

MARKET AND INSTITUTIONAL DETERMINANTS OF WAGE DIFFERENTIATION IN RUSSIA

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Keywords:

Russia; wage differentiation; inequality; labor economics; industrial relations theory

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Market and Institutional Determinants of Wage Differentiation in Russia

Abstract

Using a range of Russian official and survey data, the author evaluates the contrasting approaches of competitive labor market theory and industrial relations theory/institutional economics to wage determination. Following a review of the analysis of wage determination by an influential team of World Bank economists, the author shows that increased wage inequality in Russia is dominated by inequality within occupational categories within local labor markets. It is suggested that such inequality is primarily associated with inter-firm differences in wage levels, rather than barriers to labor mobility or differences in 'human capital'. Such a pattern of differentiation is entirely in accordance with the analyses of institutional economists and industrial relations theorists who stress the role of the wage in regulating and motivating the labor force above its role in securing labor market equilibrium. The paper concludes by outlining the institutional framework of wage determination which underlies the observed results.

Wage inequality in the Soviet Union was approximately at the level of its European capitalist neighbors (Atkinson and Micklewright 1992), but the collapse of the Soviet Union and the transition to a market economy has been associated with a rapid increase in Russian wage inequality to Latin American levels. For the competitive labor market economists who have dominated the analysis of wage differentiation in Russia

some increase in inequality was not unexpected, since wage differentials had been compressed by an egalitarian wages policy. The scale of the increase in wage inequality might also reflect a temporary disequilibrium in the labor market, as increased differentials are required to stimulate the flow of labor from less to more productive employments in accordance with changing economic conditions. As people moved from low- to high-wage jobs, however, competitive labor market theory would lead us to expect the labor market to move back towards an equilibrium in which pay differentials would reflect differences in the skill and experience of employees.

This paper falls into four sections. In the first section I review the most influential analysis of the operation of the Russian labor market in the early years of transition, which found that employers' wage-setting behavior was not in accordance with the prescriptions of competitive labor-market theory. However, I argue that their wage-setting behavior is not an idiosyncratic feature of Russian employers, but corresponds to the patterns long observed by institutional economists and industrial relations specialists in the developed capitalist economies.

In the second section of the paper I explore the characteristics of the persistent inequality of wages in Russia. By decomposing the components of wage inequality I show that barriers to geographical and occupational mobility explain only a small portion of inequality, the largest component consisting of inequality within occupations within local labor markets. I suggest that this pattern of inequality is at least consistent with institutionalist and industrial relations theories' accounts of wage determination.

In the third section of the paper I reinforce this conclusion by looking at the contribution of skill and experience to wage relativities, reinforcing the findings of earlier authors that such differences explain only a very small amount of wage

differentiation. The conclusion of the paper is that the Russian labor market is not working as a competitive labor market economist would expect that it should. The explanation of this failure is not only of theoretical interest since many of the policy prescriptions of orthodox economists in Russia have been based on their diagnoses of the failures of the labor market. In this paper I suggest that the fault lies not with the Russian labor market, which works no differently from any other, but with competitive labor market theory. An understanding of wage-determination in Russia, as elsewhere, depends on an analysis of the institutional framework within which such wage-determination takes place.

Russia meets the World Bank

One of the first acts of the Yeltsin regime, in October 1991, was to free enterprises and organizations from the administrative regulation of wages, although wages in the budget sector (primarily public administration, health and education) continued to be determined according to administratively defined scales and most enterprises still used the official pay scales as the basis of their internal payment systems (Standing 1996: 116). The immediate result of the greater freedom given to enterprises in the setting of wages was that the average money wage, which had taken twenty years to increase twofold between 1970 and 1990 and had then doubled between January and October 1991, doubled once more by December, making the freeing of state prices, most of which remained unchanged, inevitable. The wage inflation of 1991 was dwarfed by the inflationary explosion that followed the freeing of most prices at the beginning of 1992. Consumer prices increased by 26 times over the year and the average money wage by 13 times. Only small differences in the lag with which wages were adjusted to inflation could lead to very big differences in the real wage paid by different employers. Thus

the dispersion of wages increased dramatically between 1991 and 1992. The basic official data on wage differentials is presented in Table 1.

[Table One about Here]

It was clear in 1992 that the Russian labor market was working, in the sense that wages and wage relativities had changed dramatically in response to the initial structural shock. But the key question was whether they were changing in response to labor market conditions, and whether employers and employees were responding appropriately to these differentials. This issue was addressed by a team of World Bank economists, headed by Simon Commander, who set the agenda for most of those who followed. Their first response was that, by the standards of competitive labor market theory, they were not. Despite the acknowledged flexibility of the labor market and the responsiveness of workers to market stimuli, Russian employers fell far short of the market ideal in their wage-setting and employment behavior. However, the basis on which the Bank's economists judged them wanting changed somewhat over time. The first diagnosis emphasized the supposed absence of any effective budget constraint on their behavior. The second diagnosis concentrated on their supposedly irrational labor hoarding. The third diagnosis concentrated on their inappropriate wage-setting. In all three cases employers were charged with paying too much attention to the preferences of their employees and having insufficient regard to the requirement to maximize their profits, although neither evidence nor explanation for such benevolence on the part of employers was provided.

Wages, employment and the soft budget constraint

In their first analysis of the impact of radical reform the World Bank's economists argued, drawing on a 1992 survey of 41 firms in the Moscow region and some analysis of aggregate data, that enterprises were playing a waiting game. On the basis of a rather selective reading of the aggregate data then available they claimed that real wages had been restored to their mid- 1991 level by the middle of 1992 and that there had been very little fall in employment despite a dramatic fall in output. According to their analysis, uncertainty and 'insider power' meant that enterprise directors were reluctant to reduce employment, while by-and-large they were also able to maintain real wages because they were not subject to hard budget constraints, exploiting monopoly powers and extracting government subsidies to maintain real wages and return paper profits. They implied that the colossal inflation unleashed by price liberalization was caused by a wage-price spiral. They did not believe that the wage-price spiral reflected any power of trade unions, but it did 'reflect the control structure and decision-making rules characterizing the bulk of Russian firms' (Commander et al. 1993: 51). Changing wage relativities, they argued, were not related to labor market conditions, but only to the ability of the firm to extract money from banks and the government to meet the wage bill of the stable labor force.

The idea that inflation was driven by wage increases and that wage-setting was not subject to a budget constraint did not survive for long. It turned out that, on average, real wages had fallen substantially in 1992 and that profits had actually risen, so employers had not simply been able to extract money from banks or the government to pay the wage bill, but wages 'appear to have been primarily constrained by firm revenues (and subsidies)' (Commander et al. 1995: 177), though the World Bank's

1994 survey found that only 25-30% of enterprises received federal subsidies during 1992–4 (Commander et al. 1996a: 22). Relative wages were not determined simply by the ability to extract subsidies, but showed the expected relation to changes in production and relative prices and were also correlated with profits (ibid.: 167; Commander et al. 1996a). Although there were some signs of a softness in the budget constraint with regard to wage-setting for some firms in 1992 and 1993, by 1994, for the overwhelming majority of firms, the World Bank's 1994 enterprise survey concluded that 'wage settlements were clearly constrained by the operating surplus' so that 'firms have generally been quite effectively constrained in their wage setting by their revenues and they do not appear to have operated as if in the presence of a soft budget constraint' (Commander et al. 1996a: 45).

Labor hoarding

The observation that enterprises were adjusting to falling revenue by reducing wages, while total employment fell by much less than the decline in production, led to the idea that enterprises were hoarding labor. All sorts of economic, social, ideological and political explanations for this phenomenon were assembled, but the most general was the claim that labor hoarding was an expression of enterprise paternalism as directors responded to employees' preferences. Simon Commander and his colleagues explained this supposed 'labor hoarding' in terms of a model of a worker-controlled firm (Commander et al. 1996a: 184–9), although they recognized that trade unions do not play an adversarial role, that managers have complete discretion in setting wages, that worker-shareholders enjoy no effective rights and that there is no observable difference in behavior between state, privatized and new private firms or between those firms which are insider- or outsider-controlled. They similarly characterized the willingness

of Russian workers to work for much reduced wages, to suffer short-time working and lay-offs without pay and to endure the non-payment of wages for months on end as being based on an 'implicit contract between workers and managers. Workers accept highly flexible wages and hours, and managers may in return offer a high degree of job security' (Commander et al. 1996a: 86). However, this was a mischaracterization of what was already a pretty one-sided contract, since the managers did not offer employment stability or job security in exchange for low wages. The belief that they did is a simple fallacy of composition: those keeping their jobs were not those taking the cut in wages. At the level of the firm, there was a strong positive correlation between the fall in wages and decline in employment (Commander et al. 1996a: 28): those firms in difficulties cut both wages and employment, the more prosperous firms were able to offer both stable wages and stable employment. Similarly, those firms which paid low wages had much the highest labor turnover (Aukutsionek and Kapeliushnikov 1994), often at annual rates of more than one hundred percent (see also Clarke 1998a; Clarke 1999, Chapter Two).

Wage flexibility and wage setting

While employers did not respond to the crisis in the way that the World Bank's economists believed that employers should, workers also confounded their expectations. The initial belief had been that workers would be reluctant to change jobs in response to emerging pay differentials because of the wide range of welfare and social benefits attached to long-service and stable employment in state enterprises. In fact, however, the workers surprised the economists by their readiness to change jobs in response even to ephemeral changes in relative wages (Commander et al. 1995: 160–61), to the extent that Aukutsionek and Kapeliushnikov concluded that 'in 1993

workers were behaving in a much more market-oriented fashion than were enterprises as employers' (Aukutsionek and Kapeliushnikov 1994: 30). The OECD, in its country report on Russia, concurred that 'the labour force has exhibited a high degree of flexibility' and that 'real wages showed remarkable flexibility' (OECD 1995: 109, 113). In regard to labor market flexibility, Russia, against all expectations, 'conforms better to the OECD's recommendations than any OECD country' (Layard and Richter 1995: 40).

Wages may be flexible, but this does not necessarily mean that they are performing their appropriate economic function of redeploying labor from less to more productive uses. The World Bank team's analysis of the findings of their 1994 enterprise survey concluded that 'wage decisions appear to be conditioned primarily by firm-specific financial variables, liquidity and profitability, but also appear sensitive to ... the need to pay competitive wages to maintain attachment. But the most important consideration is the explicit association of wages with consumer price changes' (Commander et al. 1996a: 31). In other words, employers' prime concern was to preserve the real value of wages, subject to their ability to pay and the need to recruit and retain labor, displaying their commitment to the well-being of their employees rather than taking advantage of more favorable labor market conditions, as competitive labor market theory implies that they should. The result was that, despite enormous changes in relative prices and production levels, the structure of branch and regional differentials had not changed substantially, while inter-firm differentials reflected liquidity and profitability constraints rather than labor market conditions.

In fact, most of the structural change in branch and regional wage differentials took place in the late perestroika period, the scale of the differentials then being expanded in

the inflationary process during 1992–3. The pattern and degree of wage inequality has remained remarkably stable since 1994 (Table 1) and there is no indication that branch and regional differentials subsequently have been any more responsive to labor market conditions (Clarke 1999: 35–8). Nor is monopoly power, measured by the proportion of the home market supplied by eight enterprises, a significant determinant of branch differentials, tending to discount the suggestion that increased wage differentials arise from the participation of workers in monopoly rents (Brainerd 1998: 1110), at least at the branch level. Simon Commander and his colleagues also noted that skill differentials appeared hardly to have changed at all, the main changes in relativities being due to inter-firm differences in liquidity and profitability, and concluded that this stability of differentials ‘indicates the power of institutional features in the wage setting’ (Commander et al. 1995: 165).

Market and Institutional Determinants of Wages

The diagnoses of the World Bank team in the early years of reform were soon established as the orthodox interpretation of the development of the Russian labor market, reflected in subsequent commentaries of western economists and international organizations such as the World Bank and the OECD (although the Russian Labour Flexibility Surveys, conducted by Guy Standing on behalf of the ILO, painted a much less sanguine picture of the Russian employment situation (Standing 1996)). It became a commonplace that Russian employers were paternalists, responding to their employees’ aspirations for job security by maintaining employment at the expense of the inflationary erosion of real wages and able to do so as a result of the persistence of soft budget constraints, while employees in more profitable (or heavily subsidized) enterprises were able to extract a premium wage. The implication was that Russian

employers had to be forced to behave in a more market-oriented fashion by subjecting them to the more rigorous financial discipline that would compel them to confine wages within the limits of profitability and to dispense with surplus employees, a task that would be facilitated by the enforcement of bankruptcy and the repeal of protective labor legislation.

However, the pattern of wage setting identified by Simon Commander and his colleagues is exactly that which is observed by industrial sociologists and industrial relations specialists in western companies. It is not necessary to go to the lengths of postulating a model of a worker-controlled firm to recognize that employers have to take employees' preferences into account in determining their wage and employment policies, not only because their policies affect employees' behavior in the labor market but primarily because they affect their behavior in the workplace. It is the latter consideration which means that employers cannot set wages in accordance with labor market considerations alone. It is a commonplace of industrial relations research that pay differentials are constrained by considerations of 'custom' and 'fairness' (Brown and Nolan 1988), so that employers cannot simply reduce pay in response to changes in the labor market situation. John Dunlop noted long ago that wage differentials established in tight labor market conditions come to be 'regarded as proper' and 'are not readily altered in a looser labor market' so that the wage structure is institutionalized and 'the product market tends to be mirrored in the labor market and to determine the wage structure. The differentials are not transitory; they are not to be dismissed as imperfections' (Dunlop 1957: 136).

Surveys in western capitalist countries consistently show that the most important factors cited by employers in the determination of pay are compensation for increases

in prices, the level of profits and the ability of the employer to pay, with comparability and retention playing a subsidiary role.

This finding is confirmed by econometric analysis which finds that there is a very high degree of inertia in the determination of wages, which cannot be explained in terms of 'efficiency wages', 'implicit contract theories' and 'insider-outsider' models, according to which particular employees are able to bargain a share of the additional value added in more prosperous firms, because this is a general phenomenon, not one characteristic only of particular categories of employees with the appropriate bargaining power (such as those with high training costs, firm-specific skills or unionized employees).

The evidence suggests that, however much labor economists might disapprove, Russian employers were behaving in very much the way that western employers behave, attempting to maintain productive efficiency and what Russian employers refer to as the 'manageability' of the labor force by preserving the existing wage structure as best they could in the face of dramatic changes in the labor market and macroeconomic environment.

Institutionalist and market explanations of persistent wage inequality

Institutionalist theory implies that, in order to preserve the stability and motivation of the labor force, wage structures remain relatively stable to the extent that employers are able to pay established wage rates, while labor market factors predominate only in the case of employers who are under severe financial pressure to cut costs, their

inability to pay being regarded by the labor force as some justification for the relative fall in their wages.

Between 1990 and 1998 Russia experienced a longer and deeper recession than any previously recorded in world history. The vast majority of employers were unable to maintain the real value of wages, constrained by acute shortages of liquidity in the face of successive bursts of inflation. The pattern of adjustment was established in 1992, when hard-pressed employers postponed increases in money wages to take account of inflation, while those who could not even pay current wages resorted to their non-payment. However, in general, those who could pay, did pay, so the result of this pattern of adjustment was a marked decline in average real wages, a sharp increase in wage inequality and a decline in employment in low-wage enterprises, primarily through natural wastage. It appears that once the new pattern of wage inequality was established, it soon acquired a high degree of stability as the (remaining) labor force adapted their expectations to their situation, with overt protest confined almost entirely to those hardest hit, whose wages depended on budgetary funding: coal miners and workers in the education and health sectors. Although we do not have firm-level panel data to explore this fully, the gini coefficient hardly changed and there was very little change in the scale or pattern of branch and regional wage differentiation between 1994 and 1998, when a further structural shock following the August crisis again disrupted differentials (Table 1 and Clarke 1999: 35–8).

The structure of wage inequality is sustained by the tendency for those employers who can afford it to pay relatively high wages, well above the market-clearing level, but this is not an idiosyncratic feature of paternalistic soviet directors, since wages in the new private sector are significantly higher than in traditional enterprises, while foreign-

owned enterprises pay much the highest of all wages. The average reported wage in 1999 in enterprises with foreign-participation was more than two-and-a-half times the overall average. This is partly a reflection of the sectoral composition of employment, but even the average wage in industrial enterprises with foreign participation was over 70% higher than the average industrial wage (Goskomstat 2000: 163).

Luke and Schaffer 2000 use an 'efficient bargaining model' which purports to show that 'corporate governance (wage-setting) is more disciplined in private firms' in Russia, since the share of 'surplus' taken by workers is less than in state-owned firms (p. 15). This result (which depends on removing outliers from the data set) arises, despite the fact that private sector wages are higher, because 'value added' in the private sector is also much higher than in the state sector. It is therefore entirely consistent with the institutionalist analysis, according to which employers do not beneficently 'share' their profits with employees but try to preserve established wage structures within the limits of their budgetary constraints.

The institutionalist explanation is also consistent with the tendency for employers facing liquidity constraints to resort to non-payment rather than taking the symbolically, if not substantively, more drastic step of holding down or even reducing money wages (Clarke 1998b), although the situation is complicated by an element of opportunism in the non-payment of wages (Earle and Sabirianova 1999).

Unfortunately we do not have adequate longitudinal firm-level data to subject the institutionalist hypothesis to direct empirical testing. The hypothesis would lead us to expect a correlation between wages and profits (or value-added), as is indeed found in most data sets, although reported profits are a poor indicator of the prosperity of an enterprise (hence the Russian saying 'if you make a profit, sack your accountant') since

much profit is hived off to subsidiaries and siphoned off through commercial and financial intermediaries. In the annual branch data, which is at a high level of aggregation, covering 16 branches over the period 1992-9 there is an inverse correlation between average wages and the percentage of unprofitable enterprises in the branch and a positive correlation between average wages and the average rate of profit in the branch, but this is generally not sufficiently strong to be statistically significant.

Although we do not have adequate data to test the institutionalist hypothesis directly, we can at least investigate the extent to which the patterns of wage inequality are consistent with the explanations proposed by competitive labor market economists.

Competitive labor market economists might expect persistent high levels of wage inequality to be a result of barriers to geographical or occupational mobility or of high returns to skills and experience. We can test the former hypotheses by examining the components of wage inequality, using the mean log deviation as an additively decomposable indicator (Jenkins 1995), which I will do in this section of the paper, and we can test the latter by examining the returns to individual skills and experience, which I will do in the next section. To anticipate the argument to follow, I will show that

- According to the official regional wage data, weighted for size of the regional labor force and correcting for differences in consumer prices and industrial structure, less than 10% of wage inequality is accounted for by differences between regions, while well over 90% is accounted for by differences within regions.

- According to the official data for average industrial wages, between-branch variation accounts for less than a quarter of wage inequality, three-quarters being accounted for by variation within branches.
- The data of the Goskomstat wages survey and of the Russian Labour Flexibility Survey indicates that wage inequality within branches is not accounted for by increased skill differentials or within-firm differentials.
- These findings are supported by the data of independent surveys (RLMS, VTsIOM, ISITO), which consistently show that about half of the total wage differentiation is accounted for by pay differences within occupations within local labor markets.
- This pattern of differentiation is not specific to particular occupations, industries or occupational categories, as would be implied by theories of labor market segmentation, implicit contracts, ‘compensating differentials’, ‘efficiency wages’ or ‘insider-outsider’ models, but is a general phenomenon across all branches and occupations.
- Firm-level data similarly shows that the bulk of wage differentiation is not within but between enterprises, with a suggestion that the latter has been increasing over time.
- Human capital variables consistently explain only a very small proportion (between 4% and 11% depending on the data source) of the variation in individual hourly wages.

- A multi-level (random coefficients) wage regression confirms that almost three-quarters of the variance of wages is within occupations, while human capital variables explain only 4% of the variance of wages within occupations and 5% of the variance between occupations.

Taken together, this data provides very strong support for the conclusion that the most powerful determinants of relative wages are the characteristics of the employer rather than of the employee, which is consistent with an institutionalist interpretation of wage determination.

Barriers to geographical mobility

The persistence of the very substantial wage inequalities that opened up in the early transition crisis might indicate to an economist that there are significant barriers to labor mobility that are preventing the erosion of these differentials. The first suggestion of orthodox western economists was that people were reluctant to leave their jobs because their workplace provided them with housing and a wide range of social and welfare benefits (Commander et al. 1996b), an idea that could hardly be reconciled with the fact that almost a third of people were leaving their jobs each year. Nevertheless, western advisers pressed the Russian government to compel enterprises to divest their housing and social and welfare facilities, transferring them to municipal authorities which had neither the staff, nor the funds, nor the managerial skills to continue to provide them (Healey et al. 1998). The result of this policy was to accelerate the collapse of the construction and maintenance of housing, the social infrastructure and the provision of marketable services to the population without having any discernible impact on labor mobility.

When these policies had no impact on the labor market, many commentators turned their attention to the barriers to labor mobility supposedly constituted by the limited housing market (and the illegal persistence of urban registration regimes), believing that the high levels of wage inequality were primarily a result of regional wage inequalities associated with dramatic changes in the geographical structure of the demand for labor. However, although the registered unemployment rate is still very low, there is no evidence of significant regional labor shortages (total employment has fallen even in Moscow city). On the other hand, there is a relatively high level of inter-regional mobility, with around three million people a year moving within Russia, almost half of whom move between regions, the principal motives for moving being education and employment (Goskomstat 1994 microcensus data), in addition to which there are around half a million officially registered net immigrants to Russia each year, mostly from the other former Soviet Republics (Goskomstat 1998a), with migration flows responding to wage differentials in the expected ways (Brown 1997, cited in Grogan 1997 and Kapelyushnikov 1999: 13-14).

The fact that barriers to geographical mobility explain only a very small proportion of wage inequality is shown by the fact that wage inequality within each region is substantially greater than inequality between regions. Decomposing the mean log deviation of wages by region shows that 17– 19% (falling to 13% in 1999) of inequality is accounted for by wage differences between regions and 81-87% by wage differences within regions (Table 1). However, around half of the difference in nominal wages between regions is accounted for by differences in the regional consumer price indices and 15% by differences in industrial structure, so that in real terms about 93% of wage inequality is accounted for by differentiation within regions. Moreover, when

corrected for the differences in regional price levels that emerged in 1992, the degree of regional wage inequality is not dramatically greater than in the soviet period. It is clear that most people have a far higher chance of increasing their pay by taking a better-paid job within their own region than by taking an equivalent job in another region, even if there were no barriers to geographical mobility. We can conclude that there is no evidence that barriers to regional mobility are a substantial source of wage inequality.

Barriers to occupational mobility

The other obvious barrier to labor mobility in a situation of rapid change is the training that is required for people to take up a job in a new occupation or a new sector of the economy. There is no doubt that the soviet system of occupational training has largely broken down and a system adequate to the new market economy has only slowly emerged to take its place. On the other hand, it is important not to exaggerate the extent of the demand for new skills. Russia has lost around a quarter of its jobs since 1990, while it has a highly educated and highly trained labor force. A substantial proportion of the jobs being lost are the most highly skilled jobs, while most of the new jobs being created demand skills which can be easily and quickly acquired (Clarke and Metalina 2000). The number of jobs lost in the highly skilled branch of science and technology since 1990 is almost four times as many as the number of jobs created in the financial sector. We have already noted that research on wages in post-soviet Russia has consistently shown only a small return to either education or experience, indicating that skill shortage is not an important source of wage inequality, and the regression reported in Table Five indicates that returns to further training are fairly

modest. This conclusion is supported by data on the dispersion of wages between occupations and between branches of the economy.

The dispersion of wages between industrial branches has increased substantially since 1990 (Table 1), but wage inequalities within industry groupings are even greater than inequalities between industries: those working in banking and finance in 1999 earned on average five times as much as those working in agriculture, but in 1999 the top 10% in banking earned forty times the wages of the bottom 10% (Goskomstat 2000b: 169). If we decompose the mean log deviation of wages, we find that within-branch variation of wages accounts for about three-quarters of inequality, the variation between branches for only 22%, increasing to 26% in 1999.

The official data indicates that increased wage inequality has not been associated with a dramatic increase in occupational pay differentials. The Goskomstat survey of occupational wages has reported on the earnings of a set of mostly skilled occupations in 1993, 1994, 1995, 1997 and 1999. The impression given by this data is that, outside the oil and gas and aviation sectors, skill differentials are still not particularly large, with very few occupations paying more than twice the average pay. The dispersion of earnings of the 69 occupations surveyed in all of the years was fairly stable until it increased sharply in 1999, but the selection of occupations is by no means representative so that few conclusions can be drawn from examination of this data (we have no comparable pre-reform data, but the early World Bank enterprise surveys found that ‘dispersion in wages over sectors and skills that increased rapidly in 1991 was, if anything, dampened in 1992’ (Commander et al. 1995: 166)). Goskomstat in 1997 also surveyed the pay of enterprise directors, finding that around three-quarters were reported to earn less than five times the average pay in their enterprise

(Goskomstat 1998), although of course directors have many opportunities for unreported earning. Finally, the RLFS enterprise surveys suggest that the differentiation of wages within enterprises is vastly less than the differentiation between enterprises (Table 4 below).

These findings are confirmed by examination of the available survey data, which paints a very consistent picture – the bulk of pay differentiation is not between but within occupations. Table 2 shows a breakdown of the dispersion of wages into components accounted for by the dispersion within 4-digit occupations in each survey location, the dispersion between occupations in each location and the dispersion between locations for data from the regular surveys of VTsIOM and RLMS and the 1998 ISITO survey.

[Table Two about here]

The data clearly shows that about half the dispersion of wages in local labor markets is within four-digit occupations. If we take the full VTsIOM dataset for 1993–7 we find that the dispersion is high across all 399 occupations covered. It is slightly higher for senior managerial, skilled agricultural and unskilled manual occupations, and slightly lower for public service occupations, whose wages are still determined according to state scales, but there are no other striking differences between branches or occupational categories, nor are there any such differences in the ISITO survey data. There are no significant differences over time.

Although a cleaner in a bank is paid far more than a cleaner in a hospital, differences in branch affiliation do not account for the majority of the differences in wages in the cities covered in the ISITO survey. As can be seen in Table 3, which breaks down the mean log deviation by three-digit branch and four-digit occupation, differences in pay for the same occupation in the same branch account for between forty and fifty percent

of the total wage inequality in each city, and for substantially more than differences between occupations within the branch. It would appear that we are dealing with a general phenomenon across all branches and occupations, not one specific to particular kinds of jobs, particular production technologies or particular market situations, as would be implied by theories of labor market segmentation, implicit contracts, ‘compensating differentials’, ‘efficiency wages’ or ‘insider-outsider’ models.

[Table Three about here]

Given that the dispersion of wages is pretty uniform across occupations, it would seem more likely that it reflects differences in the wage paid between establishments, rather than differences paid to different individuals at different points on the wage ladder within individual firms. Unfortunately we do not have a data set which allows us to decompose individual wage inequality within and between individual firms. However, the Russian Labour Flexibility Survey collects firm-level data on average wages and the average wage of eight occupational gradings (managers, specialists and clerical workers at enterprise and shop levels, skilled and unskilled manual workers) for a sample of industrial enterprises. The relevant dispersion indices for average wages between enterprises and for the dispersion of wages within the enterprise are summarized in Table 4. As can be seen from the first and third columns, the dispersion of wages between enterprises, even within branches and regions, is substantial, accounting for about half the total dispersion of wages at the individual level suggested by the sources cited above, with the data suggesting that the dispersion of wages has been increasing over time. By contrast, the dispersion of wages between occupational categories within the enterprise accounts for only a very small proportion of the total dispersion of wages. Dispersion indices for official Goskomstat enterprise-level

average wage data for four regions for 1996 is given in the final rows (branches are industry, trade and construction). Although this data is rather unsatisfactory, it shows a wage dispersion of the same order of magnitude as the much smaller RLFS data set.

[Table Four about here]

The determinants of individual pay differentials

Substantial wage differences within occupations are perfectly compatible with competitive labor market theory, according to which individuals with more skill, ability and experience can earn more at a particular job because they are more productive. In this case the explanation for our findings would be that more successful enterprises have been able to pay higher wages and attract the more highly skilled and so more productive employees to justify paying those higher wages. The final question that we have to address, therefore, is to what extent wage differentiation within occupations, within local labor markets, is based on differences in individual skill, experience and capacity and to what extent does it express differences in the willingness and ability of employers to pay higher wages? The two are by no means mutually exclusive, since the employer who pays higher wages can pursue more selective hiring and firing policies so as to end up with the better qualified employees, but if we find that there is little relation between relative pay and individual capacities then the presumption must be that pay differentials are institutionally embedded rather than being determined in the labor market.

The measuring of individual capacities, whether from the point of view of personnel selection or econometric analysis, is notoriously difficult. Research on wage

determination in Russia finds that ‘human capital’ variables explain very little of the variation in wages (Brainerd 1998; Gerber and Hout 1998; Grogan 1997; Newell and Reilly 1996; Reilly 1999; Lehmann et al. 2000). A standard Mincerian quadratic regression:

$$\text{Log}(w) = \beta_0 + \beta_1 e + \beta_2 e^2 + \beta_3 a + \beta_4 a^2 + \beta_5 ae,$$

where w is the wage, e , years of education and a , years of work experience, explains only 4% of the variation in hourly wages across Russia in the 1994 RLMS data (Grogan 1997: 7), 7.5% in the 1998 RLMS data or 11% in the ISITO data (with regional controls, my calculations), with only a small return to years of education and rather larger (though diminishing) returns to experience, whereas age and education account for over a quarter of the variance of wages in the UK and over a third in the US (Machin 1996: 56). This observation may be reconciled with competitive labor market theory by postulating that formal educational qualifications and soviet work experience are particularly poor indicators of the true value of human capital in post-soviet Russia (Brainerd 1998), but since these are usually the only indicators available to prospective employers (who do not usually use any forms of testing or solicit testimonials in making appointments) then we would expect them to be the factors effective in determining labor market outcomes. There may well be unobserved heterogeneity between employees, but if so, this is unobserved both by the econometrician and by the employer. If the employer cannot observe it, then he cannot reward it.

Aghion and Commander have suggested that the heterogeneity may lie in the adaptability/personality of the individual who does or does not seek a better job (Aghion and Commander 1999), but this would imply that job changers would have

higher wages, while wage regressions show wages increasing with tenure and in the RLMS data job-changers tend to experience a cut in wages (although the standard errors are large so the change is not statistically significant). The fact that the dispersion of wages is similar across all occupational categories, from managers and professionals, through technicians and skilled workers to the unskilled, is much more consistent with the hypothesis that differentiation derives primarily from institutional determinants and reflects only to a very limited degree differences in 'human capital'. It may be conceivable that the best-paid head of a production division in Samara is seventeen times as productive as the worst-paid, but is it likely that the best-paid loader is able to load ten times as much, or the best-paid cleaner to clean twenty times as much, as the worst-paid? Our findings strongly support Thurow's suggestion that 'one of the ways to explain unequal wages for equal workers is to see wages as being attached to jobs' (Thurow 1998: 32).

Using the ISITO survey data, we can take the investigation a little further by distinguishing analytically between those factors which explain wage differentials within occupations and those factors which explain differentials between occupations. We can get some indication of the relative weight of these factors by running a multi-level (random coefficients) regression, which prepares maximum likelihood estimates of the coefficients and standard errors of a regression which includes error terms defined at these distinct levels. The results of such a regression for all occupations in which there is more than one individual in the relevant city are summarized in Table 5.

Within this dataset, 71% of the variance in wages is within occupations, 27% is between occupations and only 2% is between cities, the latter being accommodated by relevant dummy variables. We can get some idea of the contribution of the various

explanatory variables to the explanation of the variance of wages by comparing the residuals of the regression with and without the relevant set of variables. With the full set of explanatory variables, 83% of the variance between occupations, but only 18% of the variance within occupations, is explained.

On this basis we find that the 'human capital' variables account for only 4% of the variance within occupations and 5% of the variance between occupations (age and experience account for 3% of the variance within and 2% of the variance between occupations, education accounts for only 1% of the variance within and 3% of the variance between occupations). We achieve very similar results running a similar regression with the 1998 RLMS data (not shown here), where we find that age and experience explain 2% of the variance within and 3% of the variance between occupations, education and training accounts for 2% of the variance within and 4% of the variance between occupations, the same as is accounted for by sex. Socio-economic status accounts for 17% of the variance between occupations in the RLMS data. The coefficients in the RLMS regression are very close to those with the ISITO data. The only significant difference is that in the RLMS data those who have taken their jobs since 1992 do not earn less than those who have been in their jobs for longer and unskilled workers and junior specialists earn significantly less than in the ISITO data.

In this data, the young earn significantly less than prime age adults, but the benefits of experience fade from the mid-40s and those approaching retirement, the most experienced workers of all, earn barely more than do teenagers, particularly if they have had to change jobs since the beginning of reform. Those with technical or higher education earn significantly more than those with secondary education or less. These

'human capital' variables account for much less of the variance in wages between occupations than does the socio-economic status of the occupation, which on its own accounts for a further 11% of the variance of wages between occupations.

Of course, socio-economic status is correlated with education. If we do not control for socio-economic status, education and training accounts for just over a fifth of the variance in wages between occupations. Similarly, men tend to predominate in higher status occupations and higher paying sectors of the economy (in the ISITO sample women account for 85% of junior white collar workers and almost three-quarters of all employees in the budget sector, while men account for over 60% of managers and over 80% of skilled workers). Comparison of occupational differentiation over time is difficult because the standard errors are large and we have little comparable data for the pre-reform period. However, comparing the coefficients with those derived by Katz 1997 from data of a Taganrog survey in 1989 suggests that there has been a sharp relative decline in the wages of unskilled clerical, service and manual workers.

The 'human capital' variables also account for little more of the variance in wages than does the ascriptive factor of sex, which accounts for 3% of the variance within occupations and 4% of the variance between occupations, controlling for all other variables. The variance is such that sex is not statistically significant at the occupational level once socio-economic status and sector are controlled for (using other datasets to define the composite variables does not affect the results). Adding dummies for all-male and all-female occupations has no effect. Recent analyses have suggested that a substantial portion of the gender difference in wages in Russia can be explained by occupational differences (Newell and Reilly 1996; Reilly 1999), but this regression suggests that these differences in occupational wages reflect the balance of the sexes in

particular occupations, so that, other things being equal, men working in ‘women’s occupations’ are not paid significantly less than men working in ‘men’s occupations’, and conversely for women.

The most powerful determinants of relative wages are the set of dummy variables that reflect characteristics of the enterprise (sector, enterprise size, experience of administrative leave, respondent’s evaluation of relative stability and relative pay and whether the respondent took a pay increase or cut when taking the job). These dummies together account for 12% of the variance within occupations and 14% of the variance between occupations: 8% of the variance between occupations is accounted for by the sectoral dummies and 8% of the variance within occupations by the enterprise-level indicators. Small enterprises pay less, as does the budget sector, while new private enterprises pay wages above the average. We have only fragmentary data on firm-specific variables. The existence of a trade union or collective agreement, experience of wage delays, redundancies, and payment in kind, either for the respondent or for the enterprise (not shown here), are not significant indicators of the relative wage, but those enterprises with a recent history of administrative leave, which is the most reliable indicator of an enterprise in economic difficulties, pay significantly less than those without. Those employers which respondents say pay less than similar enterprises in fact appear to do so, as do those which respondents describe as being less stable. Those who say that they took a cut or an increase in pay when taking their present job do in fact earn significantly less or more than the average wage (although the effect tends to be slightly weaker the longer ago they took the job, it remains significant and almost as strong even if they took the job before the beginning of reform, suggesting that the pay hierarchy of enterprises is reasonably stable).

[Table Five about here]

It would seem that the bulk of the increase in wage inequality in Russia is to be explained by differences in the ability of firms to maintain customary levels of wages and wage differentials in an inflationary environment. Unfortunately we do not have the data to explore further the explanation of this differential ability to pay. The most common explanation for business success in Russia is monopoly power, which might be achieved by sheer size, by political connections or by criminal enforcement, but the technological capacity of the firm is probably at least as important. Soviet investments were very 'lumpy', so that there were huge differences in the age and productivity of the capital stock inherited by post-soviet companies, while the collapse of investment and investment funding has made it impossible for the less efficient companies to bridge the technological gap in the subsequent ten years.

The issue in question in this paper is not that of why particular firms are in a position to pay higher wages, but why those firms able to earn good profits transfer some of their gains to their employees by paying higher than market wages. There is little doubt that employers are induced to respond to employees' preferences in determining wages, but it is quite inappropriate to conceptualise inter-firm pay differentials as 'rent-sharing' based on the bargaining power of labour (Teulings 1998), because this leads to a mis-specification of the dynamics of the process. Neither trade union membership nor the existence of a trade union organisation or a collective agreement are significant variables in the wage regression above. Similarly, to conceive of an 'implicit contract' between employers and employees is to mis-specify a relationship in which management has the unchallenged upper hand. In conclusion I will outline an institutionalist account of wage-determination, based on case-study materials, which is

consistent with the observed phenomena and with the patterns of wage determination not only in Russia, but in all market economies.

Wage determination and management structures

Large wage differentials between apparently identically qualified workers are by no means specific to Russia, even if the scale of the differentials in Russia is disproportionately large – the average coefficient of variation (CV) within occupations in the Russian data sets ranges between 40% and 60%. This compares to a CV of 16–23% within occupations in a UK study of engineering firms in 1966, CVs of 11%, 13% and 15% for fork-lift drivers in Adelaide, Coventry and Chicago (cited Brown et al. 1995), and an average CV between establishments of 14% among production workers in six US manufacturing industries (Groshen 1991). The failure of competitive labor market theory to explain such differentials has led to a renewal of interest in institutionalist analyses of wage determination. Thus, Groshen concludes her analysis of intra-industry wage dispersion in the US by suggesting ‘that it may be fruitful to follow the lead of the economists in the 1940s and 1950s’ in focusing on the wage and employment policies of employers (Groshen 1991: 882–3). The subject requires further quantitative research based on more adequate data, but on the basis of case study research (Clarke 1999, Chapter Three) we can outline the institutional contours of wage determination in Russia, which are also of wider relevance.

Wages in a modern economy are not set through an auction in a marketplace, but on the basis of decisions made by managers in hierarchical social organizations. The decision-making process will involve a variety of considerations and a range of interested parties including, in some cases, representatives of employees. Attempts on

the part of management unilaterally to alter the scale or level of pay to the detriment of particular groups or the workforce as a whole generate, at best, resentment and, at worst, overt conflict. In the capitalist countries an entire science of 'industrial relations', later transformed into 'human resource management', developed to find peaceful ways of resolving the conflicts and overcoming the distrust to which attempts to modify the level and structure of pay gave rise. In the Soviet Union, wage reforms were so disruptive that they were constantly postponed (Arnot 1988; Filtzer 1994).

Although the most dramatic conflict around wages is that which sets sections of the workforce against the employer, there is also a considerable potential for conflict within the structure of management itself, since different sections of management have different interests corresponding to their different roles. To this extent we can agree with Simon Commander and his colleagues that the distinctive patterns of wage differentiation 'reflect the control structure and decision-making rules characterizing the bulk of Russian firms' (Commander et al. 1993: 51), though this is by no means peculiar to Russia and it is necessary to specify what are these rules. For the finance department, wages may be simply a cost to be minimized in the pursuit of maximum profits, and the accountants may see no reason to pay wages above the lowest rate at which labor can currently be hired in the market. Labor market pressures are more directly transmitted through the personnel department, for which wages are the principal lever of recruitment and retention of employees. Personnel managers may press for an increase in wages if they are losing experienced staff and finding it difficult to fill vacancies with appropriately qualified personnel, and may concur in a reduction in wages if they are being swamped with well-qualified applicants. It is the line managers who are more likely to be the proponents of 'efficiency wages'. They will

tend to favor high wages which enable them to recruit and retain high quality employees and also provide them with a powerful disciplinary lever and a motivational tool to enable them to meet their performance targets. The dissatisfaction of employees with the level of their remuneration is very likely to be articulated within the structure of management by their line managers, even where there are not any formal channels of employee representation.

The tension between 'market' and 'institutional' factors in the determination of wages will be resolved through a process of negotiation between a range of conflicting interests within the management structure. The outcome is likely to depend both on the power and institutional relationships within management and on the scale and character of the external constraints to which the organization is subject. The typical Russian industrial enterprise still retains the traditional soviet structure of power oriented to the functions of production, in which the management team comprises the enterprise director, chief engineer and shop chiefs, with the economic, financial and personnel departments being regarded as peripheral services.

The pattern of change in the structure of wages in Russia is consistent with the supposition that employers follow the line of least resistance and in the first instance adjust their hiring and management practices to a relatively stable level and structure of wages, raising money wages uniformly more or less in line with inflation, although with a lag that is the longer the more hard-pressed is the employer, so that differentials emerge corresponding primarily to the relative prosperity of firms.

We can also draw some tentative conclusions about workers' priorities from the pattern of change of wage differentials in the Russian recession. First, the fact that the size of differentials between branches has increased while the ranking has changed very

little would seem to indicate that workers are more concerned about preserving their position relative to other branches than with the actual size of the differentials. Second, the fact that occupational differentials appear to have changed much less than inter-firm differentials would suggest that people are much more concerned about their pay relative to that of others working in the same workplace than about their pay relative to those working, even in the same occupation, elsewhere.

Labor is quite mobile in response to wage differentials so lower-wage firms see an increase in quits while the higher-wage employers find large numbers of applicants for vacancies. The implication of the coexistence of sticky wages and high labor mobility is that there will be 'job rationing' by the more prosperous employers and increased hiring to fill vacancies by the less prosperous. Employers who are in a strong labor market situation use their position to strengthen labor discipline and to upgrade the labor force by making increased demands of new employees. Employers who are in a weaker financial situation may have to accept a deterioration of labor discipline and in the quality of the labor force while their remaining employees suffer declining wages and deteriorating working conditions. This is by no means specific to Russia: Thurow has recently noted in relation to the US labour market that 'the actual short-run clearing mechanism is a rapid upward or downward adjustment in hiring credentials in response to the tightness of labor markets' so that 'the short-run adjustment process is best seen as a job-filtering system' (Thurow 1998: 32–3, c.f. Rees 1966).

The more prosperous employers may incur higher short-run costs than the market allows, but the less successful are soon deprived of the human resources that could enable them to recover from their situation should circumstances improve (Clarke 1998a). Flexible labor markets may remove barriers to innovation, but they also allow

the laggards to survive by loading the costs of failure on to their employees. The post-war institutional economists and industrial relations theorists showed that collective bargaining and statutory wage regulation were public goods because they compelled employers to increase profits by raising labor productivity rather than through the super-exploitation of the labor force. It is not only in Russia that these lessons apparently need to be re-learned.

Conclusion

The Russian labor market in transition was marked by a dramatic increase in pay differentials immediately following the freeing of wages and prices from administrative control, the scale of which has remained at a similarly high level throughout the period of reform. Despite the limitations of the available data, I have shown that the structure of wage differentials that has developed in Russia does not seem to be primarily the result of labor market processes, as competitive labor market theory would predict, since changing differentials bear little relation to changes in the demand for labor, while only a very small part of wage differentials appear explicable in terms of differences in human capital. Nor are persistently high differentials a result of barriers to geographical or occupational labor mobility, since the majority of differentiation is within occupational and industrial groupings within local labor markets.

The bulk of the evidence suggests that changes in relative wages are to be explained primarily by firm-specific variables, with many employers deciding at least partially to maintain the real value of wages in the face of inflation, so that, with the dramatic decline in the overall demand for labor, they end up paying wages well above the market-clearing rates. Our wage regressions suggest that the relative prosperity of the enterprise is one factor in explaining the wages it pays, but our indicators still only

explain a small part of wage dispersion. In practice employers enjoy a considerable degree of discretion in their wage determination. There is nothing specifically Russian about this practice. I observed that this is entirely in conformity with the findings of industrial relations and institutionalist analyses of wage determination in the capitalist world, and noted that it is foreign-owned companies in Russia which pay the highest wages of all.

Annex: Data and data sources

The principal data used for this analysis is that published by the state statistical agency, Goskomstat, and the data of surveys conducted bi-monthly by the survey organization VTsIOM, the more or less annual Russian Longitudinal Monitoring Survey (RLMS) and Russian Labour Flexibility Survey (RLFS) and a household survey conducted by the Institute for Comparative Labour Relations Research (ISITO) in four cities in April-May 1998. For details of these data sets see Clarke 1999, Chapter Six. I am very grateful to VTsIOM and to the Centre for Labour Market Research of the Institute of Economics, Russian Academy of Science for making their data available to me. The RLMS data is available from www.cpc.unc.edu/rlms. The ISITO data is available through www.warwick.ac.uk/russia.

The Goskomstat wage data is that reported monthly by large and medium enterprises and by a sample of small enterprises and that of sample surveys of occupational wages conducted more or less annually. Enterprises report the total wage due, including bonuses and premia, and case studies suggest that large and medium enterprises at least report this data fairly accurately (Clarke 1999, Chapter Six). VTsIOM and RLMS ask respondents to report their total employment earnings the previous month. In the ISITO survey respondents were asked to report their average monthly wage and their

'normal' wage, the latter being used for this analysis. The data from these various sources is very consistent with one another.

The two major problems in analyzing Russian wage data are the high rate of inflation and the non-payment of wages. Consumer prices increased 26 times in 1992 and even the price stabilization since 1995 has seen prices at least doubling each year. Wages have tended to be adjusted to inflation irregularly and with more or less considerable lags. This means that we have to be very cautious in making comparisons of data over time and between surveys. It also means that a certain amount of measured wage inequality may derive from differences in methods and time-scales of reporting, though it is fair to assume that such differences are randomly distributed.

The annual average money wage due reported by Goskomstat is calculated as the total annual wage bill divided by the number employed, with no allowance for inflation. This provides a very crude indicator of the real value of wages, but it does mean that the data from all establishments is reported on a comparable basis which is what we need to compute dispersion indices. The VTsIOM monthly data has been deflated by the monthly consumer price index and then normalised each year to eliminate seasonal fluctuations and trend changes in wages during the year to give an equal average wage each month. The ISITO, RLMS and Goskomstat wage survey data relate to a single month in each year. No correction has been made for regional price differences in computing the MLD in the survey data. In the ISITO and VTsIOM surveys these are not substantial, but in the RLMS data about a third of the total variation in wages is accounted for by variation between sites.

The non-payment of wages peaked in 1996, when survey data suggests that more than two-thirds of employees were not receiving their wages in full and on time. The non-

payment of wages substantially increases wage dispersion (Lehmann et al. 2000), particularly within occupations, so I adopt a conservative approach in the analysis of dispersion by eliminating as far as possible the impact of non-payment. The Goskomstat wage data relates to wages due, whether or not they have been paid. The ISITO data relates to the 'normal wage', which should eliminate the impact of non-payment. RLMS and VTsIOM report the wage actually received the previous month so only those respondents who said that they were paid their last wage in full and on time, who had no wages owed to them and had experienced no periods of compulsory leave in the current year (this latter information is not available for the VTsIOM data) are included in the analysis. Using hourly wages instead of monthly wages (the VTsIOM data set does not include information on hours worked) also increases the dispersion within occupations, but payment by the hour is still very much the exception in Russia.

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Table 1: Real Wages and Measures of Wage Inequality

	1964	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Real wages (1985=100)	45	87	152	147	99	99	91	66	70	73	64	50
Gini coefficient	.24			.31			.439	.454	.445	.447		.480
Top decile wage share %	18						32	34	33	33		
Bottom decile share %	5.4						1.4	1.3	1.4	1.3		
Ratio of tenth to first decile	3			8			23.4	26.4	24.0	25.0		32.1
Dispersion (MLD)							356	383	359	369		397
Regional dispersion	18*	18	17	20	59	58	69	65	63	61	60	52
Regional dispersion deflated by prices					47	25	28	30	30	31	30	36
Regional dispersion deflated by regional subsistence minimum							25	25	23	23	25	33
Branch dispersion	24*	18	22	25	72	67	77	81	78	83	86	104
Stability of regional wage structure	0.976	0.985	0.970	0.954	0.964	0.977	0.983	0.993	0.993	0.993	0.993	0.993
Stability of branch wage structure	0.976	0.860	0.880	0.963	0.961	0.986	0.968	0.983	0.992	0.993	0.986	

* 1970

Sources: Figures calculated from revised data in Goskomstat 1996; Goskomstat 2000a; Goskomstat 2000b. Gini coefficient since 1994 is reported by Goskomstat on the basis of wage survey data (1994 and 1995 in April; 1996 May; 1997 and 1999 October) (Goskomstat 2000b: 162). 1964 data for Soviet Union: Redor 1992: 55–6. Dispersion is the mean log deviation (MLD) of the aggregate (from decile distributions, except 1999 which is estimated from frequency distribution in Goskomstat 2000b: 164), regional (76 regions) or branch (21 branches) mean wages relative to the average, weighted by employment (multiplied by 10^3 for clarity). The regional dispersion is also shown for income deflated by the regional subsistence minima and by relative prices. All official wage data relates to the ‘accounting wage’, which is the wage, including bonuses, recorded as being due, whether or not it is

actually paid. Indicators of stability of the wage structure are the year-on-year correlations of the structure of regional and branch nominal wages.

Table 2: Decomposition of wage inequality within and between occupations.

	Total MLD	MLD within location	Percentage of total MLD		N
			within occupation and location	between occupations within location	
VTsIOM	0.41	0.40	52	45	15682
1993					
11	0.37	0.34	43	49	3937
1994					
Russian	0.36	0.35	43	53	1987
1995					
regions	0.36	0.34	47	47	3263
1996					
1997	0.35	0.32	50	42	2526
RLMS	0.37	0.24	35	34	1039
1994					
160 sites	0.34	0.22	32	33	766
1995					
1996	0.42	0.24	29	27	486
1998	0.33	0.21	31	33	359
ISITO	0.25	0.24	51	45	2037
4 cities	1998				

Note: The MLD is quite sensitive to extreme cases at the bottom of the distribution, so the precise figures should not be taken too seriously, but the cited figures understate the dispersion within occupational categories by abstracting from the non-payment of wages (see annex on data sources). The figures shown in the table are based on all those occupations in which more than one person is employed at the relevant location. For RLMS the locations are the 160 interviewing sites, for VTsIOM the 11 Russian geographical regions, although the breakdown by administrative region and by polling sites is almost identical. The ISITO data is across four cities. Restricting the selection to a minimum of either five or ten cases substantially increases the dispersion within occupations but reduces the data and restricts it to larger population centres.

Table 3: Percentage decomposition of wage inequality within each city, ISITO survey, April/May 1998

	MLD	% of MLD	% of MLD	% of	N
	within city	within	between	MLD	
		occupation	occupations	between	
		and branch	within branch	branches	
Samara	0.18	51	30	19	529
Kemerovo	0.28	45	22	33	154
Lyubertsy	0.24	41	28	31	271
Syktyvkar	0.19	52	32	15	194

*Table 4: Decomposition of wage inequality between enterprises, RLFS data, 1994-7,
Goskomstat regional data 1996*

	MLD between enterprises within branch and within region (same set of 145)	MLD between enterprises	CV between enterprises	MLD between enterprises within branch and within region	CV between enterprises within branch and within region	Average MLD between occupational groups within enterprise	N
1994	.087	.125	.53	.085	.42	.006	367
1995	.094	.137	.59	.096	.45	.007	448
1996	.125	.191	.63	.134	.48	.007	468
1997	.141	.200	.70	.133	.52	.009	179
1996	Goskomstat data	.235	.72	.199	.63		6304
1996	Goskomstat without outliers	.186	.64	.158	.57		6066

Source: Author's calculations from RLFS survey data and Goskomstat data. I am grateful to Vladimir Gimpel'son for making the latter data available to me. The first column relates to the panel of 145 enterprises surveyed by RLFS in all four years. Those enterprises which reported that they had paid no wages the previous month are excluded, but some enterprises may have paid only a portion of the wages due and some may have redeemed some of their wage debt. The increasing incidence of non-payment will account for at least part of the increase in reported dispersion between 1994 and 1997. The MLD of wages of occupational groups within the enterprise is the MLD of the average wage of each of the groups, weighted by the number in each category. The Goskomstat data includes a number of enterprises which report very high or very low wages. There is no obvious explanation for these discrepancies

(Luke and Schaffer 2000) since the average monthly wage reported in this case is supposed to be the 'accounting wage', so the data should not be affected by non-payment. In the final row, in calculating the MLD I have excluded all enterprises which reported paying an average wage below 150,000 (just over twice the miserly legal minimum wage) or over 3,500,000 roubles a month (about the highest average recorded in the corresponding RLFS data set).

Table 5 Multi-level Regression. Dependent Variable: Log of normal hourly wage. Levels: individual, four-digit occupation, city. ISITO survey data. All cases in which there is more than one individual in the occupation in the city.

	Sample Means	β	Std. Error
Constant	1.550	0.817	0.121
<i>Individual- level variables</i>			
Age (years)	40.25	0.044	0.005
Age squared /100	17.63	-0.055	0.006
Tenure in this job (years)	9.87	0.004	0.002
Took job since 1992	0.408	-0.062	0.026
Education (Completed Secondary or less is reference)			
Vocational	0.4 19	0.116	0.025
Higher	0.296	0.237	0.036
Undergone training since 1990			
Male	0.443	0.252	0.030
Sector (State enterprise is reference)			
Budget	0.317	-0.298	0.031
Privatized	0.276	0.032	0.027
New Private	0.156	0.163	0.036
Size of enterprise (over 100 or not known is reference)			
Up to 10	0.066	-0.174	0.044
11-100 employees	0.293	-0.092	0.023
Enterprise indicators			
Has sent employees on administrative leave	0.238	-0.136	0.026
Less stable than comparable establishments	0.273	-0.215	0.032
Lower pay than comparable establishments	0.128	-0.106	0.032
Increased pay when took job	0.347	0.164	0.023
Reduced pay when took job	0.183	-0.139	0.030
<i>Occupation-level variables</i>			
Proportion of men in four-digit occupation	0.438	0.059	0.053
Proportion with higher education in occupation	0.291	0.091	0.085
Occupational status (Skilled worker is reference)			

Managers	0.060	0.174	0.072
Professional	0.211	0.044	0.078
Low specialist	0.119	-0.106	0.055
Administrative and commercial	0.086	-0.029	0.056
Service staff	0.109	-0.267	0.057
Unskilled worker	0.166	-0.171	0.045
<i>City (Syktyvkar is reference)</i>			
Samara	0.373	-0.294	0.037
Kemerovo	0.243	-0.062	0.039
Lyubertsy	0.175	-0.025	0.041
Total Variance within occupations		0.320	0.009
Total Variance between occupations		0.123	0.013
Residual Variance within occupations		0.263	0.007
Residual Variance between occupations		0.021	0.004
N		2982	
Initial -2LL		5541.018	
-2LL		4643.273	

Note: Random coefficients hierarchical model (Goldstein 1995) computed using MlwiN, developed by the Multilevel Models Project at the Institute of Education, University of London (www.ioe.ac.uk/multilevel). Composite variables (defined as the proportion of men and the proportion with further and higher education in each occupation within this dataset) have a positive impact on the wage which ceases to be statistically significant once socio-economic status and sector are controlled for (using other datasets to define the composite variables does not affect the results).