Public Employment and Redistributive Politics in Russian Regions

Vladimir Gimpelson and Galina Monusova

Introduction

An efficient and motivated civil service that offers a wide range of public goods is very important for achieving high economic performance and decent quality of life. On the other hand, bloated and poorly paid public organizations and employees contribute to many problems, from corruption to unsustainable fiscal deficits. Many economic and social problems around the globe have their roots in or are strongly associated with a dilapidated and corrupted public sector.

Public employment across countries varies significantly in size. These variations are notable not only across continents or large clusters of countries like the more-developed OECD countries, or countries in transition in places such as Latin America, Asia, or Africa; even within relatively homogenous clusters the differences can be large. In the early 1980s, the public sector varied from 18% of total employment in the USA to 28% in another Anglo-Saxon country - Britain, to 38% in social-democratic Sweden.[1] These variations remained large throughout the 1990s.[2]

What accounts for these differences in public employment across and within nations? In the literature, one can find a number of theories and empirical studies raising this question, but there is no final answer.

For decades, economists believed that the public sector grew according to Wagner's Law, which assumed that the relative size of the public economy correlated with per capita GDP. Economic growth created not just more demand for public services but provided more financial possibilities for them to expand. Often, a consensus may exist in a society for providing greater access to education, health care, etc. However, recent comparative studies show that using Wagner's Law as a determinant of higher public employment does not hold true in the OECD countries and only partially provides an explanation about the least developed countries.[3]

The importance of an efficient civil service should not conceal the fact that it is often used for purposes other than efficiency.[4] There is, for example, ample

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1 Rose (1985), p.6.
2 Schiavo-Campo et al. (1997a).
3 Schiavo-Campo et al. (1997a).
4 Shleifer (1998).

evidence around the world that public employment is likely to be used for redistributive purposes. Politicians often launch public projects in order to favor particular interests in the society. This results in significant political or economic rents acquired by those who are associated with these projects. Unsurprisingly, public investments tend to increase the likelihood of corruption.[5] Additionally, redistributive interests protect public projects from downsizing or closing; any downsizing is a daunting job that politicians would prefer to avoid.

As A. Alesina and co- authors argue in their paper on public employment in American cities, "its level is not chosen only from the point of view of "productive efficiency" but as a way of directing income toward disadvantaged groups and for politically privileged groups."[6] They provide strong statistical evidence that bloated public employment in American cities is a disguised redistributive instrument correlated with the level of inequality. Due to a number of reasons, politicians may prefer concealed forms of subsidization for their constituencies to direct financial transfers to them.

D. Rodrik offers another explanation in terms of redistributive policies of why public employment grows. "By providing a larger number of "secure" jobs in the public sector, a government can counteract the income and consumption risk faced by the household in the economy."[7] The potential risks that can be counteracted by public employment arise from the unfavorable terms of foreign trade. In this sense, the public sector is a kind of safety net, providing a cushion against the adverse affects of exposure to external risks. Such cushioning carries an apparent component of redistribution as well, since it may support particular politically important groups at the expense of others.

This paper examines Russia. Throughout the 1990s, the country has gone through a massive and rapid privatization process. In the late 1980s, the private sector was tiny, while the state absolutely dominated and accounted for nearly all of the total employment. By the end of the 1990s, due to massive privatization and new private sector development, the situation had changed completely in favor of the private sector (see Table 1). The collapse of public finances was an additional reason for total public expenditures to shrink further.

However, at least two aspects of public sector development raise questions in the light of redistributive policies.

First, Russia has a complicated federal structure that includes 89 administrative regions with various degrees of autonomy. The share of public employment and the speed of its downsizing vary significantly across regions. Most public sector job creation appears in establishments that are subordinated to regional administrations and are funded from local sources. Thus, this seems to reflect particular regional policies. It is interesting to note that in the West, the

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5 Tanzi and Davoodi (1997).

6 Alesina et al. (1998).

7 Rodrik (1997).

inter-regional variation is rather low with the population as a major determinant. Regions having disproportionately higher levels of public employment are usually home for a few large nationalized enterprises or have a very low level of private sector employment.[8] The question, therefore, is how very high inter-regional variation in Russia's public employment can be explained and how it is linked to redistributive claims of regional governments.

Secondly, while the major general employment trend is clearly downward (both in absolute and relative terms),[9] we have observed quite surprising relative and absolute growth in the education and health care sectors. These sectors were rather inflated even before the start of reforms and are still mostly publicly run. The case for employment growth in the public administration sector is even more salient. This upward-looking trend goes contrary to many observers' expectations. The expectations were that "wages, and consequently employment, in health and education would fall relative to wages in the rest of economy as the market sector expanded. Some decline was seen as appropriate because in many instances teacher-student ratios and other service indices were higher than in industrial countries."[10] In most of the CEE transition countries, health and education have downsized, while only employment in the public administration has grown.

Hypotheses

We have three basic hypotheses. We keep them separate but they are contradictory. Moreover, they may be seen as complementary since all stress redistribution through public employment. They seek to explain the variations in public employment among regions and at the regional level. This reflects our primary interest in the employment fluctuations dependent more on regional rather than federal policies (although this is very hard to separate empirically).

Hypothesis 1. This theory suggests that the public sector under the regional level is considered "an employer of the last resort." One may assume that regional governments which are actually the remaining large employers may try to correct market failures such us high unemployment. Having or expecting higher unemployment, the regional governments may inflate the number of jobs in the sectors which they have control over. These sectors should account for a relatively large share of employment and are politically sensitive and significant. Education and health care definitely fit all these criteria.

In this case, public employment figures (in general and in social services as well) should correlate significantly and positively with unemployment indicators given that some major controls are introduced. Looking at the relation-

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8 Rose (1985), p. 26.

9 There is both relative and absolute growth in some new market-oriented sectors like banking, insurance, and real estate.

10 Cheasty and Davis (1996), p. 27.

ship, we probably need to control for the general level of development, demographic profile, capitals and autonomous ethnic regions, among other variables.

Hypothesis 2. This theory focuses on regional public finances and underlines the public sector's financial dependence on transfers from the federal budget. We may assume that in expanding public employment (particularly politically and socially sensitive branches) regional governments are likely to demand more transfers from Moscow. Although it is logical to expect that as the economic situation worsens, more transfers are needed and a higher share of public employment is maintained. The unemployment rate fits this assumption as well, since it is a measure of economic distress on the one hand, while it highlights a challenge which the regional government may try to cope with, pretending for more redistribution, on the other.

In this case, we may expect a significant and positive association between public employment and a dependence on subsidies, given that other major influences are controlled for. Since the unemployment rate itself may become an argument for additional support, it should be added to the list of controls.

Hypothesis 3. This theory links the size of public sector employment to the GDP level, therefore, it tests whether Wagner's Law can explain cross-regional variations. Are regions with a larger per capita GDP more likely to have a correspondingly larger share of public employment? A significant and positive relationship between GDP and employment would provide evidence in favor of this hypothesis.

The working assumptions given above are definitely not exclusive. For example, following D. Cameron (1978) one may come up with more hypotheses underlining the importance of political circumstances, e.g., electoral competition or partisan politics, among others. The analysis of these various hypotheses is the subject of our ongoing work. However, due to time constraints, at the time of writing this article, we were not ready to provide convincing evidence regarding these effects.

Definitions and Data

There is no universal and generally agreed definition of what is termed public employment.[11] A 1997 World Bank study defines public employment as that which pertains to central and non-central administration, public health and education.[12] Since the focus of this paper is on cross-regional variations in public sector employment, it relies upon regional data issued mainly by the RF Goskomstat. This data may deviate from the definition mentioned above due to a number of reasons discussed below.

There are three different measures of public employment. The first one (i) covers employment in state-owned and municipal enterprises and public orga-

11 See, e.g., Rose (1985) and Schiavo-Campo et al. (1997b).

12 Schiavo-Campo et al. (1997b), p. 47.

nizations and is defined as the share of total employment.[13] It embraces most of the sectors where public ownership still exists, including social services, public utilities, transportation, and industry, among others. The second (ii) is the share of education, health care, social protection, culture, and public administration in total employment (later on this will be referred to as PE_t, where t stands for the year). The third (iii) covers the same sectors as (ii) but has another denominator. It is a figure standardized per 1000 of the population.[14]

All these measures have apparent disadvantages and can be used as proxies at best. Using all of them in a multifaceted manner may allow for a better approximation. None of the measures separates regional institutions and establishments from those which are under federal subordination and funded by the federal budget. Therefore, they may include enterprises or organizations located in regions but managed and funded exclusively by Moscow. This possible bias is largest in the case of (i), which includes state-owned military-industrial enterprises, power stations, large research facilities, etc. Regional data for (i) exists only for 1995.

Hypotheses (ii) and (iii) embrace sectors which are predominantly public but may, however, include some private entities (in education, health care, culture or research). According to research, the private sector fraction of these sectors is rather small; most of the institutions in the selected parts of the economy are managed and funded by regional authorities. The largest cities Moscow and St. Petersburg (we refer to both as capitals) are clear exceptions where most of the country's privately run health care and education are concentrated. This requires a special type of control. Data exists for (ii) and (iii) covering a few years, including 1997 as the most recent. The basic difference between (i) or (ii), on the one hand, and (iii), on the other, arises from their denominators. The former measures public employment as a portion of employment while the latter relates it to the total population. Thus, the lower employment rate (with higher unemployment, inactivity, and marginal age groups) the more they deviate from each other.

All three measures of public employment have ultimately provided the same results. The multivariate analysis and the related discussion will be largely confined to (ii), which contains the longest series of data provided by the RF Goskomstat (Chart 1).

This study used a number of explanatory variables and controls; data for them came from different sources. For measuring unemployment, we used the rate based on the OECD/ILO definition and corresponding regional data. Redistribution to regions from and through the federal government was measured by per capita transfers (TRANS[t]) from the so-called Federal Fund for Re-

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13 This measure, among others, is used by Rodrik (1997).

14 Here we follow Alesina et al. (1998) and Schiavo-Campo et al. (1997b).

gional Support (FFPR) and special loans.[15] These data came from the RF Ministry of Finance and the World Bank. Per capita GDP (denoted as GDP[t]) in regions, unemployment rate (UNEMPL[t]), urbanization level (URBANIZ), and age profile data (AGE0_15 and AGEov55 for the share of population under and over the working age, correspondingly) are from various Goskomstat regular publications.

General Trends in Public Employment

Throughout the 1990s in Russia, both total and public employment shrank significantly. The total downsizing resulted from economic reforms; drastic contractions in the GDP and deficit-ridden public finances gave rise to growing unemployment and led to increases in stagnation. An absolute and relative contraction of the public sector was a part of this trend. Privatization and new private business development contributed to diminishing the share of total public employment. It fell from over 80% in 1990 to about one-third by the end of the decade, as Table 1 reveals.

This trend, however, has its apparent sectoral and regional exceptions. If sectors are considered, health care, education and public administration have grown relatively as well as absolutely.[16] Altogether they accounted for 18% of the total employment in 1991; this number grew steadily to 18.5% in 1993, 20.7% in 1995 and to 21.9% in 1997. In absolute numbers, they declined slightly from 13.3 million in 1991 to 13.1 million in 1993 but then rose to 13.8 millions in 1995 and 14.1 million in 1997 (Table 2).

With regards to the regional dimension, the share of public employment (PE[t]) varies significantly across space. If we look at the measurement (i) across all sectors, it varied from 33% in the Stavropol' region to 74% in Chukotka in 1995. Taken as the share of education, health care and administration (PE), it ranged from 17% in the Orlov region to 35% in the Tyva Republic. Measured as (ii) it varied from 73 per 1000 in the Orlov region to 179 per 1000 in the city of Moscow. Regions differed greatly not only at a particular point of time but also in the rate and direction of change as well. Table 3 suggests that the mean has been growing while the variation remains fairly large.

While some regions increased levels of public employment, others decreased. Interestingly, the change in (iii) over 1992-1995 correlated neither with any of the three static measures of public employment, nor with any of the explanatory variables used in the analysis. Chart 2 plots PE97 against PE92. It

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15 This data includes loans as well. We know that the definition and full account of what is the federal support to regions is debated. However, this goes far beyond our agenda in this paper. For a discussion of this issue, see Tabata (1998).

16 As mentioned earlier, the two former sectors have few privately-run establishments and remain predominantly public. This is especially true in regions (outside Moscow and St. Petersburg).

shows a dispersion of changes in PE measure (ii) over 1992-1997. Most of the regions found themselves moving downward relative the no-change-line as an indication of rising PE. This shift was not universal and varied in both the sign and magnitude. The employment level in 1992 explains only 20% of the 1997 level, as the simple regression suggests (Rsq =.2, while b is significant under 10%). It can also be interpreted that the inertia in PE was weaker than expected, and its 1997 level was shaped by newly emergent factors. Only a handful of regions, led by Moscow and St. Petersburg, had decreased employment (they are located above the no-change-line) by 1997. All of them were either donors to the federal budget or received few subsidies from it.

A common denominator for the observed employment shift was that its pattern varied across regions, resulted from regional policy-making and had to be funded largely from regional budgets. Therefore, the observed cross-regional variations in public employment were likely to stem from the 89 regional administrations but not from the common policy initiated by the Federal Government.

How can this differentiation be explained? How much do the variables related to our hypotheses account for these variations?

We ranked all the regions according to the size of their public employment, using all three measures. Then we examined distribution, looking at public employment in the ten largest and ten smallest regions. The general pattern was mixed. Almost all the regions with the largest share were ethnic regional entities with autonomous status. They were largely poor and heavily subsidized but enjoyed relatively more administrative power than they otherwise (if they had no autonomous status) would have. The wealthiest regions, Moscow and St. Petersburg, where most of the governmental, educational, health care and cultural activities were concentrated, were in this group as well. Public sector establishments that are of national or federal importance heavily contribute to public sector's total size. The smallest shares of public employment were observed largely in the poorest, Russian non-ethnic regions. Thus far, however, the picture remains quite confused and seems to reflect the combined effects of various factors.

Multivariate Analysis

To disentangle "distributional" causes from other "non-distributional" causes, which could be also significant, a multivariate technique was used, simultaneously estimating the effects of subsidization, GDP levels and unemployment along with other economic and demographic variables. We regressed (using multiple OLS regression with robust estimation for standard errors) "the share of education, social protection, health care, culture, and public administration" (PE_t) on explanatory variables related to our hypotheses. On the right hand, we used variables for per capita GDP, per capita federal to regional budget transfers, and the rate of unemployment (the OECD/ILO definition). We ran

regressions for both the absolute levels of public employment as well as for the 1994-1996 changes. All equations were controlled for a number of exogenous effects, among which were the initial level of PE in 1992, the regional age profile, the level of urbanization, dummies for capitals (Moscow and St. Petersburg) and ethnic regions.

Let us start with the equations regressed on endogenous variables measured in absolute terms (as a level of employment but not as a change).[17] The regression was run for PE with t=1995, 1996 and 1997. All independents with (t-1) were lagged by one year relative to the dependent, since we assumed that any visible effect on public employment with changes in per capita GDP, or the unemployment rate, or transfers was likely to come with a lag. PE92 stands for the public employment in 1992 and provides a control for the initial level of the employment trend.

Table 4 reports regression coefficients with the White corrected standard errors (to take account of data heteroscedasticity). All final equations offered rather similar results, explaining between two-thirds to a little over three-quarters of the inter-regional variations in public employment.

Let us discuss the regression results referring to our three initial hypotheses.

Hyp.1: assumes that an expectation of higher unemployment pushes regional governments to retain a larger public sector, considering it "an employer of the last resort." None of the equations provides evidence for this assumption. Coefficients for UNEMPL[t] are statistically insignificant suggesting that the hypothesis should be rejected.

Hyp. 2. stresses that the public sector is financially dependent on transfers from the federal budget. This implies that, having expanded public employment in their politically and socially most sensitive sector, regional governments may try to squeeze more funds from Moscow. The coefficients are significant and there are no statistical grounds for rejecting this hypothesis.

Hyp. 3 suggests, in line with Wagner's Law, that richer regions may have larger public sectors. Higher GDP is translated into more resources and more demand for public goods produced by particular sectors under consideration. This assumption seems to be completely misleading, since the association between per capita regional GDP and PE appears to be significant but negative. While GDP per capita is indeed associated with the share of public employment, keeping all other factors constant, poorer - not richer! - regions tended to keep higher levels of public employment! This conclusion looks strange but is complementary to the outcome from Hyp. 2. Poorer regions are more dependent on transfers and are the main beneficiaries of inter-regional fiscal redistribution.

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17 The equation is: PE_t=b0+b1*PE_{92}+b2*GDP_{t-1}+b3*$UNEMPL_{t-1}$+b4*$TRANS_{t-1}$+b5*$AGE0\_15_{t-1}$ +b6*$AGEov55_{t-1}$ + b7*URBANIZ+b8*CAPITALS+b9*ETHNIC

The PE92 variable reflecting the initial level remains significant across the equations suggesting that inertia in determining public employment is quite strong. However, the effect of PE92 has been fading over time, this fact is reflected in the significant decrease in T-value regressions for 1996 and 1997 (Table 4).

We expected to see statistically significant coefficients for the ETHNIC dummy. The ethnic republics in Russia usually enjoy expanded autonomy, resulting not only in extra powers towards the federal center, but also in additional governmental functions and employment. Its effects were visible in 1995 but have vanished since then. It might have been redistributed between other independent variables, given that many of Russia's ethnic regions are the poorest and most dependent on financial sprees by the center. (There are obvious exceptions, such as ethnic regions rich in gas and oil, within Tiumen Oblast, or the Republics of Tatarstan, Sakha-Yakutiia, Bashkortostan).

The age factor remains insignificant across the equations suggesting that regional demographics do not contribute to public employment levels as an important demand factor. It is also noteworthy that the dummy for the two largest cities and the variable for urbanization have very little significance either.

Another set of regressions included the same independent variables, but were measured as a 1996 to 1994 ratio. We can estimate these regressions for both 1996 and 1997. Briefly, they present almost the same findings as those discussed above. The changes in GDP and transfers are significant and have different signs (as in the table 4), while the increase in unemployment does not matter. The coefficients for capitals and urbanization were significant and negative, meaning that more urban areas (primarily, both Moscow and St. Petersburg) may have seen a relative decrease in PE, all other factors being constant.

The close association between transfers and public employment says, however, nothing about the direction of the relationship; although what causes what needs additional scrutiny, we have implicitly assumed that transfers are likely to affect employment but not vice versa. In fact, the causality may be either in this direction, or in the opposite one, as well. Yet, the third case, when there is bilateral causality, cannot be excluded neither.[18]

Checking for the causality's direction requires Granger's test, which is based on using longer series of lagged variables. Our series were too short to allow for a rigorous application of this test. However, we applied a simpler test examining the bivariate correlation between TRANS and PE, shown in the correlation matrix in Table 5, revealing a stronger association in when TRANS was lagged relative to PE.[19] This may suggest that the prevailing causality directed

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18 The fourth possible option, independence between the two variables, can be rejected by the results of the regression analysis.

19 The authors are indebted to Prof. Kunitomo for suggesting this idea. The correlations were even higher under the two-year lag. However, in this case we would have had two equations (instead of three) due to data availability.

from lagged transfers towards public employment. For additional testing, we ran regressions (with the same variables as in Table 4) but swapping TRANS and PE. The results were also significant but both the significance and the coefficients were lower than those shown in the table.

Interpreting Evidence

Higher public employment seems, therefore, likely to be associated with more transfers and lower regional contributions to the GDP. Regions producing relatively less value per capita and which are, hence, more dependent on subsidies tended to employ more people in the selected sectors.

Evidence of this association does not mean, however, that the financial transfers to regions are directly used to finance public employment. Moreover, mounting wage arrears to public employees suggest that this is not the case. Among the main recipients of federal money is the housing sector (where utilities are still heavily subsidized) which receives a lion's share of these subsidies.[20] As the EBRD Transition Report 1998 states:

"the system of intergovernmental transfers generated numerous possibilities for *ad hoc* bargaining and created incentives for regional governments to keep their spending high and their revenue low. A mathematical formula introduced in 1994 to calculate regional transfer needs created perverse incentives for regions to run wage arrears as a way of extracting transfers from the federal level."[21]

Incentives that were built-in to Russia's center-regional fiscal relations led to a mass concealment of the potential tax base in regions due to the non-transparency of regional public finances. Instead of seeking to boost tax collection, regional administrations may have been more interested in squeezing more transfers from Moscow.[22] Some studies provide evidence that center-regional subsidies have likely been used as a hard currency for political appeasement in the bargaining between Moscow and regions.[23] Others argue that the allocation of transfers follows social needs across regions.[24]

Since a significant part of public employment is in the most politically and socially sensitive sectors, keeping it inflated may be used as an additional argument to exert more pressure in the bargaining *vis-á-vis* the federal government. If underpaid, doctors and teachers are more likely than any other groups (except coal miners, probably) to go on strike pressuring the federal government. Impoverished doctors and teachers have the ability to raise the political tempera-

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20 Freinkman and Honey (1997). The housing sector, however, may also have a public component.

21 EBRD (1998), p. 15.

22 Uliukaev (1998).

23 Treisman (1997).

24 McAuley (1997).

ture, affect claims for more funds and strengthen pressure for financial assistance. This narrows the gap between D. Treisman's political appeasement and A. McAuley's social needs arguments.

Furthermore, spending the subsidies on, for example, housing brings a new redistributive element. Wealthier households are likely to get more in housing subsidies while those urban residents living in smaller apartments or private houses, as well as the rural population have less access to them.

Is the public sector inflated deliberately to claim more transfers? There is little evidence to support this supposition. Public employment is rather inertial but does not shrink (in education and health) in accordance with real needs and available funds; it tends to be underpaid rather than downsized.[25]

Although wages in the public sector are somewhat lower (at least in the case of education and health care), the total wage bill is expanding. This increases pressure on budgets and, if public cash is limited, can lead to wage arrears. In Russia, wage arrears are well known as an important dimension of labor market adjustment, where a significant proportion of workers do not receive their contracted wages in time or completely.[26] The general government is the main debtor and the relationship between the public sector and wage arrears across regions is significant and positive. Health care and education are persistently under-funded, running huge amounts of wage debt. Funds earmarked for wages in these sectors are reportedly channeled to other needs. Most of this employment expansion occurs at the regional level and has to be financed from regional budgets. Regional and local authorities are likely to prioritize paying wages to those working in administration. Thus, the latter are likely to gain relative to workers in the education and health sectors, not only with respect to employment and wages owed, but in terms of the wages actually paid out to them. The expanded amount of wage arrears, being politically explosive, provides additional strength to demands for more subsidies.

This paper's conclusions do not contradict common-sense expectations and can be supported by anecdotal observations from the mass media, which are too numerous to be cited. The gist of these reports is that cash transfers from the federal budget to the regions have disappeared or been misused, instead of helping to pay wages, and no trace of them are likely to be found. These disappearances may correlate well with the growing arrears to teachers and doctors, and timely payments to inflated regional administration staff. As it was recently reported in *Izvestiia*, "the poorest regions tend to have the biggest government staff, whose wages are "not bad" [*Izvestiia,* 12 March 1999, as reported in *RFE/RL Newsline* Vol. 3, No. 50, Part 1, March 1999]. Meanwhile, information on financial trans-

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25 This is in line with the point that it is easier to compress wages than to cut employment. Financial crises and pressures on public finance in developing countries may compress wage bills but are not likely to bring reductions in the public labor force. Ul Haque, Montiel and Sheppard (1998).

26 Gimpelson (1998), Earle and Sabirianova (1998).

fers to regions is not published in the local press, which does not help in tracking funds, providing fertile ground for various types of misspending.

Over-inflated but underpaid public employment in education and health care aggravates many difficulties. The loss of skills and prestige, and declining motivation contribute to a lower quality of services. Wage arrears coupled with low basic salaries lead to growing political and social tensions. Since these groups are well organized and easily mobilized, they are major contributors to strike movements, able to destabilize the country at large, creating pressures on public finances. This also erodes the middle class, as teachers, together with doctors and scientists, making up its core, inhibit public sector reform, along with non-transparency and possible corruption. All this further undermines the government's credibility. We enter the vicious circle: more public employment in these sectors corresponds with lower and late pay, given the actual budget constraints. Backing claims for more funds by further expansion of the public sector, regions may run even more arrears.

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Table 1. Employment, byOwnership, 1992- 199
(percentages, unless otherwise noted)

	1992	1993	1994	1995	1996	1997
State sector	68.9	53.0	44.7	42.1	42.0	40.1
Mixed enterprises	11.7	17.6	21.1	22.2	21.0	18.3
Public associations	0.8	0.9	0.7	0.7	0.6	0.6
Joint ventures	0.3	0.4	0.5	0.6	0.8	1.1
Private sector	18.3	28.1	33.0	34.4	35.6	39.9
Total Employment (millions)	100 (72.1)	100 (70.9)	100 (68.5)	100 (66.4)	100 (66.0)	100 (64.6)

Source: Goskomstat RF (1999), p. 179.

Table 2. Employment in Selected Sectors with Predominantly Public Ownership

	1991		1993		1994		1995		1996		1997	
	Thousands	% of total employment	Thousands	% of total employment	Thousands	% of total employment	Thousands	% of total employment	Thousands	% of total employment	Thousands	% of total employment
Total employment	73848	100	70852	100	68484	100	66441	100	66000	100	64639	100
Health care	4305	5.8	4243	6.0	4394	6.4	4446	6.7	4531	6.9	4412	6.8
Education	7273	9.8	7239	10.2	7383	10.8	7316	11.0	7313	11.1	7144	11.1
Public administration	1722	2.3	1649	2.3	1659	2.4	2013	3.0	2655	4.0	2579	4.0

Source: Goskomstat RF (1999).

Table 3. Employment in Selected Sectors, Descriptive Statistics, 1992- 1997.

Variable	Obs	Mean	Std. Dev.	Min	Max
pe92	78	.212	.034	.13	.37
pe93	78	.213	.033	.15	.34
pe94	78	.227	.030	.16	.34
pe95	78	.241	.031	.17	.35
pe96	78	.245	.037	.17	.41
pe97	78	.244	.039	.18	.40

Table 4. OLS Regression of Public Employment
Cross- sections for 1995- 1997, SE estimated as robust White-corrected

	Dependent variables		
Independent variables	PE95	PE96	PE97
Pe92	.6225***	30.405*	26.167**
	(7.845)	(1.937)	(2.44)
Unempl	.000854	.1340	.1058
	(0.890)	(1.126)	(1.038)
GDP	- 3.25e- 06	- .0001887**	- .0001368***
	(- 1.404)	(- 2.106)	(- 3.734)
Trans	.000296***	.04289*	2.7646**
	(3.225)	(1.763)	(2.196)
Capitals	.0097	- 3.1900	1.3751
	(0.812)	(- 1.599)	(0.543)
Ethnic	.0111**	1.5202	.5738
	(2.076)	(1.656)	(0.805)
Age0_15	- .00223	- .1217	.1043
	(- 1.281)	(- 0.345)	(0.329)
Ageov55	- .0019	- .2355	- .2258
	(- 1.565)	(- 1.364)	(- 1.641)
Urbaniz	- .00012	- .0451	- .0450
	(- 0.486)	(- 1.197)	(- 1.262)
Constant	.2051**	27.803**	23.28*
R- squared	0.78	0.62	0.71
F	44.47	9.54	15.47
N	78	77	77

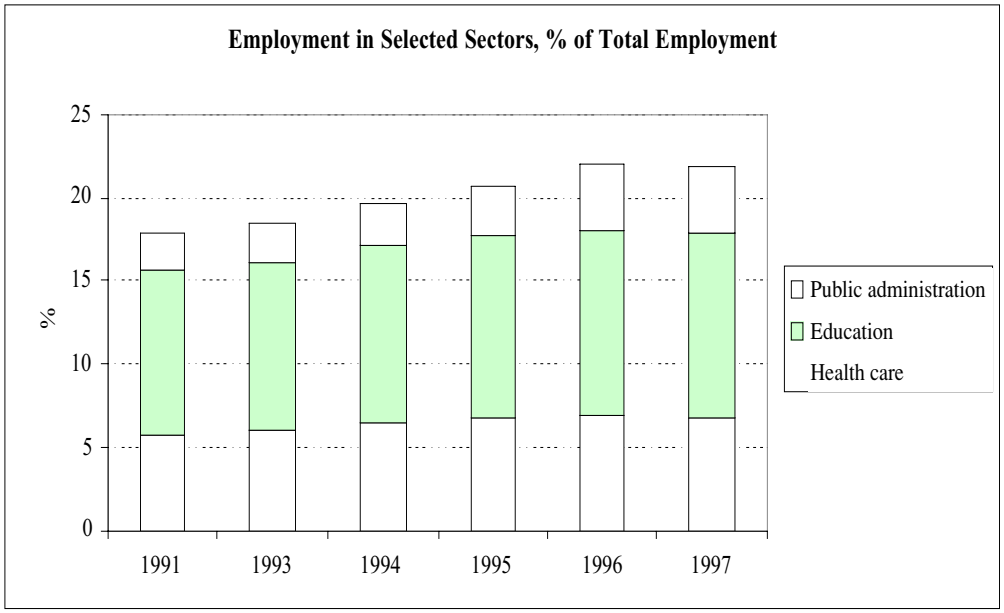
All independent variables are lagged by one year relative to the dependents.
* denotes significance at 10% level,** - at 5% level, and *** - at 1% level. T- values are given in parentheses.

Table 5. Correlation Matrix: Public Employment and per Capita Transfers
N=77

	pe93	pe94	pe95	pe96	pe97
trans94	0.2726	0.3251	**0.3975**	0.4816	0.5094
trans95	0.2804	0.4000	0.4482	**0.5649**	0.6000
trans96	0.2215	0.3682	0.3955	0.5305	**0.5737**

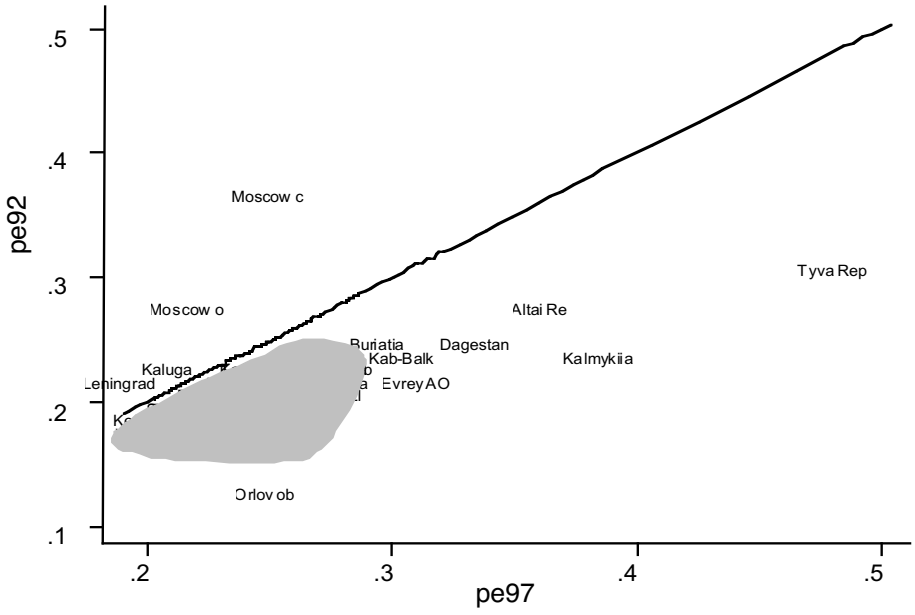
PE(t) is the share of employment in the education, health care, social protection, culture and public administration, TRANS(t) stands for per capita transfers to regional budgets.

Chart 1. Employment in Health Care, Education and Public Administration as % of Total Employment, 1991- 1997



Source: Goskomstat RF.

Chart 2. Change in PE by Regions, 1992- 1997



The line shows no change in PE over 1992- 97. All regions located under the line including those located in the gray zone have increased PE.
Source: the Goskomstat RF data.