may involve organizational reform to shake up established relationships among individual bureaucrats, or even the redrawing of borders to form larger regions with clearer regional identities. The following two sections enquire to what extent certain preconditions for successful decentralization and inter-regional competition are satisfied, and establish some general guidelines for the constitutional framework and assignment of functions to the central vs. regional government.

4. Determinants of Popular Support for Economic and Political Reform

It has been pointed out in Section 2. that the concept of competition among jurisdictions relies on the assumption that preferences for the provision of public goods vary across jurisdictions. The results of several nation-wide elections and referenda in Russia since 1991 do indeed point to pronounced inter-regional differences in popular support for market-oriented economic and political reforms. Several studies conclude, however, that such support is mainly a function of regional economic structures that determine how voters' incomes will be affected by reforms (Yasin et al., 1994). These studies suggest that distributional concerns, rather than diverging preferences regarding public goods such as the *Wirtschaftsordnung* (economic system) per se, dominate popular attitudes towards reform. If this hypothesis is true, the case for decentralization in Russia would be weakened to the extent to which economic reform is sought as a vehicle for income redistribution, rather than as a means for satisfying diverging preferences for the provision of particular public goods. The purpose of this section is to undertake an empirical test of

⁷ One obvious exception is Nizhnii Novgorod oblast where a number of factors coincided to make the oblast an experimenting ground for the potential for local economic reform (Cline, 1994). The attempts made by the central government to formalize relationships with the regions through the Federation Treaties signed in early 1992 are reviewed by DIW et al. (1993) and Shaw (1992).

the relative importance of genuine diverging political preferences vs. distributional concerns in determining attitudes towards reform.

To this end, it is necessary, first, to measure popular support for reform in individual regions. All in all, seven indicators are employed in the analysis, and are presented in Appendix Table A1. Emphasis is placed on the results of the Spring 1993 referendum on whether people supported ('reformist') President Yeltsin personally (*YEL93*), or the ('reformist') economic and social policies of the government at the time (*ECSO93*), or whether they supported early elections to replace the ('reformist') president (*ELPA93*), or to replace the ('conservative') parliament (*ELPA93*). Information is available on actual regional percentage shares of "yes" votes on each of these question (Yasin et al., 1994, Annex 1). By contrast, the results of the December 1993 election for the parliament, and for the referendum on the new constitution have yet to be published in full (RFE/RL News Briefs, 21.-25.2.94). The only available source of information is newspaper reports with maps of Russia containing the information represented by the (dichotomous) *DEMOCR* and *CONSTID* variables. *DEMOCR* takes the value of 1 if pro-reform, or "democratic" parties (VR, RDDR, Yabloko, PRES) obtained more votes than conservative groups (LDPR, KPRF, Agrarian Party RF). *CONSTID* is set to 1 if more than half the votes cast were in favour of the new constitution. *LLYEL* represents analysts' judgements on where support for Yeltsin has been weakest from 1991 through 1993 (and is equal to 1 for all other areas).

The large number of possible indicators raises the question to what extent they are correlated with one another, i.e., whether they tend to identify similar sets of regions as supportive of, or opposed to reform. In order to analyse the degree of interdependence, correlation or contingency coefficients have been calculated for each pair of indicators, depending on whether at least one in a given pair is categorical. Generally speaking, correlation among these variables is found to be high but less than perfect. By using a variety of indicators, this empirical analysis seeks to put into perspective the difficulties that may be involved in the interpretation of results for any one variable.

These indicators of regional support for reform are employed as dependent variables in regression and probit analyses, depending on whether each dependent variable is dichotomous or not. The explanatory variables in these analyses have been chosen to reflect both possible distributional concerns, and regional characteristics that may be related to diverging preferences for public goods.

It is assumed, in line with the studies previously cited, that distributional concerns are related to the structure of regional output: Regional electorates are suspected to be more or less supportive of economic and political reform depending on how their predominant sources of income are likely to be affected. For example, regions which depend on heavy industry for a large share of their employment are suspected to be less favourably inclined

towards reform, *ceteris paribus*, because many enterprises may no longer be viable once economic reform has led to the adjustment of relative input prices to world market levels.

While it would have been desirable to use sectoral shares in regional value added, this was impossible because, due to still widespread price distortions, no meaningful data are available.⁸ The number of explanatory variables that was subsequently chosen to describe regional production structures (cf. Tables A2 through A4) would have been too large to allow meaningful regressions to be run. Therefore, factor analysis has been applied to the variables representing each of the three sectors (agriculture, raw materials, industry). In this way it has been possible to condense the information contained in each subset of data into a manageable number of explanatory variables (factors), each with an economic interpretation.

The three explanatory variables listed in Table A5 are supposed to represent political preferences not directly linked to distributional concerns.⁹ *DNAT* takes the value of 1 if a region enjoys autonomous status (republic, oblast, or okrug) because of the presence of a significant non-Russian population. Autonomous regions are generally thought to have benefited from greater independence due to political reform. *URBPOP* represents the degree of urbanization measured as the percentage of the population residing in urban-type settlements according to the traditional Soviet definition. Almost universally, urban people tend to be less conservative than rural populations. *PCAPY* is per capita 'money' (i.e., household) income of the population in 1991.

It is plausible to assume that economic restructuring, which had not started in earnest in 1991, will entail a substantial redistribution of incomes. If this is true, 1991 income per head may not be a reliable predictor of future, post-reform income. Instead, it may be thought of as proxying factors such as educational attainment, political awareness, etc.

The results of the OLS regression and probit analyses are reported in Tables 1 and 2, respectively. Each dependent variable is regressed first on the indicators of regional production structures, then on the variables representing possible determinants of 'genuine' political preferences, and finally on all explanatory variables. This procedure gives an impression of the explanatory value of each group of variables. In the case of the referendum results (Table 1), the low values of the Durbin-Watson statistic for the regressions with only a subset of explanatory variables suggest a possible specification

⁸ The data that were used are reproduced in full in Appendix Tables A2 through A4. Table A2 lists the output per head of the population of various agricultural commodities. Table A3 reports on the regional dispersion of the more important raw materials, with information on the existence of enterprises substituting for actual output figures whenever the latter are unavailable. Table A4 lists employment in some important branches of industry as well as the "non-productive" (tertiary) sector relative to total population.

⁹ In addition to the explanatory variables, Table A5 lists the total population of each region.

problem. Observations are arranged by "economic (macro) regions" as traditionally defined, each comprising between five and fifteen oblast-level regional units. Hence a low DW value indicates that residuals tend to be either positive or negative in each macro region. This specification problem is apparently alleviated when all explanatory variables are included. The latter regressions also have substantially higher coefficients of determination. Of the seven dependent variables, only *ELPA93* (support for early elections for the parliament) shows little relationship with the independent variables with a coefficient of determination of .16. The estimates with *ELPR93* as the dependent variable (where a high percentage indicates disapproval of reform) are practically a mirror image of the estimates for *YEL93* and *ECSO93*.

Without going into the fine points of particular regression results, three important determinants of support for reform may be identified. First, regions with high per capita household incomes in 1991 tended to support reforms, *ceteris paribus*. Second, regions with substantial agricultural output (particularly animal products and cereals) or large employment in the food industry tended to be more conservative. Third, regions with substantial deposits of precious metals and similar natural resources (*PREMET*: gold and diamonds; *ARGTIT*: silver and titanium) were also more conservative, *ceteris paribus*. Remarkably, the remaining independent variables do not have a clearly identifiable impact on regional support for economic reform. This applies not only to the legal status of regions (autonomous area or not), but also to their dependence on employment in the main branches of civilian and military industry, and to the local availability of mineral raw materials except precious metals. Hence our empirical findings provide no support for the hypothesis (popularized, inter alia, by the Economist, 25 December 1993) that there exists a North-South divide in political preferences in Russia along the lines of resource-rich vs. industrial rustbelt regions. If there is a divide with well-defined regional groupings on either side, it is more likely to be along the lines of more vs. less agriculture and high vs. low income.¹⁰

These finding now need to be interpreted in terms of our distinction between distributional concerns and diverging political preferences. It is doubtful whether the negative coefficient of the agricultural variables indicates distributional concerns, because it is far from obvious that agricultural areas would lose from market-oriented reforms. It seems more plausible to interpret this finding in terms of diverging political preferences as indicating that rural

¹⁰ One might think of a cluster analysis as a way of identifying groups of regions with similar characteristics. It was found in an earlier analysis of regional economic structures in the Russian Federation, however, that the results of cluster analysis were quite sensitive to the essentially arbitrary choice of the independent variables Lücke (1993). The purpose of that study was to identify regions sufficiently different from the majority of areas to possibly benefit from separatism. While the choice of independent variables or of the clustering method did not significantly affect the identification of such outliers, it did have a marked impact on the grouping of the other regions.

people are more conservative. Similarly, people in resource-rich areas may no longer feel a need for change now that their relative income situation has improved considerably.

The interpretation of the positive coefficient of per capital household income is more complicated. On the one hand, as suggested above, people in high-income areas may be more fully aware of the inevitability of reform, independent of how it is likely to affect them. On the other hand, they might view transition to a market economy as an opportunity to improve their incomes and living conditions generally. They might also believe that existing inter-regional income differences will widen if redistribution through the centre is weakened by economic and political reform. Equation (13) in Table (1) demonstrates that per capita income is positively correlated with the presence of sectors whose prospects are relatively good, such as precious metals, oil and gas, silver and titanium, and food processing. By contrast, there is a negative correlation with heavy industry where there is usually thought to be a great need for restructuring. Hence, while our findings point to the presence of substantial differences in "genuine" political preferences, the possibility cannot be discarded that *PCAPY* also reflects, to some extent, distributional concerns.¹¹

5. Guidelines for a Constitutional Framework and Assignment of Government Functions

We now draw on these empirical findings and the discussion in Section 2. to discuss the future contribution of decentralization to economic transformation in the Russian Federation. We first look at the potential benefits, and then address some of the possible pitfalls. On the basis of this discussion, we shall formulate some guiding principles for a constitutional framework for inter-regional competition, and for the assignment of functions to the central vs. regional governments.

The empirical analysis in Section 4. has emphasized the wide inter-regional diversity of preferences for political and economic reform. The inability of national political institutions to implement a coherent economic policy may also be interpreted as a reflection of irreconcilable differences between the sectoral and regional interests that each institution represents. Decentralization would give individual regions considerable leeway in choosing their own paths for structural adjustment and institutional reform, such as privatization. Hence it would permit the provision of public goods in the form of rules for adjustment to conform more closely to the wishes of regional electorates. This argument is in line with the traditional theory of fiscal federalism.

Because of the wide differences in local conditions it would probably be difficult, if not impossible, to devise optimal transformation strategies from the centre. Hence the

¹¹ Closer analysis of the regression results does not suggest that the findings are due to multicollinearity involving *PCAPY* and the remaining explanatory variables.

formulation of policies for transformation may benefit from the availability of local information that can only be obtained through the process of search and discovery initiated by inter-regional competition. This is the Hayekian argument as applied by Vihanto (1992).

A new political culture in Russia is still evolving, and it is certainly too early to state that (even representative) democracy has taken firm roots at the central as well as the regional level. Hence it would be desirable if there existed some check on the behaviour of regional governments in the absence of effective electoral control. Such a check could be provided by inter-jurisdictional competition if the cost of migration of factors of production were sufficiently low. This is a variant of the Leviathan argument.

Our review of theoretical approaches to inter-jurisdictional competition earlier in this section also suggests a number of qualifications on any overly optimistic view of the net benefits of decentralization in Russia. These qualifications center around the questions of first, how large are the distortions produced by inter-regional competition, and second, are the necessary conditions for effective inter-regional competition satisfied. After discussing each qualification, we suggest its possible implications for the future relationship between central and regional governments in Russia.

The first qualification stems from the importance of distributional issues. Much of the increase in regional power that has occurred so far has been driven by discontent with the traditional system of explicit and implicit inter-regional transfers. However, starting conditions differ substantially across regions. The legacy of the old economic and political system frequently includes not only distorted structures of regional output, but also serious ecological damage, or concentrations of military units in particular areas. On the positive side, resource-rich regions still benefit from centrally directed investment in the past.

Without substantial redistribution, conditions of life would therefore differ substantially across regions while it would be beyond the power of many regional governments to improve local conditions significantly. Such income differences would be unjustified economically as they would be the result of free-riding by particular regions on a common financial burden. Hence they would probably be unacceptable politically if there were a large number of relatively poor regions, or if powerful groups (such as the military) ended up with incomes below the subsistence level. While theoretically the financial legacy of the past could be distributed among the regions once and for all (cf. Drèze, 1993, pp. 279ff.), this is not a practical option because many of the relevant costs are not yet known. The implication of these arguments is that the Russian regions' common past will necessitate a significant degree of income redistribution for the foreseeable future.¹² Should individual

¹² The recent literature shows that redistribution does not depend on the existence of a central institution (Thomas, 1993). It may also be organized through agreement among rationally acting regional governments. The mechanism is essentially migration, coupled with the cost of overcrowding in

high-income regions wish to leave the Russian Federation, an economic case may be made for requiring them to compensate the remaining areas to the extent of their probable future contributions.

The second qualification relates to the legal status of the constituent regions of the Russian Federation. The essence of intergovernmental relations in a federation is that the allocation of responsibilities to the centre vs. the regions is decided upon by a central body, such as a constituent assembly. The upshot of this assumption is that citizens are expected to identify, in the first place, with the country as a whole, and only then with a particular region. If this is the case, inter-regional redistribution of incomes may be organized on the presumption that people are prepared to pay for the creation of similar living conditions throughout the country.

Although the present redistribution of incomes among regions in Russia proceeds along these lines, it is not clear that such a consensus still exists. The persistent conflicts between the Russian central government and a number of regions, particularly certain autonomous republics, raise the question of whether Russia should not rather be thought of as a confederation. As such, it would consist of sovereign subjects that have freely decided to delegate certain functions to the confederation, and would be free to decide to leave the confederation should they find this to be in their best interest. Some observers look upon that possibility as the beginning of the disintegration of Russia (e.g. Yasin et al., 1994). Certainly it would not facilitate the definition of rules for the sharing of the common financial burden from the past. On the other hand, it is difficult to see how the central government can hold on to responsibilities that a substantial number of regional governments claim for themselves.

Independent of whether the status of Russia is formally changed to a confederation, it may therefore be useful to allocate responsibilities to the centre only if the vast majority of regions find this in their best interest. This is in line with the subsidiarity principle. At the same time, a framework for supra-regional cooperation should be created that can be used by groups of regional units according to their individual needs. The advantage of such a scheme would be that allocating only limited responsibilities to the centre would allow even regions with limited common interests to participate in the confederation. At the same time, regions with a need for closer cooperation would be free to set up medium-level governmental organizations that would cater to their greater needs for cooperation. Such a reform should also provide for a uniform status of the regions because the distinction between autonomous areas (with a significant non-Russian ethnic group) on the one hand and oblasts and krais on the other is becoming obsolete. The cultural identity of ethnic minorities may be protected more effectively by other means.

particularly attractive regions. The effectiveness of this mechanism in the Russian context is discussed below.

The third qualification relates to the preconditions for well-functioning competition among jurisdictions. It is far from obvious that these are in place throughout Russia. The fear has even been expressed that decentralization would ultimately lead to the disintegration of Russia into fiefdoms (Yasin et al., 1994), where local warlords might not be inclined to submit to democratic elections, and the cost of emigration for individuals might be prohibitive.¹³ In some parts of the North Caucasus such a situation may already be arising. Given the large amounts of weaponry (conventional and other) left over from the Cold War, this prospect seems rather undesirable. It is difficult to see how any institution other than national legislative and jurisdictional bodies can guarantee the preconditions for effective competition. These include, *inter alia*, an encompassing legal system, guarantees for human rights, and especially the right to free inter-regional movement for people, goods, and money.¹⁴

Finally, it may be noted that the human capital not engaged in rent-seeking types of economic policy-making seems to be in short supply in Russia. In such cases it is generally advisable to centralize decision-making in order to make the best possible use of the available administrative capacity, rather than to spread it out thinly across regions.¹⁵ This observation strengthens the case for centralizing tasks where there would otherwise be duplication of effort. These include especially national public goods such as defence, diplomatic relations, macroeconomic management.

6. Conclusions

In sum, will far-reaching decentralization and competition among regional jurisdictions promote economic transformation in Russia? The answer suggested by the above arguments is cautiously affirmative. A return to a unitary state, or to a federation with only very restricted powers for the regions, presently seems out of the question. It is hardly conceivable that regional elites will give up the powers they have wrought from the centre (and the rents that come with them). This should be true even if there were a conservative

¹³ The history of inter-war China provides a graphic example of the type of "low-level equilibrium" that might result.

¹⁴ Even then the cost of migration for people would probably still be so substantial (e.g. in terms of finding new housing) that any distortionary impact of factor movements on the provision of public goods (which arouses such concern in the public finance literature) would remain small in the short to medium term.

¹⁵ A similar point has been made by Levy (1988) who seeks to explain the relatively large size of exporting footwear producers in South Korea compared with Taiwan. Levy argues that business, and particularly international marketing skills were in relatively short supply in post-war Korea. Hence it was desirable to have relatively large firms. The shortage of such specialized skills was arguably less stringent in Taiwan, where firm size is found to have been significantly lower.

backlash in national politics.¹⁶ Further decentralization would give the more reform-minded regions a chance to go ahead, and their example might well transpire to the presently conservative regions. This assertion is supported by the empirical analysis in this paper which has shown that inter-regional differences in support for reform reflect genuine political preferences rather than merely distributional concerns.

It is beyond the scope of this paper to discuss in detail possible strategies for decentralization in areas such as expenditure and tax assignment, privatization policy, financial system reform, etc. This applies particularly because it is not clear whether oblast-level regions will survive in their present form. In devising such strategies, however, three lessons from the above discussion may be drawn upon.

First, the effectiveness of inter-regional competition will depend on a constitutional framework that can only be provided by the central political institution. This should include not only basic human rights, but also economic rights such as the free movement of people, goods, and money throughout Russia. In addition, there are also areas such as the legal system and macroeconomic policy where inter-regional differences in preferences are probably small, and which may therefore be delegated to the centre to avoid duplication of effort.

Second, an economic case may be made for requiring all regions to share in the financial burdens resulting from Russia's communist past. Apart from economic considerations, there is also the possibility of political upheaval if powerful groups stand to suffer excessive income losses. In all likelihood, burden-sharing will require a substantial inter-regional redistribution of income that may well have to be organized through the centre.

Third, an institutional framework should be created that takes into account the existing inter-regional differences in political preferences and in the need for inter-regional cooperation. It seems advisable, conceptually, to reconstruct the federal system from bottom to top, and to allocate responsibilities to the centre only if this is in the interest of a very large majority of regions. More limited inter-regional cooperation that involves only sub-groups of regions may occur through specialized supra-regional, medium-level government institutions that are controlled by the participating regions.

On a cautionary note, we emphasize that the complexity of the current situation does not lend itself to sweeping generalizations. Competition among regions in the framework of a confederation might well leave many Russian citizens worse off than they would be if there were a central government with bureaucrats whose objective function contained only the common good. Such a point of reference, however, is clearly irrelevant. Under present circumstances, formally acknowledging the decentralization that has already taken place,

¹⁶ Even under the former, "bureaucratic market" system of intermediation (Naishul, 1993) regional elites have long wielded effective power, although this was not obvious in terms of formal institutions.

and giving regions well-defined responsibilities and sources of income offers the best hope of regaining the momentum of economic reform. Relieving the centre of responsibilities that are best born by the regions should also free administrative capacity for those tasks that only central institutions can take care of adequately.

References

- Boss, Alfred, Wettbewerb der Regionen und Finanzverfassung. In: Probleme des Finanzausgleichs in nationaler und internationaler Sicht. Beihefte der Konjunkturpolitik, Heft 41, Berlin 1993, pp. 79-98.
- Cline, Mary, "Nithnii Novgorod: A Regional View of the Russian Elections". RFE/RL Research Report, Vol. 3, No. 4, 28 January 1994, pp. 48-54.
- Deutsches Institut für Wirtschaftsforschung (DIW), Institut für Weltwirtschaft an der Universität Kiel (IfW), Institut für Wirtschaftsforschung Halle (IWH), Die wirtschaftliche Lage Rußlands. Systemtransformation auf dem Rückzug? Zweiter Bericht. Kiel Discussion Papers, No. 208/209, Institut für Weltwirtschaft, Kiel, May 1993.
- Deutsches Institut für Wirtschaftsforschung (DIW), Institut für Weltwirtschaft an der Universität Kiel (IfW), Institut für Wirtschaftsforschung Halle (IWH), Die wirtschaftliche Lage Rußlands. Durch Konzeptlosigkeit zum Kollaps. Vierter Bericht. Berlin, April 1994 (mimeo).
- Drèze, Jacques, "Regions of Europe: A Feasible Status, To Be Discussed". Economic Policy, No. 17, October 1993, pp. 265-307.
- Goskomstat RSFSR, Promyshlennost' RSFSR v 1990 g. Moscow 1991.
- Goskomstat Rossii, Narodnoe khozyajstvo Rossijskoj Federatsii 1992. Moscow 1992.
- Horrigan, Brenda, "How Many People Workd in the Soviet Defense Industry?" RFE/RL Research Report, Vol. 1, No. 33, 1992, pp. 33-39.
- Hughes, James, "Yeltsin's Siberian Opposition". RFE/RL Research Report, Vol. 2, No. 50, December 1993, pp. 29-34.
- Jansen, Annica Carol, Does Decentralization Control Local Government Spending? A Test of the Leviathan Hypothesis. Diss. Cornell University, August 1991.
- Jarygina, T., G. Martschenko, "Regionale Prozesse in der ehemaligen UdSSR und im neuen Rußland". Osteuropa, 1993, No. 3, pp. 211-228.
- Kornai, Janos, "The Evolution of Financial Discipline Under the Postsocialist System". Collegium Budapest 1993 (mimeo).
- Levy, Brian, Transaction Costs, the Size of Firms and Industrial Policy: Lessons from a Comparative Case Study of the Footwear Industry in Korea and Taiwan. Williams College, Center for Development Economics, Research Memorandum No. 112, Williamstown, Mass., December 1988.
- Lücke, Matthias, Wirtschaftliche Grundlagen des Regionalismus in der Russischen Föderation. Zeitschrift für Wirtschafts- und Sozialwissenschaften, Vol. 114, 1994, No. 3 (forthcoming).
- Lücke, Matthias, "Policy Options for Economic Transformation in the Republic of Belarus". MOCT--MOST, November 1993, pp. 53-71(a).

- Musgrave, Peggy, Merits and Demerits of Fiscal Competition. In: Remy Prud'homme (ed.), *Public Finance with Several Levels of Government. Proceedings of the 46th Congress of the International Institute of Public Finance* (Brussels, 1990), The Hague/Königstein 1991, pp. 281-297.
- Naishul, Vitali, "Liberalism, Customary Rights and Economic Reforms". *Communist Economies and Economic Transformation*, Vol. 5, No. 1, 1993, pp. 29-43.
- Oates, Wallace E., Fiscal Federalism: An Overview. In: Remy Prud'homme (ed.), *Public Finance with Several Levels of Government. Proceedings of the 46th Congress of the International Institute of Public Finance* (Brussels, 1990), The Hague/Königstein 1991, pp. 1-18.
- Oates, Wallace E., Robert M. Schwab, "Economic Competition Among Jurisdictions: Efficiency Enhancing Or Distortion Inducing?". *Journal of Public Economics*, Vol. 45, 1988, pp. 333-354.
- Orlowski, Lucjan T., Direct Transfers between the Former Soviet Union Central Budget and the Republics: Past Evidence and Current Implications. *Kiel Working Papers*, No. 543, Institut für Weltwirtschaft, Kiel 1992.
- Orlowski, Lucjan T., Indirect Transfers in Trade Among Former Soviet Union Republics: Sources, Patterns and Policy Responses in the Post-Soviet Period. *Kiel Working Papers*, No. 556, Institut für Weltwirtschaft, Kiel 1993.
- Pommerehne, Werner W. 1989. "The empirical relevance of comparative institutional analysis". Discussion Papers, Department of Economics, University of Saarland, B 8903 Saarbrücken, October 1989.
- Radvanyi, Jean, "And What If Russia Breaks Up? Towards New Regional Divisions". *Post-Soviet Geography*, Vol. 32, 1992, pp. 69-77.
- Schlögel, Karl, "In der Provinz entscheidet sich, was aus Rußland werden wird". *Frankfurter Rundschau*, 11.3.1994, S. 12 (Kurzfassung eines Beitrags in *Kommune-Forum für Politik Ökonomie und Kultur*, Heft 3/94).
- Shaw, Denis J.B., "News Note: Russian Federation Treaty Signed". *Post-Soviet Geography*, Vol. 33, 1992, pp. 414-417.
- Siebert, Horst, The Transformation of Eastern Europe. *Kiel Discussion Papers*, No. 163, Institut für Weltwirtschaft, Kiel 1991.
- Sinn, Stefan, The Taming of Leviathan: Competition among Governments. *Kiel Working Papers*, No. 433, Institut für Weltwirtschaft, Kiel 1990.
- Taylor, Leon, "Infrastructural Competition Among Jurisdictions". *Journal of Public Economics*, Vol. 49, 1992, pp. 241-259.
- Teague, Elisabeth, "North-South Divide: Yeltsin and Russia's Provincial Leaders". *RFE/RL Research Report*, Vol. 2, No. 47, November 1993, pp. 7-23.
- Thomas, Ingo, Allokationseffizienz, Interregionaler Finanzausgleich und Föderalismus bei hoher Arbeitsmobilität: Eine theoretische Analyse. *Kiel Working Papers*, No. 598, Institut für Weltwirtschaft, Kiel 1993.

- Vihanto, Martti, "Competition Between Local Governments as a Discovery Procedure".
Journal of Institutional and Theoretical Economics, Vol. 148, 1992, pp. 411-436.
- Wallich, Christine I., Fiscal Decentralization. Intergovernmental Relations in Russia.
Studies of Economies in Transformation Papers, No. 6, The World Bank,
Washington, D.C. 1992.
- Wildasin, David E., John Douglas Wilson, "Theoretical Issues in Local Public Economics.
An Overview." Regional Science and Urban Economics, Vol. 21, 1991, pp. 317-331.
- Williamson, John, The Eastern Transition to a Market Economy: A Global Perspective.
Centre for Economic Performance, London School of Economics, Occasional Paper
No. 2, London 1992
- Yasin, Y., S. Alexashenko, A. Neshchadin, O. Grigoryev, M. Malyutin, Russian Regions in
Transition. The Expert Institute, Russian Union of Industrialists and Entrepreneurs,
Moscow 1994.

Table 1 - Economic Determinants of the Results of the April 1993 Referendum - OLS Regression Results (N=85)

Equation No. Dependent Variable	(1) YEL93	(2) YEL93	(3) YEL93	(4) EC93	(5) EC93	(6) EC93	(7) ELPR93	(8) ELPR93	(9) ELPR93	(10) ELPA93	(11) ELPA93	(12) ELPA93	(13) PCAPY
C	47.52***	12.53**	22.17*	41.03	12.90**	19.63*	44.01***	61.32***	63.00***	40.35***	36.73***	37.09***	2.11*
DNAT		1.94	-3.07		1.39	-2.87		-2.22	0.14		-2.48**	-3.07*	
URBPOP		31.86***	2.81		29.00***	2.55		-23.40***	-13.65**		0.49	-4.90	4.07***
PCAPY		0.39E-02***	0.54-02***		0.32E-02***	0.46***		-0.19E-02***	-0.25E-02***		0.13E-02***	0.15E-02***	
ANIMAL	-4.89***		-4.01***	-4.16***		-3.40***	3.06***		1.93***	-0.144		-0.28	0.12
CEREAL	-2.97**		-1.59	-1.06**		-0.91	1.83***		0.72	-0.05		0.24	-0.13
VBEGCG	-2.59		-2.38	-2.50*		-2.36	0.90		0.55	-1.12		-1.32*	-0.22E-01
PREMET	0.42		-2.50**	0.37		-2.10**	0.06		1.46**	0.30		-0.51	0.48***
OILGAS	2.51*		-0.20	2.41**		0.14	-1.12		0.54	0.52		0.02	0.37***
IRONIN	0.47		-0.16	0.32		-0.22	-0.32		0.31	-0.23		-0.29	-0.39E-01
PCOAL	-0.27		-0.26	-0.24		-0.25	-0.46		-0.29	-0.57		-0.59	-0.13
AROTIT	-0.51		-3.09***	-0.62		-2.80***	0.19		1.48***	0.16		-0.53	0.41***
MERCOP	0.14		0.67	0.11		0.56	0.08		-0.51	0.18		0.18	0.37E-01
BAUX	-2.24		-2.09*	-2.09		-1.95*	0.82		0.72	-1.31		-1.25*	0.15E-01
FERRALL	1.88		1.44	1.68		1.30	-0.97		-0.56	0.70		0.63	0.40E-01
HEAVY	0.98		1.61	1.75		2.20	-0.68		-0.35	0.37		0.69	-0.56***
LIGHT	-0.86		-1.11	-0.49		-0.73	0.89		1.27**	0.84		0.76	-0.13
FOOD	-0.41		-2.46**	-0.46		-2.19	0.17		1.04*	0.58		-0.04	0.38***
MILIND	0.03		0.02	0.02		0.64E-02**	-0.01		0.12E-02	0.02		0.02	-0.18E-02
TERTIAR	0.34		0.08	0.38		0.17	-0.39*		-0.23*	0.08		0.04	0.36E-01
R ²	0.32	0.43	0.56	0.33	0.43	0.56	0.41	0.50	0.63	0.21E-02	0.16	0.16	0.57
F	3.47***	22.53***	6.59***	3.53***	21.72***	6.55***	3.56***	29.43***	8.56***	1.01	6.41***	1.83**	7.67***
DW*	1.12	1.25	1.63	1.13	1.24	1.62	1.53	1.33	1.89	1.38	1.75	1.93	1.77

***(**,*) Significantly different from 0 at the $\alpha=0.01$ (0.05; 0.10) confidence level (two-tailed t test). - "Observations are arranged by the traditional "economic regions".

Source: Data see Tables A1 through A5; own calculations with TSP Version 4.2B software.

Table 2 - Economic Determinants of the December 1993 Election Results - Probit Estimation Results ($dP(DEPVAR=1)/dx$)

Equation No. Dependent Variable	(1) DEMOCR	(2) DEMOCR	(3)* DEMOCR	(4) CONST	(5) CONST	(6) CONST	(7) LLYEL	(8) LLYEL	(9) LLYEL
C	-0.42	-1.39*		0.24	-0.77	-0.49	-0.12	-1.49*	-1.45
DNAT		0.27*			0.09	-0.16		0.24	0.04
URBPOP		0.85*			0.31	-0.54		0.23	-0.23
PCAPY		0.10E-03*			0.12E-03	0.26E-03*		0.26E-03*	0.40E-03*
ANIMAL	-0.26*			-0.09		-0.15	-0.06		-0.10
CEREAL	-0.29*			-0.07		-0.11	-0.05		-0.06
VEGECC	-0.10*			0.04		0.04	0.07		0.19
PREMET	0.05			0.02		-0.17	0.21		0.07
OILGAS	1.21*			-0.40		0.08	1.85		2.04
IROTIN	0.01			-0.21		-0.40*	0.66		0.85
PBCOAL	0.04			0.17		0.22	0.88		1.47
AROTIT	-0.03			-0.01		-0.23	-0.39		-0.86
MERCOP	0.22			0.03		0.03	2.41		3.62
BAUX	-0.13			-0.05		-0.03	-2.92		-4.39
FERRALL	0.08			0.03		-0.12E-02	6.04		9.51
HEAVY	0.07			0.01		0.05	-0.11		-0.05
LIGHT	0.32E-2			0.05		0.79E-02	0.06		0.14
FOOD	0.02			-0.11		-0.25*	-0.14*		-0.52*
MLIND	-0.12E-2			-0.41E-02		-0.43E-02	-0.18E-02		-0.74E-02
TERTIAR	0.01			-0.16E-02		-0.93E-02	0.01		-0.69E-02
N	86	86	86	65	65	65	87	87	87
per cent pos. obs.	33.7	33.7	33.7	63.1	63.1	63.1	63.2	63.2	63.2
R ²	0.77	0.31	1.00	0.24	0.07	0.39	0.50	0.23	0.85

*Estimate did not converge. - *t-statistic (parameter estimate divided by standard error) greater than or equal to 2.

Source: Data see Tables A1 through A5; own calculations with TSP Version 4.2B software.

Table A1 - Indicators of Regional Political Preferences

	YEL93	BCSO93	ELPR93	ELPA93	DEMOCR	CONSTD	LYEL
North							
Karelia	65.0	56.6	30.0	42.7	1	1	1
Komi	69.0	60.0	26.2	41.3	1	n.a.	1
Archangel'sk	64.9	60.2	30.9	46.2	1	1	1
Nenets AOKrug	66.3	58.6	29.5	48.0	1	1	1
Vologda	63.3	56.7	36.5	48.3	0	1	1
Murmansk	72.8	63.9	23.6	44.7	1	n.a.	1
Northwest							
St. Petersburg City	72.8	65.6	23.0	48.9	1	1	1
Leningrad Oblast	59.9	53.0	30.4	43.8	0	1	1
Novgorod	59.4	53.0	33.0	44.6	0	1	1
Pskov	49.7	44.7	41.3	45.9	0	1	1
Central							
Bryansk	44.4	40.9	40.5	39.2	0	0	0
Vladimir	65.8	58.3	34.6	47.6	0	1	1
Ivanovo	64.7	58.3	33.0	48.5	0	1	1
Kaluga	53.4	48.4	38.0	47.8	0	0	0
Komarov	56.6	49.6	37.7	45.9	0	1	1
Moscow City	75.2	70.0	20.9	51.1	1	1	1
Moscow Oblast	65.2	59.3	27.9	47.3	1	1	1
Orel	46.3	42.6	40.8	40.9	0	0	0
Ryazan	49.8	45.1	44.2	50.5	0	0	0
Smolensk	40.2	37.2	43.7	40.2	0	0	0
Tver	53.9	49.2	36.8	45.0	0	1	1
Tula	61.2	55.7	33.3	45.7	0	1	0
Yaroslavl	68.8	61.4	32.0	47.0	1	1	1
Volga-Volga							
Mari-El	48.1	42.2	34.8	40.4	0	1	0
Mordovia	38.0	35.0	41.9	35.9	0	0	0
Chuvashia	36.9	33.5	43.1	36.0	0	1	0
Kirov	58.6	51.1	35.1	45.5	0	0	1
Nizhni Novgorod	63.6	56.6	29.9	43.7	0	1	0
Central Chernozem							
Belgorod	39.6	36.1	48.6	45.1	0	0	0
Voronezh	49.7	45.2	40.2	40.5	0	0	0
Kursk	42.1	38.7	42.1	38.7	0	0	0
Lipetsk	49.2	44.7	38.8	40.2	0	0	0
Tambov	44.1	40.3	43.7	45.5	0	0	0
Volga							
Kalmykia	67.1	63.9	28.5	46.6	0	0	1
Tatarstan	n.a.	n.a.	n.a.	n.a.	1	n.a.	1
Astrakhan	60.7	55.1	28.2	40.2	0	1	1
Volgograd	53.7	49.0	34.3	43.7	0	0	0
Penza	45.3	41.1	41.6	40.7	0	0	0
Saratov	60.9	55.1	30.8	43.1	0	1	0
Saratov	51.8	47.6	37.4	43.4	0	0	0
Ulyanovsk	47.5	43.7	39.9	43.7	0	1	0
North Caucasus							
Adygys	43.9	40.9	37.8	37.5	0	0	0
Dagestan	14.2	14.1	55.4	23.3	0	0	0
Karachai-Balkaria	35.8	33.1	36.6	31.2	n.a.	n.a.	0
Kabardino-Cherkessia	25.9	24.6	50.1	31.5	0	0	0
North Ossetia	61.3	56.1	35.3	47.6	0	1	1
Ingushetia	2.4	2.8	70.8	4.9	0	1	0
Chechnya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0
Krasnodar Krai	53.8	49.3	33.6	40.7	0	1	1
Stavropol	52.3	48.1	36.6	44.5	0	1	1
Rostov	55.5	51.3	34.0	43.4	0	1	1
Ural							
Bashkortostan	39.6	35.9	42.4	37.8	0	0	0
Udmurtia	55.9	49.0	31.0	40.1	0	n.a.	1
Kurgan	50.3	45.4	38.5	44.2	0	1	0
Orenburg	50.1	45.8	36.1	41.1	0	1	0
Perm	76.5	68.6	24.4	44.5	1	n.a.	1
Komi-Permyak AOKrug	62.1	59.3	35.5	44.7	0	1	1
Sverdlovsk	84.4	76.3	22.1	52.7	1	n.a.	1
Chelyabinsk	71.5	65.5	23.5	43.9	1	1	0

Table A1 continued

	YEL93	ECS93	ELPR93	ELPA93	DEMOCR93	CONSTID	LLYEL
West Siberia							
Altai Republic	48.4	43.4	37.9	40.8	1	1	1
Altai Krai	47.7	42.9	36.0	39.0	0	1	0
Kemerovo	52.5	47.7	30.3	38.0	0	1	1
Novosibirsk	54.6	48.4	32.6	42.9	0	n.a.	0
Omsk	56.1	49.8	34.9	45.6	0	1	1
Tomsk	66.8	59.6	26.2	43.2	1	n.a.	1
Tyumen	58.4	52.0	30.6	41.0	0	n.a.	1
Khanty-Mansi AOkrug	83.2	74.5	19.6	42.2	1	n.a.	1
Yamal-Nenets AOkrug	82.8	74.1	22.9	49.3	1	n.a.	1
East Siberia							
Buryatia	51.8	46.2	33.5	38.3	0	1	1
Republic of Tyva	56.1	50.5	35.0	40.9	1	0	1
Khakassia	57.9	51.9	28.8	37.4	0	n.a.	1
Krasnoyarsk	65.7	59.2	27.9	42.1	0	n.a.	1
Taimyr AOkrug	76.8	68.1	23.7	48.5	1	1	1
Evenk AOkrug	70.5	62.4	28.1	45.0	1	1	1
Irkutsk	58.6	51.7	29.7	40.6	1	n.a.	1
Ust' Orda Buryat AOkrug	48.8	43.5	43.9	46.2	0	1	1
Chita	43.3	39.1	37.0	37.6	1	n.a.	0
Agia Buryat AOkrug	n.a.	n.a.	n.a.	n.a.	0	n.a.	1
Far East							
Sakha (Yakutia)	68.1	60.8	32.0	47.9	1	1	1
Primorsky	64.3	56.8	25.3	38.4	1	n.a.	1
Khabarovsk	70.3	62.4	26.3	40.8	1	0	1
Jewish Autonomous Oblast	58.6	52.8	29.4	38.4	0	n.a.	1
Amur	43.2	39.7	36.4	44.5	0	0	0
Kamchatka	70.3	61.6	24.5	45.5	1	n.a.	1
Koryak AOkrug	67.0	54.6	32.7	52.4	1	1	1
Magadan	74.4	65.1	23.1	43.6	1	n.a.	1
Chukotka AOkrug	74.2	63.5	27.2	51.0	1	1	1
Sakhalin	60.9	51.6	27.3	38.0	0	n.a.	1
Kaliningrad Oblast	60.3	54.3	30.7	44.5	0	1	1

YEL93: support for Yeltsin in April 1993 referendum (per cent of votes cast). - ECS93: support for the economic and social policies of the Russian government in April 1993 referendum (per cent of votes cast). - ELPR93: support for early elections for the presidency (per cent of registered voters). - ELPA93: support for early elections for the parliament (per cent of registered voters). - DEMOCR93: equal to 1 if democratic parties (VR, RDDR, Yabloko, PRRS) obtained at least as many votes as conservative parties (LDPR, KPRF, Agrarian Party RP) in December 1993 parliamentary election. - CONSTID equal to 1 if majority of voters approved the new constitution. - LLYEL: equal to 1 for areas other than those judged to be least supportive of Yeltsin from 1991 through 1993.

Source: Segodnya, December 21, 1993; Teague (1993); Yasin et al. (1994).

Table A2 - Per capita Gross Output of Agricultural Commodities, 1991 (Russian Federation = 100)

	Cereal	Sugar beet	Sunflower seeds	Potatoes	Vegetables	Meat	Milk	Eggs
All Russia	100	100	100	100	100	100	100	100
North	13			68	38	64	69	95
Karelia				68	39	50	60	110
Komi				78	34	44	46	90
Arkhangelsk	12			71	36	60	67	100
Nenets AOkrug						117	58	0
Vologda	44			112	69	121	143	111
Murmansk				5	9	30	19	68
Northwest	7			47	76	58	62	99
Leningrad Oblast	6			146	268	160	154	395
Novgorod	17			90	106	118	118	90
Pskov	36			93	117	141	202	105
Central	49	32		115	96	68	82	101
Bryansk	101	70		480	154	141	155	125
Vladimir	48			154	158	74	87	95
Ivanovo	53			119	112	88	92	101
Kaluga	70			200	117	113	147	116
Kostroma	63			134	121	104	123	127
Moscow Oblast	13			95	167	61	79	215
Orel	314	505		328	92	200	219	124
Ryazan	189	111		243	106	143	184	118
Smolensk	61			129	94	125	178	91
Tver	36			106	64	107	135	108
Tula	141	147		187	116	107	100	118
Yaroslavl	23			92	197	71	95	110
Volga-Viatka	101	23	1	180	114	114	126	99
Mari-El	120			272	131	167	147	97
Mordovia	126	93	3	192	111	146	153	109
Chuvashia	85		0	266	73	124	128	87
Kirov	151			171	131	139	159	96
Nizhni Novgorod	73	26	0	130	118	79	99	102
Central Chernozem	215	873	278	137	136	179	160	117
Belgorod	195	1235	354	105	134	217	189	123
Voronezh	194	663	448	92	112	170	143	113
Kursk	239	1292	3	238	171	179	187	117
Lipetsk	241	768	71	164	139	161	144	114
Tambov	230	553	349	128	145	172	145	122
Volga	145	73	186	82	114	125	115	103
Kalmykia	348		220	9	92	272	94	69
Tatarstan	115	133		177	82	116	124	106
Astrakhan	27			14	346	75	54	68
Volgograd	233		352	30	146	134	114	95
Penza	146	256	75	129	108	162	145	112
Samara	106	31	248	58	59	101	88	100
Saratov	166	23	328	31	128	135	134	109
Ulyanovsk	143	118	192	100	83	132	130	128

Table A2 continued

	Cereal	Sugar beet	Sunflower seeds	Potatoes	Vegetables	Meat	Milk	Eggs
North Caucasus	216	257	476	51	171	131	99	100
Adygeya	141	206	290	22	207	122	89	74
Dagestan	38		24	22	177	60	52	43
Karbadino-Balkaria	106		183	84	169	79	97	62
Karachaevo-Cherkessia	64	465	60	191	142	121	119	90
North Ossetia	82		59	92	99	84	65	58
Chechnya	51	36	35	19	108	46	58	31
Ingushetia								
Krasnodar Krai	276	747	656	64	239	178	116	115
Stavropol	344	195	524	65	137	163	114	155
Rostov	265		757	29	145	137	107	116
Ural	83	43	48	111	79	101	106	98
Bashkortostan	117	221	90	135	48	125	135	91
Udmurtia	84			178	119	117	120	87
Kurgan	180			140	139	216	222	110
Orenburg	239		249	68	99	142	161	104
Perm	45			99	90	75	74	96
Komi-Permyak	75			284	143	139	150	16
AOkrug								
Sverdlovsk	25			107	67	62	61	108
Chelyabinsk	27			80	65	78	82	97
West Siberia	113	26	28	117	82	113	130	103
Altai Republic	29			55	50	152	126	81
Altai Krai	225	148	144	132	107	159	189	115
Kemerovo	54		1	108	69	72	81	102
Novosibirsk	143		5	129	114	126	153	93
Omsk	115		7	145	98	168	194	114
Tomsk	80			105	100	99	106	103
Tyumen	154			191	69	134	159	215
Khanty-Mansi AOkrug				19	7	12	10	11
Yamal-Nenets-AOkrug				5	3	20	5	7
AOkrug								
East Siberia	99			112	76	93	88	90
Buryatia	72			82	78	105	71	81
Republic of Tyva	54			45	28	124	65	65
Khakassia	112			113	125	117	104	108
Krasnoyarsk	146			144	88	109	117	105
Taymyr AOkrug						30	16	6
Evenk AOkrug						38	23	13
Irkutsk	41			110	69	55	51	98
Ust' Orda Buryat	438			325	153	329	399	29
AOkrug								
Chita	99			68	46	82	80	54
Aga Buryat AOkrug	298			49	54	181	163	68
Far East	24		1	71	65	63	52	85
Sakha (Yakutia)	3			35	39	62	64	46
Primorsky	20		2	65	68	47	39	90
Khabarovsk	2		0	58	51	48	24	98
Jewish Autonomous Oblast	36			198	103	72	118	67
Amur	120		2	132	94	106	101	80
Kamchatka				68	66	59	45	91
Koryak AOkrug				33	475	122	37	57
Magadan				27		66	49	140
Chukchi AOkrug						65	12	9
Sakhalin				78	89	77	56	101
Koliningrad Oblast	90			85	156	117	175	120

Source: Goskomstat Rossii (1992).

Table A3 - Regional Per Capita Availability of Mineral Resources (Russian Federation \pm 100)

	Perod	Natural Gas	Coal	Iron ore	Copper	Lead/Zinc	Processing	Titanium/Magnesium	Bauxite	Mercury	Tin etc.	Gold ore	Silver ore	Diamonds
	(1990 physical output)				(1989 value of output)							(number of enterprises, 1989)		
All Russia	100	100	100	100	100	100	100	100	100	100	100	100	100	100
North	73	31	179	477	0		727		63		789			
Kamla				1619										
Komi	331	150	877											
Arkhangelsk	23	1							255					
Nenets AOKrug														
Vologda														
Murmansk	0		0	1419	0		3885				4215			
Northwest									1024					
St. Petersburg City														
Leningrad Oblast									5062					
Novgorod														
Pskov														
Central				17										
Bryansk														
Vladimir														
Ivanovo														
Kaluga				11										
Kostroma														
Moscow City				2										
Moscow Oblast														
Orel														
Ryazan														
Smolensk				12										
Tver				7										
Tula				250										
Yamalo-Nenets				0										
Volga-Viatka														
Mari-El														
Mordovia														
Chuvashia														
Kirov														
Nizhni Novgorod														
Central Chernozem				854										
Belgorod				2779										
Voronezh														
Kursk				2044										
Lipetsk														
Tambov														
Volga	95	8												
Kalmykia	41	15												
Tatarstan	278	8												
Astrakhan	1	48												
Volgograd	24	5												
Penza	1													
Samara	134	5												
Saratov	14	7												
Ulyanovsk	1													
North Caucasus	15	7	43		29	57	23							
Adygeya			36											
Dagestan	9	10												
Karabach-Balkaria							0	502						
Kumachevo-Chechnya			0		1161									
North Ossetia							1406							
Ingushetia	94	26												
Chechnya														
Krasnodar Krai	12	7												
Stavropol	20	6	1											
Rostov	2	249												
Ural	81	48	44	141	703	0	44	728	294			82	144	182
Basikostan	183	3	11	7	1722	0								
Udmurtia	199	1												
Kurgan														
Orenburg	114	435	50	13	2972		411							
Perm	116	5	41				5	5043						1261
Komi-Permyak AOKrug														
Sverdlovsk			35	434	194	0			1159			508		
Chelyabinsk			126	214			109		150		461	264		

Table A3 continued

	Petrol	Natural Gas	Coal	Iron ore	Copper	Lead/Zinc	Fluorsilicop	Titanium/Magnesium	Bauxite	Mercury	Vanadium	Gold (oz)	Silver (oz)	Diamonds
	(1990 physical output)				(1989 value of output)					(millions of enterprises, 1989)				
West Siberia	714	866	374	40	183					980				
Altai Republic										75103				
Altai Krai					551									
Kemerovo			1772	193	411									
Novosibirsk	0		12											
Omsk														
Tomsk	299	5												
Tyumen	0	503												
Khanty-Mansi AOkrug	6891	512												
Yamal-Nenets AOkrug	3217	24583												
East Siberia	0	0	402	197	191	917					156	422		
Buryatia			161			100								
Republic of Tyva			131			184								
Khakassia			439	1030		396								
Krasnoyarsk	0	0	661	150	111						0	645		
Tyva AOkrug			55			149445								
Evenk AOkrug														
Idkhat			332	285							17	176		
Ust' Orda Buryat AOkrug			40											
Chita			286			817	51				1025	2559		
Agz Buryat AOkrug							1423							
Far East	7	9	333		1214	26					867	717	1851	1389
Sakha (Yakutia)	1	29	583									2633		10204
Primorsky			259		4208	92					0		379	
Khabarovsk			48								3361	294	535	
Jewish Autonomous Oblast											6663			
Amur			234									1339		
Kamchatka			0											
Koryak AOkrug			16											
Magadan			200					0			0	2643	21688	
Chukotka AOkrug			315					0					29956	
Sakhalin	76	58	260					0					1217	
Kaliningrad Oblast	38							0						

Source: Goskomstat RSFSR (1991); Plancon Enterprise Databank.

Table A4 - Per Capita Employment in Branches of Industry 1989 (Russian Federation = 100)

	Food	Light industries	Wood/furniture	Printing	Chemicals etc.	Metallurgy	Capital goods	Military industrial complex ^a 1985 (VKP)
USSR	20/21	22/23/25/31/39	24/26	27	28/29/30/32	33	34/35/36/37/38	
All Russia	100	100	100	100	100	100	100	100
North	107	49	498	67	53	143	39	41
Karelia	83	61	856	147	77	44	75	27
Komi	48	41	445	50	48	3	18	13
Akhangelak	79	36	770	63	42	0	19	87
Nenets AOkrug	134	0	114	47	11	0	0	0
Vologda	92	92	428	65	87	604	54	47
Murmansk	241	19	50	39	15	15	50	16
Northwest	85	126	104	177	97	29	110	151
St. Petersburg City	85	144	39	259	79	32	143	175
Leningrad Oblast	62	76	282	20	123	37	31	89
Novgorod	94	102	205	78	190	0	63	185
Pskov	126	137	43	91	64	17	111	102
Central	85	198	62	281	118	74	131	109
Bryansk	139	144	94	44	109	111	158	167
Vladimir	84	327	95	71	203	113	132	250
Ivanovo	95	828	75	83	61	6	88	11
Kaluga	87	118	105	101	68	91	116	202
Kostroma	85	185	411	86	56	11	84	57
Moscow City	72	121	29	373	76	63	138	92
Moscow Oblast	47	239	31	147	144	68	113	92
Orel	156	73	5	63	61	386	153	56
Ryazan	136	119	46	99	91	55	126	127
Smolensk	121	178	55	194	93	40	111	87
Tver	96	242	148	304	163	3	113	34
Tula	114	92	64	109	214	119	123	204
Yaroslavl	110	138	56	129	198	49	249	131
Volga-Vlatta	93	118	141	64	111	78	157	146
Mari-El	101	84	186	66	48	0	28	176
Mordovia	100	66	51	81	129	141	198	69
Chuvashia	75	143	131	69	100	39	184	80
Kirov	88	146	306	68	63	103	31	132
Nizhni Novgorod	99	116	83	57	145	82	221	190
Central Chernozem	134	62	14	55	98	133	184	87
Belgorod	184	35	7	54	127	139	74	32
Voronezh	47	33	8	31	60	0	87	152
Kursk	185	101	20	110	137	0	132	49
Lipetsk	174	56	6	51	97	670	159	33
Tambov	156	112	37	51	98	5	86	115
Volga	102	78	40	78	137	46	145	124
Kalmykia	90	56	0	93	18	0	13	16
Tatarstan	76	76	40	64	145	0	154	128
Astrakhan	194	84	71	67	71	0	59	65
Volgograd	119	73	22	78	178	252	122	82
Penza	128	87	98	50	71	0	139	105
Samara	86	50	26	78	166	17	233	177
Saratov	103	74	16	124	170	13	91	128
Ulyanovsk	86	157	74	59	60	5	158	148

Table A4 continued

USSR	Food 20/21	Light industries 22/23/25/ 31/39	Wood/ furniture 24/26	Printing 27	Chemicals etc. 28/29/30/32	Metallurgy 33	Capital goods 34/35/36/ 37/38	Military industrial complex* 1985 (VKP)
North Caucasus	126	97	23	58	69	24	73	41
Adygeys	231	143	105	123	44	0	30	13
Dagestan	98	83	1	29	31	0	20	59
Karabado-Balkaria	125	118	7	58	49	39	55	50
Karachaevo-Cherkessia	80	133	29	41	143	0	46	74
North Ossetia	121	117	29	91	46	120	52	103
Ingushetia *	78	78	14	44	86	0	36	6
Chechnya *								
Krasnodar Krai	170	76	51	43	71	1	51	10
Stavropol	106	87	1	68	83	0	50	34
Rostov	110	122	9	76	70	67	157	68
Ural	77	67	98	80	102	312	100	150
Bashkortostan	81	81	66	54	136	83	67	107
Udmurtia	62	33	116	44	33	9	53	281
Kurgan	130	46	36	87	69	0	131	74
Orenburg	86	89	8	48	73	183	87	52
Perm	73	73	209	179	144	176	48	198
Komi-Permyak AOkrug	46	12	214	63	9	6	22	0
Sverdlovsk	71	63	155	73	119	568	127	204
Chelyabinsk	71	60	28	71	71	664	165	119
West Siberia	100	53	72	62	100	91	68	86
Altai Republic	60	55	138	55	18	0	4	15
Altai Krai	146	67	37	54	129	5	143	78
Kemerovo	92	58	36	51	142	368	58	57
Novosibirsk	114	61	24	104	61	53	71	169
Omsk	81	65	35	78	133	0	44	143
Tomsk	86	30	301	53	146	51	90	43
Tyumen	103	63	185	53	47	0	52	46
Khanty-Mansi AOkrug	50	0	108	21	24	0	2	0
Yamal-Neletz-AOkrug	80	1	20	26	21	0	0	34
East Siberia	75	60	253	50	99	71	51	50
Buryatia	91	61	177	59	53	0	50	57
Republic of Tyva	53	25	40	64	29	0	0	0
Khakassia	111	202	153	32	45	179	44	29
Krasnoyarsk	67	64	278	47	123	73	75	69
Taymyr AOkrug	125	0	0	64	0	0	0	0
Evenk AOkrug	11	0	78	51	0	0	0	0
Idkutsk	82	41	393	55	158	106	51	56
Un' Orda Buryat AOkrug	38	7	140	36	0	0	0	0
Chita	63	50	99	46	18	34	24	19
Agia Buryat AOkrug	42	0	39	36	3	0	0	0
Far East	162	37	137	61	57	28	40	61
Sakha (Yakutia)	48	16	60	76	31	0	6	58
Primorsky	175	38	86	53	69	13	41	55
Khabarovsk	115	41	272	49	70	115	63	115
Jewish								
Autonomous Oblast	79	196	109	53	85	0	79	5
Amur	97	43	91	58	60	5	47	18
Kamchatka	551	20	13	59	27	0	41	7
Koryak AOkrug	622	0	0	119	0	0	0	0
Magadan	106	33	43	78	50	0	37	234
Chukchi AOkrug	78	13	0	70	22	0	0	0
Sakhalin	312	19	346	81	49	0	25	2
Kalinigrad Oblast	135	57	196	87	27	7	95	58

*Not included in individual branches.

Source: Planecon Enterprise Databank; Horrigan (1992).

Table A5 - Population, Income, Social Characteristics

	Population 1992 (thousands)	DNAT (1 for autonomous areas)	URBPOP (percentage share of population in urban-type settlements)	TERTIAR Share of employees in "non-production" (tertiary) sector	PCAPY (household income per capita)
All Russia	148704		73.8	27.2	
North	6136		76.8	26.5	6157
Karelia	800	1	82.1	28.4	6111
Komi	1255	1	75.5	27.4	6922
Arkhangelsk	1517	0	73.6	26.0	5472
Nenets AOkrug	54	1	64.1	26.0	5472
Vologda	1362	0	66.0	23.1	5159
Murmansk	1148	0	92.2	29.4	7467
Northwest	8279		86.8	32.3	5836
St. Petersburg City	5004	0	100.0	37.2	6382
Leningrad Oblast	1673	0	66.2	26.1	4787
Novgorod	752	0	70.5	22.8	5238
Pskov	841	0	64.3	22.3	5200
Central	30383		83.0	32.0	6307
Bryansk	1464	0	68.6	21.6	5280
Vladimir	1656	0	79.8	22.1	4890
Ivanovo	1312	0	81.7	23.8	5364
Kaluga	1081	0	73.6	25.7	5062
Kostroma	812	0	68.8	26.0	4911
Moscow City	8957	0	99.9	45.1	9059
Moscow Oblast	6707	0	79.5	33.8	5239
Orel	903	0	63.0	20.0	5806
Ryazan	1344	0	66.9	23.2	4934
Smolensk	1163	0	69.1	22.3	4786
Tver	1668	0	72.1	23.8	4897
Tula	1844	0	81.6	22.9	5304
Yaroslavl	1472	0	81.7	23.1	5170
Volga-Viatka	8483		69.8	23.1	4795
Mari-El	762	1	62.2	25.7	4432
Mordovia	964	1	58.1	22.0	4478
Chuvashia	1353	1	59.9	23.5	4499
Kirov	1700	0	70.8	22.7	4805
Nizhnii Novgorod	3704	0	77.7	23.2	5055
Central Chernozem	7762		61.4	22.1	4699
Belgorod	1408	0	64.3	22.4	5209
Voronezh	2475	0	61.7	23.3	4227
Kursk	1335	0	59.7	20.8	4772
Lipetsk	1234	0	63.9	21.3	4970
Tambov	1310	0	57.3	21.7	4714
Volga	16641		73.5	23.8	5069
Kalmykia	327	1	46.5	28.6	6917
Tatarstan	3696	1	73.6	24.2	4734
Asrakhan	1010	0	67.2	27.3	4922
Volgograd	2643	0	75.8	23.5	5261
Penza	1514	0	62.9	24.5	4670
Samara	3296	0	80.9	20.2	5496
Saratov	2711	0	74.5	23.7	4964
Ulyanovsk	1444	0	72.4	22.5	4902

Table A5 continued

	Population 1992 (thousands)	DNAT (1 for autonomous areas)	URBPOP (percentage share of population in urban-type settlements)	TERTIAR Share of employees in "non-production" (tertiary) sector	PCAPY (household income per capita)
North Caucasus	17246		57.4	25.6	4964
Adygeya	442	1	52.7	27.5	4643
Dagestan	1890	1	43.9	28.9	3475
Karabaido-Balkaria	784	1	61.4	29.2	4070
Karachaevo-					
Cherkessia	431	1	49.4	23.9	5469
North Ossetia	695	1	67.8	29.7	4485
Ingushetia *	1308		49.9	29.1	4295
Chechnya *					
Krasnodar Krai	4797	0	54.5	25.6	5314
Stavropol	2536	0	54.3	24.6	5495
Rostov	4363	0	70.9	23.9	5333
Ural	20430		74.8	24.4	5024
Bashkortostan	4008	1	64.0	23.9	4613
Udmurtia	1637	1	70.2	23.8	5229
Kurgan	1115	0	55.1	23.2	4956
Orenburg	2204	0	65.1	23.7	4686
Perm	2949	0	80.1	24.8	4756
Komi-Permyak					
AOkrug	160	1	30.0	24.8	4756
Sverdlovsk	4719	0	87.3	25.7	5243
Chelyabinsk	3638	0	81.7	24.2	5550
West Siberia	15167		72.4	28.1	6515
Altai Republic	198	1	26.8	29.2	4241
Altai Krai	2666	0	55.4	22.8	5098
Kemerovo	3181	0	87.3	23.7	6219
Novosibirsk	2803	0	74.9	28.0	6196
Omsk	2170	0	67.9	25.5	5144
Tomsk	1012	0	68.7	31.1	6453
Tyumen	1353	0	60.1	23.6	9403
Khanty-Mansi AOkrug	1305	1	91.4	23.6	9403
Yamal-Nenets-					
AOkrug	479	1	82.7	23.6	9403
East Siberia	9260		71.8	27.3	5785
Buryatia	1059	1	59.5	29.7	4898
Republic of Tyva	306	1	48.0	37.7	4224
Khakassia	581	1	72.5	24.7	4704
Krasnoyarsk	2973	0	73.0	25.5	6523
Taymyr AOkrug	53	1	67.9	25.5	6523
Evenk AOkrug	25	1	28.0	25.5	6523
Irkutsk	2732	0	83.9	26.9	6182
Ust' Ona Buryat					
AOkrug	140	1	18.6	26.9	6182
Chita	1312	0	67.8	29.7	4818
Agia Buryat AOkrug	79	1	32.9	29.7	4818
Far East	8032		76.0	28.2	7318
Sakha (Yakutia)	1093	1	66.4	33.2	9423
Primorsky	2309	0	77.6	24.7	6050
Khabarovsk	1634	0	80.7	28.5	6657
Jewish Autonomous					
Oblast	221	1	65.6	28.5	6657
Amur	1075	0	66.3	26.9	6134
Kamcharka	433	0	85.2	29.1	8961
Koryak AOkrug	39	1	38.5	29.1	8961
Magadan	363	0	84.8	30.5	10737
Chukchi AOkrug	146	1	73.3	30.5	10737
Sakhalin	719	0	85.3	28.9	8075
Kaliningrad Oblast	894	0	78.9	28.1	5726

Source: Unpublished material provided by the Research Institute of the Parliamentary Centre of the Russian parliament; Goskomstat Rossii (1992).