GRIME AND PUNISHMENT: JOB INSECURITY AND WAGE ARREARS IN THE RUSSIAN FEDERATION

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Abstract

The initial years of transition in the Russian federation have been characterised by relatively smaller falls in employment than observed in other reform-orientated countries of Eastern Europe. We show that for many Russian workers, the dominant form of labour market adjustment is instead the delayed receipt of wages. There are large regional variations in the incidence of wage arrears. Workers in the metropolitan centre are significantly less affected by delayed and incomplete wage payments than workers in the provinces. There is less evidence that individual characteristics contribute much toward the incidence of wage arrears, though unobserved heterogeneity has some role to play. Wage arrears are found across the skill distribution. As with the incidence of unemployment, however, there is evidence that the persistence of arrears is concentrated on a subset of the working population. We show that workers can only exercise the exit option of a job quit from a firm paying wages in arrears if the outside labour market is sufficiently dynamic.

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Grime and Punishment:
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Hartmut Lehmann, Jonathan Wadsworth and Alessandro Acquisti

1. Introduction

Five years into transition, the Russian labour market still seems to be different from those of other reform-oriented transition economies. Despite falling state spending, hardening budget constraints, a loosening of price controls, exposure to international competition and an ensuing 30 - 40% fall in aggregate output since 1992, the claimant unemployment rate is still under 4% and employment has fallen by less than 10%, less dramatic changes than observed elsewhere, (Russian Economic Trends 1997). In addition the continued uncertainty surrounding the transition process has led to a series of conflicts over enterprise funds between the tax authorities, the banks and the workforce, between enterprises and their regional governments, between the regions and the centre.

Against this background of uncertainty and negative economic shocks, aggregate employment levels remain relatively high. Why this may be so is the subject of this paper. If employment did not fall much, it is possible that firms have adjusted to contractions in sales of their goods and rising liquidity constraints in other ways. Adjustments on the intensive, rather than the extensive, margin such as involuntary, unpaid leave of absence or a reduction in hours worked are possibilities. One potential source of insecurity could be increased use of temporary contract working. Commander, McHale and Yemtsov (1995) and Foley (1995) have mooted that turnover and a higher degree of

employment instability, may even be more common in the emerging private sector, where, in a climate of uncertainty, workers may be more vulnerable to layoffs and short-term contracts than in the state sector. A further potential source of insecurity could be that employees, even those with permanent contracts, are faced with compulsory reductions in working hours. Moreover, some firms may tell their workers not to report for work whilst not making them redundant. In so doing, the enterprise avoids salary expenses and does not have to make redundancy payments to workers on unpaid leave.

In addition, price, rather than quantity, adjustment through the non-payment of wages is an alternative means by which firms could have adjusted their cost schedules. There is little doubt that the problem has worsened in recent years. Wage arrears have risen by around 50% since the beginning of 1996. Goskomstat figures put the aggregate stock of arrears at the beginning of 1997 at around 50 trillion roubles, some 138% of the monthly wage bill, (Russian Economic Trends 1997). As yet there is little hard evidence at the micro level. Standing (1996a,b) presents establishment-level evidence of large regional variations in the proportion of establishments who had experienced “a lot” of wage arrears. However this data is only qualitative. Alfandari and Schaffer (1996) conclude that, on their evidence from a sample of firms, wage arrears do not pose a major problem in the Russian Federation. They believe that wage arrears seem to be small when compared to trade arrears, to be uncorrelated with financial distress and to be mainly used by management to extract tax concessions from the government. Clarke, Ashwin and Borisov (1997), however, suggest that implicit or explicit agreements between the federal government and the banks over the seconding of enterprise bank deposits in order to meet federal tax and debt liabilities has left many firms with little cash to pay wages, irrespective of the firm’s profitability. Lack of credit facilities in the banking sector then exacerbate this cash flow problem.

There are other potential contributory factors. One is that wage arrears are a forced loan from workers with few outside opportunities to firms in genuine distress. If the firm is dominated by insiders with vested interests in the continued existence of the enterprise then such loans will be more likely. If the firm is in distress, the workers only outlet under existing law, is to sue the firm for bankruptcy. So what may arise is a form of implicit contract, whereby the worker trades wage arrears for continued employment. Compounding this, is the role of central government in paying off its budgetary arrears by delaying payment for state orders and refusing to release funds for the payment of wages in the budgetary sector, (health, education, public administration).

Behind country-wide events there may be large regional variations, depending on the industrial structure, the extent of transformation, regional government responses to shocks and the relationship with the centre. Also, certain types of workers could be disproportionately affected. No one has addressed the issue whether firms discriminate against certain workers in their application of wage arrears[1], whether patronage is an important element or whether firms use efficiency wage type considerations to retain the most productive members of its workforce.

If so, these methods could have made jobs less secure for many Russian workers. There is, however, little hard evidence on the extent to which such adjustment strategies have been applied. This paper tries to provide some evidence using household survey data. We analyse all these aspects of labour market behaviour using two individual-level data sources. The first, a supplement to the March 1996 Russian Labour Force Survey, (RLFS), in five representative regions which with which to analyse in detail regional variations across industries, firm types and individuals. The second is the Russian Longitudinal Monitoring Survey, (RLMS), a smaller, but nationally sampled longitudinal survey of individuals, covering many of the same issues as in the

RLFS supplement and following its sample population over the period 1994 to 1996[2]. Desai and Idson (1997) use the RLMS to focus on household characteristics of those in arrears and the likelihood that this induces bartering among those affected. We extend their analysis by introducing more establishment characteristics and exploit the panel nature of the RLMS to examine individual dynamics and the persistence of wage arrears.

Whilst the problem of wage arrears may stem from the economic position of the firm and the institutional structure during transition, we believe that responses by individuals can shed light on some areas that would otherwise be difficult to obtain from an analysis of firms alone. By analysing these two complementary data sets, we can examine how insecure employment really is in the Russian labour market, which individuals and which sectors are most affected by it and begin to build up a picture of the evolution of some of these trends across time.

2. Data

Much of our analysis is based on the March 1996 round of the Russian Labour Force Survey (RLFS), conducted by the national and regional offices of Goskomstat. The basic questionnaire asks standard ILO-type questions about employment, job search and related issues to a random sample of households in all regions of the Russian Federation. A supplement, tailored to our research, was added to the original survey in five Russian regions. The five regions, Moscow City, Moscow Oblast, Chuvash Republic, Chelyabinsk and Krasnoyarski Krai, were selected because of their varied nature and the fact that they can be considered representative of the diffuse labour market types throughout the Russian Federation. The annex gives a brief description of these regions and the questions in the supplement. More than 17,000 households were interviewed in these regions, leading to more than 25,000 individual records on

the population of working age. There were 10043 observations in Moscow, 7082 in Moscow Oblast, 3449 in Krasnoyarsk, 3592 in Chelyabinsk and 1488 in the Chuvash Republic. Responses by military/security personnel are limited and so are excluded from the analysis. Some of the variables analysed in the paper could only be ascertained from questions in the RLFS supplement.

Our second data source is the second phase of the Russian Longitudinal Monitor Survey, (RLMS), a longitudinal panel of around 4000 households across the Russian Federation conducted in the Fall of each year since 1994. Like the RLFS, the data contains a set of demographic and establishment characteristics, not always the same as in the RLFS, together with information on the labour market activities of its sample. Despite, its relatively small size, the main advantage of this source for our purposes, is that we can track individuals and the incidence of wage arrears over time and control for any unobserved individual heterogeneity that may have on effect on the probability of being paid in arrears. For example, if patronage is an important determinant of arrears then this will be unobserved by the econometrician and failure to account for this may bias our results. As with the RLFS we restrict our sample to employees of working age, excluding the military[3]. In order to focus on the build up of wage arrears over time, we impose the additional sample restriction from the RLMS that the individual appear in the survey in every wave. This gives us a total sample of 8700 observations over the three waves of which around 3500 are in work at each wave.

The survey questions which deal with wage arrears are complementary across the two surveys. Both ask question of the form, "Does your place of work owe you any money not paid on time?". The RLFS then asks for the month in which workers were last paid and the type of payment made by the firm, ranging from complete to late and incomplete. The RLMS asks simply "How much money have in all they not paid you?". Respondents in both surveys are asked to

state the amount of money received from their employers after tax in the past month. There is no distinction made between basic wages and any bonus. These wage responses are then deflated by a national price deflator indexed to 100 at January 1996[4]. There is no indication whether wage arrears are estimated before or after tax.

3. Employment Contracts in Russia

Even the Soviet labour market was characterised by substantial regional disparities. There were both excess labour supply regions, i.e. "open unemployment" regions (mainly the Central Asian Republics and the Caucasus) and labour deficient areas where chronic excess demand for labour was observed. The latter regime was dominant in what is now the Russian Federation, (Malle (1990)). Enterprises were continuously on the lookout for workers, guaranteeing permanent employment contracts to virtually all workers, including the newly hired. At the heart of labour relations was an employment culture that combined full employment with job security. This coexistence came about because it was in the economic interest of enterprises to engage in labour hoarding continuously. It was not the result of a political commitment to permanent employment for the entire workforce (Hanson (1986) and Nuti (1986)). Five years into transition, the economic environment has changed radically for enterprises throughout the Russian Federation. How has this affected the incidence of permanent employment?

The three types of employment contracts that workers can enter into: *permanent, fixed term and one-off* contracts are outlined in Table 1. There is little variation in these variables across age, gender and region. In all these categories, the vast majority of the employed have a permanent contract. Only for those older than 60 years is there a noticeably higher proportion of fixed term contracts. Having a permanent contract does, of course, not mean that one

cannot be made redundant. Nevertheless it is clear that in March 1996 only a small fraction of workers in these five regions had, on this measure, uncertain job prospects.[5]

It is true, however, that short-term contracts are more prevalent in the stock of workers with new jobs, those with tenure 12 months or less. Around one in 9 new jobs are not regarded as permanent. Since new jobs are at the margin of adjustment it may be that this is an indication of greater insecurity in the labour market to come, though these numbers are still low by some western standards[6]. To highlight the main determinants we present probit estimates of the incidence of permanent contracts in Table 2. Those above 55 years of age and those working less than 30 hours a week have a substantially lower probability of having a permanent contract. There is now less evidence of a clear regional split between the metropolitan area and the provinces. Those in a firm with more than 5 employees and in a state-owned or privatised firm raises the probability of having a permanent contract by around 8 and between 7 percentage points respectively. In sum, if the type of contract is taken as a measure of job security, new jobs do seem less secure than all jobs, particularly in small firms and in the *de novo* private sector. This is one more piece of evidence that *de novo* private firms in Russia behave differently from state-owned and privatised firms (see. also Richter and Schaffer (1996)). There is no significant difference across industrial sectors, once other characteristics are controlled for.

When asked about primary employment, respondents may associate this with the enterprise where they have deposited their "labour book", whether they actually work there or not. Nearly all those who have deposited their "labour book" with an enterprise will have a permanent contract. For this reason, it is instructive to see how many hours those who claim to have a permanent contract actually worked in their primary employment during the reference week and to compare these with the usual hours worked. Table 3 shows how the difference

in actual and usual hours worked is distributed. The majority of individuals, (91%), worked the same hours as usual, while 6.5% worked less and 3.5% more. Nearly half of those who worked less were on zero hours. This suggests that about 3% of the sample were on leave. About half of this group, (1.5% of the total sample of employed workers), had not received a wage in March or February, i.e. they were on unpaid leave during the reference week[7].

There is some variation at regional level, with a spread of 9 percentage points between the Chuvash Republic where we observe the highest value and Moscow City where only 5% of workers worked fewer than normal hours. Nearly 60% of those working less than their usual hours in Chuvash, i.e. about 7% of employees with permanent contracts, were on zero hours during the reference week. In Moscow City this number amounted to only 2.5%. It is also interesting that the proportion working more than usual is particularly high in Krasnoyarsk, where mining and mineral extraction feature prominently. Despite these regional variations, it appears that the overwhelming majority of employees had a permanent contract and a full workload in the spring of 1996.

Insecure employment can also appear in the form of part-time work,[8] if substantial segments of the workforce with permanent employment contracts worked involuntarily part-time. The division between full-time and part-time workers shows low levels of part-time work and no dramatic differences across age groups, the five regions and gender. Whilst women engage slightly more in part-time work, the total fraction of part-timers never exceeds 5% for any of the regions. For the very young (up to 20 years of age) and for those close to or after retirement (those over 60 years old) the incidence of part-time work is larger than for the other age groups. Krasnoyarsk stands out, however, as the region where the incidence of part-time work amongst the very young and those above 50 years reaches double-digit figures.

How much of this is actually involuntary part-time employment? For the five regions combined about three quarters of workers who engaged in part-time work did so involuntarily, as Table 3 demonstrates. There are substantial variations across regions. Moscow City has less than two-thirds involuntary part-timers and the Chuvash Republic has more than 95%. The overall incidence of part-time employment varies between 5% in Krasnoyarsk and 2.8% in Chelyabinsk. Again, these are not dramatic numbers. Short-time work does not seem to be the route by which enterprises maintain employment levels.

4. Wage Arrears in Russia

The evidence so far does not point to insecure labour market experience on the intensive margin for most of the employed workforce. Given the moderate fall of employment relative to the fall in output during the first 4 years of transition[9], this seems remarkable. One possible explanation is that there has been extreme wage flexibility (Layard and Richter (1995)). At the end of 1995 average real wages had, according to Goskomstat (1996b), fallen to around 34% of the level observed before transition began (January 1992). An additional price adjustment mechanism used by enterprises to counter output shocks is the delay of wage payments to workers. By March 1996, wage arrears for the entire economy exceeded one monthly wage bill (Goskomstat (1996b)). Who at that time was particularly affected will now be explored with the help of the two micro data sets at our disposal.

The Incidence of Wage Arrears

As can be seen from Table 4, in the March 1996 round of the RLFS only sixty percent of workers received their last wage in full and on time, the proportion for women being five percentage points higher than for men. About a quarter of employees received a wage on time, but were not paid in full, whilst

around 11% received their wage late and not in full. A further 2.7% were paid in full, but not on time. This payment ranking across categories is maintained, whether we disaggregate by age, gender, region or industry. There is not much variation across age groups, although those 30 years and younger seem to do a little better.

Variation in wage arrears becomes substantial across the five regions, (upper panel of Table 5). In Moscow City more than three quarters of all employees received a complete wage on time, while in Chelyabinsk only one third did so. In Moscow City and Moscow Oblast an average 6% of employees have been paid an incomplete wage not on time, while the average is around 24% for the two worst performing regions, Krasnoyarsk and Chelyabinsk. The category "Incomplete but on Time" in the three provincial regions is more important than the category of full and timely wage payments. On the basis of these figures it is hard to maintain the hypothesis that wage arrears are not a major problem in parts of the Russian Federation.

One explanation for the divergent performance of regions could simply be that, as a result of political lobbying, workers in the budgetary sector receive their wages complete and on time in the centre but not in the provinces.[10] The data do not support this hypothesis as the middle panel of Table 5 shows. If anything workers in the budgetary sector in the provinces have a higher incidence of complete wage payments than the average. The worst offenders are not government agencies but state firms in "production"[11], as the bottom panel of Table 5 shows. For this sector we observe a rise in the proportion of arrears amounting to roughly 10 percentage points for the provincial regions and Moscow Oblast and around 15 percentage points for the city of Moscow. The coefficient of variation of the proportion of arrears across regions falls from 0.40 to 0.36 as one goes from the economy as a whole to the budgetary sector, rising to 0.46 in state-owned production. The budgetary sector accounts for 35% of

employment and 30% of all those in arrears. In no region is this ranking reversed. This must imply that regional transfers of government funds (or the lack thereof) cannot be the main reason for regional divergence in wage arrears.

The industrial composition of the regions could be an important factor in the divergent performance of the five regions. Certain industries were hit harder by the transformation process and the legacy of planning has left certain regions with a disproportionate share of industries in distress. As Table 6 demonstrates, there are indeed certain industrial sectors, which are particularly bad offenders. Only around 30% of all employees in mining received their wage complete and on time. Agriculture and manufacturing are the other two sectors, which perform poorly, (43% and 48% respectively). For workers in distribution/trade and finance, wage arrears do not seem to pose a major problem. Only 14% and 8% of workers in these sectors are in arrears, respectively.

To see which factors are statistically significant, we estimate probit regressions of the incidence of wage arrears. The estimates in Table 7 show that within regions, enterprise characteristics are the main determinants of wage arrears. The larger the enterprise the higher the probability of experiencing wage arrears. Working in finance lowers the probability of wage arrears by 24 percentage points relative to working in other services, (the default), whilst employment in manufacturing and mining raises this probability by 9 and 15 percentage points respectively. Ownership type is not a significant predictor of the incidence of wage arrears. Among the occupational groups only clerks have a lower incidence of wage arrears compared to the default group of managers. Of the demographic factors only gender is important. Women are around 3 percentage points less likely to experience wage arrears, other things equal.

A third, notable result concerns the regions. Having controlled for the demographic and skill composition of the workforce, ownership and industrial structure, the regression points to the overriding importance of regional location

for the incidence of wage arrears. The marginal effects of residing in Moscow City or Moscow Oblast are 35 and 31 percentage points lower than for workers in the provincial regions. The results of a probit regression for the budgetary sector alone confirm this dominance of the regional variables.[12] The marginal effects for the metropolitan centre are of the same order of magnitude in both regressions and, therefore, seem to confirm that workers in the budgetary sector in provincial regions are no worse affected by arrears than other workers.

The wide variation of wage arrears is demonstrated in Table 8 which presents estimated arrears probabilities for workers with selected characteristics. A male with secondary education in a large mining firm in Chelyabinsk or Krasnoyarsk experiences wage arrears with a probability of nearly 90%. In contrast, a female with higher education in a small financial firm in Moscow has an extremely small probability of not being paid on time and in full (1.4%). While regional location is an overriding factor in the determination of wage arrears probabilities, workers in a healthy industry but in a provincial region have on average a far lower incidence of wage arrears than workers in a poorly performing industry residing in Moscow. Finally, individuals with similar characteristics have roughly the same wage arrears probabilities in the budgetary sector. We take this as further evidence that employers from the budgetary sector are not the worst offenders.

The regressions within industries (Table 9) confirm the general previous results. Demographic characteristics play a lesser role in the determination of wage arrears than do characteristics related to the establishment and the region. Regional location is the most powerful predictor of wage arrears in all industries. The regional effect is particularly strong in mining, where we have pooled the provincial regions and the two metropolitan areas. The incidence of wage arrears is in 5 out of 9 industries an increasing function of establishment size while ownership type is only statistically significant in 3 industries. Employment in a de

novo private or privatised firm in manufacturing, reduces the incidence of wage arrears on average by 10 and 7 percentage points respectively, whilst transport workers in newly established firms are around 16 points less likely to have been paid on time and in full. Like the results from table 7, the industry regressions, however, do not generally reveal that ownership type is an important factor in the determination of wage arrears. Longer job tenure strongly implies a higher incidence of wage arrears in transport and other services. The latter result might be explained by the relative ease with which wage concessions can be extracted from long-serving insiders of the firm. In most industries, men are less often paid wages in full and on time, the only exception being manufacturing where a male worker's probability of experiencing wage arrears is roughly 4 percentage points lower. Variables relating to age, educational attainment and occupations are of very limited or no significance.

Regional regressions, (Table 10), confirm the robustness of the results from the full sample. Industry affiliation and firm characteristics matter most in the determination of wage arrears. Mining firms withholding wages from their workers seem to be concentrated in the two provincial regions Krasnoyarsk and Chelyabinsk, and finance and manufacturing are not significantly different from the default category *other services* in Chelyabinsk. On the other hand, in all regions but Krasnoyarsk larger establishment size implies a higher incidence of wage arrears, while the ownership variable is either insignificant or produces ambiguous results. In this context, it is particularly interesting that only in Krasnoyarsk does working in a de novo private firm coincide with more prompt wage payments. In the provinces higher educational attainment strongly lowers the probability of wage arrears and prime-age workers are particularly hard hit in all regions apart from Chuvashy.

Evidence from RLMS surveys: 1994-1996

As Figure 1 shows, the problem of wage arrears certainly became more acute between 1994 and 1996. The distribution of arrears moves to the right and becomes flatter, indicating that arrears are increasing and becoming more widespread over this period. In 1994, the distribution is concentrated around the 300,000 rouble level, roughly equivalent to the average monthly salary. By 1996, the distribution of arrears is less concentrated around the peak. Figure 2 plots the wage and arrears distributions together in order to gauge the size of the arrears bill. Again, it is apparent that the distribution of wage arrears has grown relative to the completed wage bill. According to the RLMS, the incidence of wage arrears grew from 43% in 1994 to 45% in 1995 and 62% in 1996. As one means of determining whether personal characteristics matter for the incidence of arrears, Figure 3 compares the initial monthly wage distribution of those who subsequently experienced arrears with those in the sample who did not. The wage distribution of those subsequently in arrears lies a little to the left of those who are not in arrears in the following period, indicating that, if anything, arrears affect those in the lower parts of the wage distribution, though the differences are not large.

Table 11 presents the results of probit estimates on the incidence of wage arrears across the Russian Federation using the RLMS. We present the results from simple pooling across the three waves alongside random effects estimates, which control for heterogeneity. Assuming that this heterogeneity is time invariant so that

$$A^*_{it} = X'_{it}B + v_{it} \qquad i = 1,...N \quad t = 1,2,3$$

where $A_{it} = 1$ if $A^*_{it} > 0$, $= 0$ otherwise and A^*_{it} is the unobserved propensity to receive wage arrears, X is a vector of time varying and time invariant regressors and v is the error term with

$$v_{it} = a_i + u_{it}$$

and a_i is the random effect, with $a_i \sim N(0,\sigma^2_a)$ independently of u_{it} and the X vector. Each disturbance term thus has variance $Var(v_{it}) = Var(\sigma^2_a + \sigma^2_u)$ and the correlation between error terms for the same individual is given by

$$Corr(a_i + u_{it}, a_i + u_{is}) = \rho = \sigma^2_a / (\sigma^2_a + \sigma^2_u)$$

The parameters of the likelihood function, which comprises this model, are estimated using the iterative techniques in Stata. The simple pooled probit model is equivalent to assuming that $\rho = 0$.

Consistent with the evidence from the RLFS, personal characteristics do little to influence the probability of being in arrears. The characteristics of the establishment and the region in which the individual lives have a much more important role. Job tenure is now a significant determinant of wage arrears, consistent with the idea that insider forces facilitate delayed wage payments. Unskilled, male, prime-age workers living in the regions furthest from the metropolitan areas, working in large scale enterprises for ten years or more are most at risk from wage arrears. An additional rural variable is also significant. This may suggest that enterprises and workers living away from the main administrative centres find it harder to plead their case. The estimated effects do not change much as we go from the simple pooling to the random effects model. In particular the firm level effects continue to dominate, which tends to rule out the idea that discrimination across individuals in the same plant is widespread.

Persistence of wage arrears

One, as yet, unresolved issue is how long wage arrears persist and whether the same individuals are affected over time. Rather like the stock-flow analysis of unemployment, if wage arrears were shared equally across the population, there may be less cause for concern than if arrears were concentrated on the same individuals. To address this issue we simply count the number of times an individual classifies themselves as in arrears in the RLMS, restricting our sample

to those continuously in employment [13]. Whilst we do not observe the start of the arrears process, we can observe inflows and outflows from the state, together with the cumulation of arrears. Table 12 shows that over the three year observation period, a combination of rising inflow rate and a falling outflow rate contribute to a rising stock of arrears in the population. The average amount of arrears grew by around 40% and rises monotonically according to the number of years the individual is observed in arrears. Arrears are also distributed unequally. By 1996, one quarter of the sample working population had been in arrears in each of the three waves, whilst another quarter had yet to experience any arrears.

In order to identify the characteristics of those persistently in arrears, Table 13, presents the results of ordered probit estimates of the probability that an individual will, in wave 3, have been observed in arrears 0,1,2 or 3 times. This avoids the problem of introducing lagged dependent variables into a regression, which could otherwise deliver inconsistent estimates. In addition, in order to distinguish between the extensive and intensive nature of arrears, we present Tobit estimates of the amount of arrears. The ordered probit results mirror the simple binary probit estimates. Unskilled, male, prime-age workers living in the regions furthest from the metropolitan areas, working in large scale enterprises for ten years or more are most at risk from multiple wage arrears. The Tobit estimates (Table 14) also, confirm this same basic pattern, with regard to the size of arrears. Note that the size of arrears is reduced significantly by the presence of foreign ownership at the establishment. Figure 4 records the relative size of arrears for those who had complete wage information in earlier waves of the RLMS. The size of arrears for those newly affected again rises, as confirmed by the rightward shift of the distribution over time. The size of the stock of arrears relative to previous wages also grows from around one month salary to 1.7 months over the period, (Table 12). Note that the median stock of arrears does not differ much between new entrants and those in arrears previously, (the final

column of panel b). This suggests that those in arrears have some of their debt paid off during the year. Table 14 also records tobit estimates of the relative size of arrears. None of the personal characteristics retain any statistical significance. Only firm size, job tenure and region matter.

Finally, there is the question as to why, if firms don't pay wages, don't workers move elsewhere? This may, in part, be because search unemployment is not a valid outside option in all but the most dynamic labour markets. Unemployment benefits are not available to job quits and, when they are paid[14], are not large relative to average wages. Moreover, alternative employment is perhaps only available in the most dynamic regions, typically Moscow and St. Petersburg and the claim on arrears may be loosened once the worker leaves the establishment. There are therefore push effects from arrears and a dynamic outside labour market and potentially offsetting pull effects from the need or ability to recoup arrears, magnified when inflation is low, and a depressed outside labour market.

To try and capture these effects we measure three types of mobility over the course of a year. The first a movement from employment to employment with a new establishment; the second a move from employment to unemployment and the third the move from employment to non-employment. We introduce a variable to capture whether the worker was in arrears one year earlier and run probit regressions on the determinants of these discrete events, (Table 15). The arrears variable is significant and positive only for job-to-job moves. The push influence is not offset by the inducement to stay and retain employment and/or arrears. We then interact the arrears dummy with the dummy for the metropolitan areas of Moscow and St. Petersburg. This interaction term is again significant in the job-to-job move equation. In the metropolitan areas, those in arrears are much more likely than other workers to be found in a new job one year later. Thus the exit option is more of a valid option in a relatively prosperous labour market.

Thus quits can induce firms to pay wages, but this strategy only works if there are viable outside opportunities.

Implications

The results show convincingly, in our opinion, that regional transfers of government wages are not mainly responsible for the larger stocks of wage arrears occurring in provincial regions compared to Moscow. In March 1996, the proportion in arrears across the five regions was higher in the economy as a whole than in the budgetary sector. One somewhat cynical interpretation of the large regional divergence of wage arrears could be that historically, rebellion and revolution in Russia has only been successful if carried by the central urban agglomerations. Confining the problem of wage arrears to the provinces might allow transition to proceed more smoothly. Our evidence points in this direction, as regional location is a key determinant of wage arrears independent of industry and ownership. The Moscow regional government has helped generate an environment through its reform programmes and access to the central government that allows firms to survive and even prosper.[15] A larger share of foreign ownership and a more dynamic labour market have, in turn, helped mitigate the arrears problem.

Our evidence also provides little support for Alfandari and Schaffer's notion that wage arrears are essentially a cynical ploy by managers to extract tax concessions from the central government. Employees working for *de novo* private firms are, in general, as affected by wage arrears as workers in privatised and state-owned firms. *De novo* private firms, however, do not b1elong to the "subventionist" group of Russian enterprises, those that seek direct or indirect subsidies from the state. The large regional variation in the incidence of wage arrears refutes this

hypothesis. If managers use wage arrears just to extract tax concessions, why do managers in Moscow City and Moscow Oblast not engage in such behaviour?

There is a second line of argument that disputes the importance of wage arrears, in this case from the perspective of Russian employees. This states that workers tolerate wage arrears in their primary employment, because most of them hold multiple jobs with income sources in secondary and tertiary employment much more important than the income source from primary employment. Our evidence clearly does not support this, either. Employees who face wage arrears exercise their quit option in the metropolitan centre, but not in the provincial regions. So, where they do have outside options (in the metropolitan centre) employees change primary employment if they are subjected to late and/or incomplete wage payments. The fact that they do not do this in the provincial regions is not because they do not care about primary employment, but because they have no outside jobs to move to. The presence or absence of outside options might best explain the large regional variation of wage arrears. The incidence of wage arrears is not spurious but a reality affecting many people making their labour market experience in transition particularly insecure.

There is also evidence of polarisation in the incidence of arrears across the working population. Some people seem to never suffer from wage arrears whilst others do so continuously. This may be due to the uneven incidence of wage arrears across sectors rather than some kind of extreme efficiency wage strategy by firms, since observable characteristics do not drive the arrears problem, nor do controls for unobserved heterogeneity alter these findings.

5. Conclusions

In the context of the relatively small falls in employment since the beginning of reform, the evidence on job security in Russia from these five representative regions is quite compelling. On the quantity side, Russian workers

employed in March 1996 faced relatively secure job prospects. The overwhelming majority of employees had a permanent contract and worked full-time. There is evidence of variation in the type of employment contract across ownership type. In SOEs and privatised firms permanent employment contracts had been given to nearly 100% of the employees, whilst around 10% of the workforce in *de novo* private firms had to be satisfied with a fixed term or one-off contract. So, as the employment share of *de novo* private firms increases in future (it was 16.5% in March 1996 in the five regions), one would expect a growing share of less secure employment contracts. The evidence on new jobs, where 22% of the workforce in *de novo* private firms had to be satisfied with non-permanent jobs, strengthens this conclusion. It is also clear that temporary layoffs and unpaid affect only a very small percentage of the workforce. In addition, short-time work seems not to be a way by which Russian firms maintain employment levels. Despite major demand shocks which have put many Russian enterprises in great financial difficulties, these enterprises seem to try to hold on to their employees by offering relatively secure employment prospects. Such an impression has been formed previously on the basis of case studies (e.g. Metalina (1996)). The same findings are confirmed here.

However, the necessary adjustments to demand shocks seem to occur through price rather than quantity adjustments. Real wages had fallen steeply since the beginning of the reforms though had stopped falling by1996. The new adjustment factor is now undoubtedly the systematic withholding of wage payments from workers in many industrial branches of the economy and this is now the dominant form of insecurity for many Russian workers. Moreover, wage arrears are a major problem for provincial regions and certain industrial branches of the economy. In mining, agriculture and manufacturing less than 50% of all employees received their wages in full and on time in March of 1996. Miners are particularly hard hit by wage arrears, with only 30% being paid in full and

promptly. In the capital of the Russian Federation and its surrounding Oblast, late or incomplete wage payments affected 23% of employees. In contrast, in the provincial regions of Chelyabinsk and Krasnoyarsk nearly two thirds of all workers had to be content with such payments.

Our evidence seems to indicate that the central government sector is not directly responsible for the high levels and the large regional variation of wage arrears. A dynamic local economy can mitigate the arrears problem by providing a valid outside option with which workers can exercise the quit threat. The fact that domestic *de novo* private firms do not behave differently from other domestic firms downplays the idea that firms use wage arrears as an instrument to extract tax concessions from the government. Nevertheless, this is an establishment problem. Firm characteristics dominate individual characteristics throughout our study.

As ever, more research about Russian wage arrears is certainly needed. However, the evidence here lends support to the notion that wage arrears are an important problem, affecting up to half of the working population and that this is the most apparent manifestation of insecurity currently observed in the Russian labour market.

Annex: Regional labour market types in the Russian Federation

This annex gives a brief overview of regions selected for this study as being representative of the main regional labour market types in Russia.

The City of Moscow, while interesting as a labour market in its own right given its status as the capital of the Russian Federation, is also representative of a regional type with a diversified industrial base, like machine building, light and food industries, production of construction materials and with a developed construction base. The infrastructure of social services is relatively good, and large centres of science, medicine, education and culture can be found. Private market structures are also more developed, hence the private employment share is higher than in other regions. Demographically, this type is characterised by low natural population growth and little migration activity. Finally, the registered unemployment rate is substantially lower than the average rate in Russia.

Moscow Oblast, which surrounds Moscow City, is representative of urban-rural transition areas with good links to major cities as well as adjacent districts with economies based on agriculture or forestry. Such regions benefit from spill-over from nearby cities, have significant industrial or scientific concentrations, contain substantial agricultural activities including food processing, and have lower costs of living than the intensely urban areas. Generally, such regions have significant growth potential based not only on existing enterprises, but on the development of greenfield sites and access to labour from adjacent regions still within commuting distance. This potential has been only partially realised in comparison with the cities at their core. For example, investment flows have been stronger in the city centres and unemployment is higher in the urban-rural transition regions.

Chelyabinsk Oblast is representative of those regions dominated, at least historically, by the military-industrial complex. Huge enterprises of heavy industry are concentrated there, especially machine building and metallurgy, and are mainly related to defence. There are many settlements in these regions where the labour force is entirely dependent on huge multi-profile enterprises. The extremely low rates of restructuring and conversion of production, plus the dependence on deliveries of semi-finished products and energy from the outside, have been major determinants in the dramatic drop of production. A high level of hidden unemployment has been maintained until 1996 through support for some industries from the federal budget.

The Chuvash Republic reflects the economic situation of agro-industrial areas where processing plants are the main form of industrial enterprise. These areas are not well endowed with minerals and energy sources. Agriculture is geared mainly towards vegetable growing and cattle breeding and is carried out under economically, and often also ecologically, non-viable conditions. A relatively high natural population growth and a low degree of labour mobility can be seen in these regions. The fall in industrial and agricultural production is greater than the average in the Russian Federation. The infrastructure of social services is underdeveloped while the level of registered unemployment is much higher than the Russian average.

Finally, *Krasnoyarski Krai* is typical of the industrially developed regions dominated by extractive industries, such as oil and gas extraction, timber production, fisheries and fish processing. Agriculture is practically absent. Output has fallen less rapidly than the average for the Federation. The demographic situation is characterised by a low rate of natural population growth and a high level of outward migration to more favoured areas of the country, which has risen substantially during the years of economic reform. Most of these regions are in the northern European and Asian parts of the country and make up a considerable proportion of the Russian Federation.

Brief list of relevant supplement questions

Personal characteristics

How many children do you have?

How many other dependent persons do you care for?

Wage arrears

For which month were you last paid?

Did you receive this wage complete and in time? In time but incomplete? Complete but with delay? Incomplete and with delay?

Wages

What was your gross monthly salary (money or products; and if applicable premia) from your principal job for the last month you were paid?

Tenure

How long have you continuously been employed by your current employer?

Establishment size

How many employees are there at the place where you work?

Industry

In which industry are you employed?

Ownership type

What is the ownership type of the firm you work for?

Table 1. Distribution of contract types by Region, Age and Gender

Region	Contract	< 20	21-30	31-40	41-50	51-60	61 +	Total	Female	Male	New Jobs
Moscow	Permanent	96.2	96.2	97.7	98.7	97.9	94.2	**97.6**	97.9	97.4	84.3
	Fixed term	2.3	3.4	1.7	1.1	1.7	5.4	**2.0**	1.9	2.1	11.8
	One-off	1.5	0.4	0.6	0.2	0.4	0.4	**0.4**	0.2	0.6	3.9
Moscow	Permanent	91.6	96.5	97.6	98.2	98.4	95.3	**97.4**	97.9	96.8	86.9
Oblast	Fixed term	5.6	3.1	2.2	1.4	1.3	4.7	**2.2**	1.9	2.6	11.2
	One-off	2.8	0.4	0.2	0.5	0.3	0.0	**0.4**	0.2	0.6	1.9
Krasnoyarsk	Permanent	94.2	95.8	96.7	98.2	96.0	95.1	**96.8**	97.2	96.4	86.9
	Fixed term	5.8	3.9	2.7	1.6	3.5	4.9	**2.9**	2.6	3.1	12.0
	One-off	0.0	0.3	0.6	0.2	0.5	0.0	**0.3**	0.2	0.5	1.1
Chuvash	Permanent	95.4	97.7	98.8	97.3	100.0	100.0	**98.1**	98.1	98.1	91.7
Republic	Fixed term	4.6	2.3	1.2	2.2	0.0	0.0	**1.7**	1.9	1.5	6.7
	One-off	0.0	0.0	0.0	0.5	0.0	0.0	**0.2**	0.0	0.4	1.7
Chelyabinsk	Permanent	98.4	98.6	98.3	98.7	99.6	95.7	**98.5**	98.5	98.6	93.6
	Fixed term	0.0	0.8	1.1	1.1	0.4	4.3	**1.0**	1.1	0.9	4.6
	One-off	1.6	0.6	0.6	0.2	0.0	0.0	**0.4**	0.3	0.5	1.8

Source: Authors' calculations based on the 1996 RLFS (12 927 observations).

Table 2. Probit Estimates of Permanent Jobs , Workers' Tenure less than 1 year					
Explanatory Variable	**Sample Mean**	**dF/dx+**	**Coefficient**	**Robust SE**	
Married	0.590	0.035	0.275	0.138	*
Age 16-19	0.086	0.052	0.637	0.265	*
Age 20-24	0.228	0.040	0.381	0.183	*
Age 25-34	0.243	0.011	0.093	0.156	
Age 45-54	0.138	0.009	0.076	0.194	
Age >55	0.051	-0.128	-0.675	0.237	**
Children	0.599	-0.001	-0.010	0.128	
Education					
Higher, Higher Incomplete	0.192	-0.034	-0.247	0.244	
Secondary Superior	0.339	-0.015	-0.120	0.202	
Secondary	0.351	-0.001	-0.012	0.207	
Establishment size					
6-25	0.259	0.072	0.745	0.171	**
26-100	0.315	0.092	0.928	0.177	**
101-500	0.191	0.076	0.920	0.215	**
>500	0.138	0.079	1.156	0.286	**
Hours worked					
0-30	0.068	-0.383	-1.463	0.299	**
>40	0.857	-0.006	-0.051	0.264	
Ownership					
State	0.477	0.062	0.507	0.147	**
Privatised	0.202	0.069	0.777	0.192	**
Industry					
Agriculture	0.026	-0.133	-0.684	0.338	*
Constructing	0.101	-0.053	-0.347	0.228	
Mining/manufacturing	0.192	-0.024	-0.178	0.214	
Transport	0.072	0.014	0.128	0.261	
Distribution/Trade	0.249	0.014	0.116	0.179	
Health/Education	0.113	0.025	0.231	0.263	
Finance	0.022	-0.086	-0.494	0.390	
Occupation					
Other workers	0.070	0.010	0.086	0.431	
Professional	0.190	0.021	0.186	0.378	
Clerks	0.054	-0.129	-0.684	0.425	
Production	0.042	0.027	0.259	0.524	

Craftsmen	0.143	-0.073	-0.465	0.402	
Service workers	0.412	-0.101	-0.727	0.362	*
Technicians	0.050	0.057	0.813	0.472	
Region					
Moscow	0.279	-0.094	-0.623	0.202	**
Moscow Oblast	0.266	-0.082	-0.546	0.208	**
Chuwash Republic	0.050	-0.074	-0.449	0.332	
Krasnoyarsk	0.219	-0.073	-0.475	0.223	*
Constant			1.044	0.531	*

Dependent Variable	*Number of obs = 1098*
y=1 permanent job,	*chi2(36) = 199.86*
y=0 temporary	*Prob > chi2 = 0.0000*
Sample Mean 0.875	*Log Likelihood = -294.1*
	Pseudo R2 = 0.281

Legend

**=statistically significant at the 5% level **= statistically significant at the at 1%*
+= dF/dx is for discrete change of dummies from 0 to 1

Table 3. Actual v. Usual Hours and Involuntary Part-Time Working, by Region

	Less	Equal	More	Part-Time	Involuntary Part-Time
Moscow	4.8	92.2	3.0	2.9	62.4
Moscow Oblast	5.3	91.9	2.8	3.0	84.2
Krasnoyarsk	5.9	87.3	6.7	5.0	80.5
Chuvash Republic	10.8	87.5	1.7	4.1	95.8
Chelyabinsk	7.1	91.0	1.9	2.8	90.9
Total	**5.7**	**91.1**	**3.2**	**3.2**	**77.2**

Source: Authors' calculations on the basis of 1996 RLFS.

Table 4. Wage Arrears, by Age and Gender

		Age						Gender	
Wages paid:		**< 20**	**21-30**	**31-40**	**41-50**	**51-60**	**61 +**	**Total**	**Male**	**Female**
In full,on time	A	*3.4*	*20.8*	*28.0*	*28.9*	*14.5*	*4.3*	*100.0*	47.5	52.5
	B	71.0	67.0	62.1	59.4	60.1	63.6	**62.8**	**59.2**	**65.4**
In full, not on time	A	*2.0*	*19.8*	*31.0*	*26.8*	*17.3*	*3.1*	*100.0*	59.2	40.8
	B	1.7	2.7	2.9	2.4	3.1	2.0	**2.7**	**3.2**	**2.2**
Incomplete,on time	A	*2.0*	*16.5*	*28.5*	*32.9*	*15.8*	*4.3*	*100.0*	52.1	47.9
	B	16.5	20.8	24.6	26.4	25.4	24.3	**23.4**	**25.3**	**23.3**
Incomplete, not on time	A	*3.0*	*16.9*	*26.8*	*33.6*	*15.9*	*3.8*	*100.0*	57.2	42.8
	B	10.7	9.4	10.2	11.9	11.4	9.6	**10.7**	**12.3**	**9.2**

Note: Figures in rows A are shares of line total; figures in rows B are shares of column total.
Source: Authors' calculations based on the 1996 RLFS (13 387 observations).

Table 5. Wage Arrears, by Region

	Region					
Wages paid:	**Moscow**	**Moscow Oblast**	**Krasnoyarsk**	**Chuvash**	**Chelyabinsk**	**Total**
In full, on time	76.8	71.8	34.7	42.5	33.7	**62.3**
In full, not on time	2.5	2.6	3.5	1.7	2.8	**2.7**
Incomplete , on time	15.3	19.4	39.6	41.7	39.9	**24.3**
Incomplete, not on time	5.4	6.2	22.1	14.2	23.5	**10.8**

Budgetary Sector

	Region					
Wages paid:	**Moscow**	**Moscow Oblast**	**Krasnoyarsk**	**Chuvash**	**Chelyabinsk**	**Total**
In full, on time	79.3	79.2	36.4	49.3	41.9	**68.5**
In full, not on time	2.6	1.4	3.5	1.8	4.6	**2.5**
Incomplete, on time	14.0	15.1	43.4	41.8	42.1	**22.3**
Incomplete, not on time	4.0	4.3	16.7	7.0	11.4	**6.6**

State Firms in Production

	Region					
Wages paid:	**Moscow**	**Moscow Oblast**	**Krasnoyarsk**	**Chuvash**	**Chelyabinsk**	**Total**
In full, on time	62.3	62.7	23.6	31.2	25.9	**53.1**
In full, not on time	3.8	3.9	4.9	1.3	1.3	**3.6**
Incomplete, on time	23.7	25.5	45.5	42.9	37.9	**29.0**
Incomplete, not on time	10.3	7.9	26.0	24.7	34.8	**14.3**

Table 6. Wage Arrears by Industry

Wages paid:		Industry					
		Agriculture	**Manufacturing**	**Construction**	**Mining**	**Transport**	**Distribution/ trade**
In full, on time	A	*2.3*	*18.6*	*7.4*	*1.0*	*10.3*	*16.9*
	B	55.1	47.6	54.3	32.5	65.2	86.3
In full, not on time	A	*3.2*	*27.5*	*10.9*	*2.3*	*11.6*	*10.4*
	B	3.3	3.0	3.5	3.1	3.2	2.3
Incomplete but	A	*2.4*	*32.0*	*10.7*	*3.6*	*10.1*	*4.5*
on time	B	21.9	30.8	29.4	43.1	24.2	8.6
Incomplete and	A	*4.9*	*43.8*	*10.6*	*4.1*	*7.0*	*3.4*
Not on time	B	19.8	18.5	12.9	21.2	7.3	2.7
Empl. share		*2.6*	*24.7*	*8.6*	*2.0*	*9.9*	*12.4*

	Finance		**Health/education**	**Other services**	**Total**
Complete and	A	*3.3*	*15.9*	*24.2*	*100*
on time	B	92.4	68.0	66.9	**63.0**
Complete but	A	*1.5*	*13.0*	*19.7*	*100*
not on time	B	1.7	2.4	2.4	**2.7**
Incomplete but	A	*0.4*	*14.8*	*21.5*	*100*
on time	B	4.5	23.8	22.4	**23.8**
Incomplete and	A	*0.3*	*8.0*	*17.9*	*100*
not on time	B	1.4	5.7	8.2	**10.5**
Empl. share		*2.3*	*14.7*	*22.7*	*100*

Note: Figures in rows A are shares of line total; figures in rows B are shares of column total.
Source: Authors' calculations based on the 1996 RLFS (12 711 observations).

Table 7. Probit Estimates of Wage Arrears

Explanatory Variable	Sample Mean	dF/dx+	Coefficient	Robust SE	
Male	0.497	0.032	0.086	0.029	**
Children	0.418	0.019	0.051	0.028	
Married	0.722	-0.004	-0.010	0.031	
Age 16-19	0.016	-0.058	-0.160	0.106	
Age 20-24	0.087	-0.042	-0.117	0.056	*
Age 25-34	0.214	-0.056	-0.153	0.036	**
Age 45-54	0.238	-0.009	-0.025	0.035	
Age 55-64	0.115	-0.025	-0.069	0.045	
Age >65	0.022	0.036	0.096	0.095	
Hours worked					
0-30	0.055	0.040	0.107	0.068	
40	0.774	-0.051	-0.134	0.045	**
>40	0.070	-0.023	-0.062	0.065	
Education					
Higher	0.271	-0.045	-0.122	0.057	*
Higher Incomplete	0.019	-0.068	-0.191	0.109	
Secondary	0.339	-0.033	-0.091	0.050	
Superior Secondary	0.282	-0.007	-0.018	0.049	
Occupation					
Professional	0.322	0.024	0.064	0.046	
Clerks	0.051	-0.091	-0.257	0.073	**
Production	0.049	0.009	0.024	0.072	
Craftsmen	0.111	0.035	0.093	0.058	
Service workers	0.244	0.003	0.009	0.052	
Technicians	0.063	-0.018	-0.048	0.066	
Other workers	0.060	0.006	0.016	0.067	
Job Tenure4					
2-5 years	0.288	0.001	0.003	0.050	
>5 years	0.621	0.025	0.067	0.051	
Establishment size					
6-25	0.148	0.075	0.199	0.092	*
26-100	0.320	0.107	0.284	0.090	**
101-500	0.287	0.177	0.466	0.092	**
>500	0.221	0.224	0.583	0.094	**
Industry					

Agriculture	0.026	-0.017	-0.045	0.088	
Manufacturing	0.248	0.093	0.246	0.040	**
Constructing	0.087	0.098	0.257	0.050	**
Mining	0.020	0.154	0.395	0.091	**
Transport	0.100	-0.044	-0.120	0.047	*
Distribution/Trade	0.126	-0.167	-0.495	0.054	**
Finance	0.023	-0.243	-0.832	0.119	**
Health/Education	0.148	-0.055	-0.153	0.047	**
Ownership					
De Novo Private	0.125	-0.029	-0.080	0.047	
Privatised	0.181	-0.009	-0.024	0.038	
Region					
Moscow	0.402	-0.347	-1.001	0.042	**
Moscow Oblast	0.292	-0.316	-0.960	0.044	**
Krasnoyarsk	0.136	0.004	0.012	0.051	
Chuwash Republic	0.045	-0.053	-0.147	0.069	*
Constant			0.098	0.130	

Dependent Variable	*Number of obs = 11900*
y=1,wage arrears	*chi2(43) =2105.64*
y=0, payment complete and in time	*Prob > chi2 = 0.0000*
Mean = 0.389	*Log Likelihood = -6621.918*
	Pseudo R2 = 0.1571

**=statistically significant at the 5% level **= statistically significant at the at 1%*
+= dF/dx is for discrete change of dummies from 0 to 1

Table 8. Probabilities of Wage Arrears for selected characteristics

Characteristics	Male	Female
(Default) 35-44 years, any tenure, secondary education or lower, firm size < 26, in other services, any ownership type, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.572	.539
35-44 years, any tenure, secondary education or lower, *firm size >500, in mining*, any ownership type, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.877	.859
35-44 years, any tenure, secondary education or lower, *firm size>500, in manufacturing*, any ownership type, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.844	.823
35-44 years, any tenure, secondary education or lower, *firm size>500, in manufacturing*, any ownership type, *in Moscow*, any occupation but clerks	.504	.470
35-44 years, any tenure, secondary education or lower, firm size < 26, in *manufacturing*, any ownership type, in *Moscow*, *clerks*	.203	.180
35-44 years, any tenure, secondary education or lower, *firm size>500, in manufacturing*, any ownership type, *in Chuvash Republic*, any occupation but clerks	.806	.782
20-24 years, any tenure, *higher education*, firm size < 26, *in finance*, any ownership type, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.187	.165
20-24 years, any tenure, *higher education*, firm size < 26, *in finance*, any ownership type, *in Moscow*, any occupation but clerks	.029	.024
20-24 years, any tenure, *higher education*, firm size < 26, *in finance*, any ownership type, *in Chuvash Republic*, any occupation but clerks	.150	.131
20-24 years, any tenure, *higher education*, firm size < 26, *in finance*, *de novo privatised firm*, *in Moscow*, any occupation but clerks	.024	.020
20-24 years, any tenure, *secondary superior education*, firm size < 26, *in distribution and trade*, any ownership type, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.301	.272
Budgetary		
(Default) 35-44 years, up to 1 year tenure, secondary education or lower, any firm size, in other services, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.681	.624
35-44 years, up to 1 year tenure, *secondary superior education*, any firm size, *in distribution and trade*, in Chelyabinsk or Krasnoyarsk, any occupation but clerks	.907	.879
State Firms		
(Default) 35-44 years, up to 1 year tenure, secondary education or lower, any firm size, in agriculture, in Chelyabinsk or Chuwash, any occupation but clerks	.458	.448
35-44 years, up to 1 year tenure, secondary education or lower, any firm size, *in manufacturing*, *in Moscow*, any occupation but clerks	.508	.498

Source: Authors' calculations based on Probit regressions

Table 9. - Probit Estimates of Wage Arrears by Industry

Variable	Agriculture dF/dx	Manuf. dF/dx	Constr. dF/dx		Mining dF/dx	Transport dF/dx	Distribution/ Trade dF/dx	Education/ Health dF/dx	Other Services dF/dx
Male	-0.070	-0.038 *	0.090 **		0.130 *	0.103 ***	0.061 ***	0.063 *	0.021
Children	0.056	0.024	-0.024		0.014	0.006	0.063 ***	-0.018	0.035
Married	0.009	-0.022	-0.070		0.089	0.046	-0.016	0.006	0.019
Age 16-19	0.066	0.115	-0.141	16-24	0.173	-0.158	-0.090 *	-0.038	-0.090
Age 20-24	0.000	-0.049	-0.140 *			0.009	-0.027	0.048	-0.043
Age 25-34	-0.134	-0.056 *	-0.119 **	25-34	0.002	-0.023	-0.050 **	0.009	-0.075 ***
Age 45-54	-0.089	-0.010	-0.063	45-54	0.163 **	-0.018	0.000	0.016	0.001
Age 55-64	-0.191	0.027	-0.079	>55	-0.133	-0.193 ***	-0.018	-0.001	0.000
Age >65	-0.026	0.034	0.087			-0.181	0.206 *	0.031	0.097
Hours worked									
0-30	0.506 **	0.049	-0.016			0.065	-0.072	-0.005	0.022
40	0.189	-0.082 **	-0.054			0.079	-0.120 ***	0.000	-0.111 ***
>40	0.528 ***	-0.049	-0.105			0.089	-0.109 ***	-0.036	-0.020
Education				*Education*					
Higher	-0.243	-0.025	-0.138 *	Hig./ Hig Inco.	0.008	-0.108 *	-0.057	0.039	-0.013
Higher Incomplete		0.037	-0.149			-0.305 ***	-0.031	0.015	-0.002
Secondary Superior	-0.164	0.036	-0.084	Secondary Sup.	0.074	-0.161 ***	-0.006	-0.014	-0.015
Secondary	-0.158 *	0.016	-0.014	Secondary	-0.070	-0.076	-0.014	0.074	0.007
Occupation									
Professional	0.016	0.013	0.019		0.147	0.045	0.026	0.122 **	0.016
Clerks		-0.062	-0.118		0.069	-0.016	0.056	-0.019	-0.156 ***
Production	-0.124	0.005	-0.101		0.200	0.171	0.194	0.027	-0.039
Craftsmen	0.201	0.037	-0.126 *		0.200	0.012	0.027	0.168 *	0.102 **
Service workers	0.041	0.012	-0.138 **		0.090	0.033	0.008	0.094	0.002

Technicians	-0.035	0.011	-0.192 **		-0.090	-0.071	-0.020	0.013	0.003
Other workers	0.096	-0.012	-0.094		0.029	-0.009	0.007	0.156	0.033
Job Tenure									
2-5 years	0.018	-0.070	-0.092		0.194 *	0.081	-0.048 *	0.071	0.084 **
>5 years	0.109	0.004	-0.116 *		0.378 ***	0.065	-0.037	0.024	0.109 ***
Establishment size									
6-25	0.192	-0.047	0.053		-0.185	0.131	0.097 **	0.069	0.057
26-100	0.322	0.110	0.182		-0.255	0.163	0.118 ***	0.143	-0.002
101-500	0.241	0.215	0.318 *		-0.414 **	0.222 *	0.170 ***	0.111	0.091
>500	-0.323	0.311 **	0.414 ***		-0.213	0.197	0.172 **	0.093	0.117 *
Ownership				*Ownership*					
De Novo Private	0.492 ***	-0.095 **	0.080	Non state	0.067	-0.163 ***	-0.029	0.020	-0.045
Privatised	0.470 ***	-0.067 ***	-0.009			0.012	-0.019	0.009	0.017
Region				*Region*					
Moscow	-0.434 ***	-0.338 ***	-0.420 ***	Central	-0.614 ***	-0.470 ***	-0.159 ***	-0.353 ***	-0.320 ***
Moscow Oblast	-0.453 ***	-0.369 ***	-0.347 ***			-0.392 ***	-0.115 ***	-0.376 ***	-0.274 ***
Krasnoyarsk	-0.031	-0.025	0.133 *			-0.078	0.011	0.173 ***	0.052
Chuwash Republic	0.003	-0.126 **	0.015			-0.203 ***	0.032	0.001	-0.052
N. obs. =	*285*	*2913*	*1037*	*251*		*1203*	*1514*	*1782*	*2784*

=statistically significant at the 10% level, **=statistically significant at the 5% level, *=statistically significant at the 1% level*

Table10-Probit Estimates of Wage Arrears by Region

	Moscow		Moscow Oblast		Krasnoyarsk		Chuvash		Chelyabsk.	
Variable	**dF/dx**		**dF/dx**		**dF/dx**		**dF/dx**		**dF/dx**	
Male	0.024	*	0.027		0.033		0.035		0.038	
Children	0.002		0.041	**	0.004		0.022		0.002	
Married	0.003		-0.010		0.007		-0.040		0.005	
Age 16-19	-0.082		-0.127	**	-0.040		0.226		-0.005	
Age 20-24	-0.021		-0.064	**	-0.010		-0.088		-0.025	
Age 25-34	-0.031	*	-0.101	***	-0.069	*	0.012		-0.004	
Age 45-54	0.011		-0.010		-0.074	*	-0.020		-0.039	
Age 55-64	-0.034	*	0.025		-0.178	***	-0.012		-0.040	
Age >65	0.017		0.086		0.197		-0.017		-0.171	*
Hours worked										
0-30	0.105	***	-0.057		-0.121		0.164	*	0.119	**
40	0.002		-0.046		-0.084	**	0.047		-0.129	***
>40	-0.015		-0.019		-0.107	*	0.122		-0.200	*
Education										
Higher	-0.032		0.010		-0.121	*	-0.227	**	-0.112	*
Higher Incomplete	-0.080	*	0.106		-0.152		-0.299	*	-0.038	
Secondary Superior	-0.018		-0.013		-0.008		-0.075		-0.052	
Secondary	-0.021		0.035		-0.018		-0.072		-0.020	
Occupation										
Professional	0.061	***	0.033		-0.058		-0.202	**	-0.083	
Clerks	-0.080	**	-0.049		-0.212	***	-0.284	**	0.036	
Production	-0.004		0.051		-0.057		-0.014		0.052	
Craftsmen	0.043		0.068	*	0.116	*	-0.131		-0.053	
Service workers	-0.028		0.112	***	0.006		-0.224	**	-0.056	
Technicians	-0.018	*	0.060		-0.119		-0.101		-0.079	
Other workers	-0.008		0.045		0.020		-0.295	**	0.063	
Job Tenure										
2-5 years	-0.003		0.023		0.031		-0.124		-0.030	
>5 years	0.016		-0.033	**	0.151	***	-0.105		0.073	*
Establishment size										
6-25	0.047		0.123		-0.053		0.198	**	0.117	*
26-100	0.088		0.092		0.062		0.102		0.174	***
101-500	0.187	***	0.128	*	0.095		0.158	*	0.199	***
>500	0.252	***	0.266	***	-0.035		0.085		0.252	***
Industry										
Agriculture	0.095		0.043		-0.023		0.037		-0.319	***

Manufacturing	0.101	***	0.078	***	0.112	**	0.154	*	0.038	
Constructing	0.063	**	0.083	***	0.154	***	0.187	*	0.112	**
Mining	-0.028		0.088		0.220	***	-0.081		0.189	***
Transport	-0.048	**	-0.056	**	-0.030		-0.100		0.045	
Distribution/Trade	-0.080	***	-0.183	***	-0.228	***	-0.127		-0.270	***
Finance	-0.140	***	-0.203	***	-0.515	***	-0.420	*	-0.166	
Health/Education	-0.019		-0.114	***			0.137	*	-0.049	
Ownership										
De Novo Private	-0.027		-0.013		-0.127	***	-0.130		0.030	
Privatised	0.002		-0.028		-0.047		-0.223	**	0.058	*
No. Obs.	4945		3508		1358		535		1554	

**= significant at the 10% level*

***= significant at the 5% level*

****= significant at the 1% level*

Table 11. Monitor Probit/Random Effects Probit Estimates of Wage Arrears

		Probit		Random Effects Probit	
	Sample Mean	**Coefficient**	**Robust SE**	**Coefficient**	**Robust SE**
Male	0.476	0.107 **	0.035	0.102 *	0.042
Married	0.508	-0.059	0.044	-0.050	0.045
Dependent children	0.578	0.067 *	0.034	0.071	0.039
Age					
16-19	0.012	-0.315 *	0.138	-0.282 *	0.141
20-24	0.066	-0.088	0.065	-0.059	0.071
25-34	0.227	0.036	0.040	0.017	0.046
35-44					
45-54	0.224	-0.006	0.043	-0.019	0.048
≥55	0.129	-0.113 *	0.052	-0.098	0.060
Education					
Graduate School					
University/Academy	0.193	0.167	0.165	0.123	0.197
Technical	0.243	0.267	0.168	0.203	0.200
Trade School	0.149	0.158	0.173	0.106	0.203
PTU	0.085	0.158	0.175	0.134	0.205
Any Professional Course	0.132	0.330	0.173	0.273	0.203
High school only	0.189	0.233	0.171	0.192	0.202
Occupation					
Managers					
Professions	0.018	-0.448 **	0.120	-0.359 **	0.115
Technicians	0.184	-0.032	0.064	-0.000	0.069
Clerical	0.147	-0.178 **	0.058	-0.144 *	0.062
Personal Serv.	0.073	-0.377 **	0.068	-0.307 **	0.075
Agric.	0.066	-0.368 **	0.071	-0.300 **	0.080
Craft	0.005	-0.272	0.214	-0.314	0.246
Operatives	0.178	0.045	0.056	0.076	0.062
Unskilled Manual	0.201	-0.005	0.055	0.047	0.060
Employer Size					
0-9					
10-49	0.204	0.140 *	0.063	0.134	0.066
50-99	0.105	0.196 **	0.071	0.197 **	0.073
100-499	0.218	0.283 **	0.064	0.302 **	0.068
500-999	0.057	0.320 **	0.083	0.339 **	0.087
≥1000	0.136	0.446 **	0.071	0.454 **	0.076
Missing	0.207	0.251 **	0.065	0.242 **	0.068
Length of Employment					
0-5 months					
6-11 months	0.093	-0.162 *	0.072	-0.199 **	0.070
12-23 months	0.057	-0.041	0.080	-0.057	0.078
3-5 years	0.101	-0.033	0.069	-0.063	0.066
6-10 years	0.187	0.087	0.063	0.074	0.062
11-20 years	0.147	0.191 **	0.065	0.148 *	0.064
>20 years	0.196	0.182 **	0.063	0.173 **	0.061
Missing	0.141	0.251 **	0.067	0.218 **	0.067
Ownership					
Private stake					
State	0.731	0.114 **	0.033	0.087 **	0.034
Foreign	0.029	-0.057	0.086	-0.043	0.087

Wave 2	0.337	0.121 *	0.048	0.111 *	0.046
Wave3	0.322	0.566 **	0.049	0.559 **	0.047
Region					
Moscow/St. Petersburg					
North, North-West	0.077	0.580 **	0.075	0.594 **	0.092
Central & Central Black-Earth	0.188	0.168 **	0.063	0.187 *	0.078
Volga-Vyatsnik & Volga Basin	0.190	0.550 **	0.063	0.568 **	0.077
North Caucasus	0.118	0.298 **	0.070	0.321 **	0.085
Urals	0.161	0.364 **	0.064	0.385 **	0.079
Western Siberia	0.097	0.485 **	0.071	0.497 **	0.086
East Siberia & Far East	0.091	0.617 **	0.073	0.639 **	0.088
Area					
City	0.068				
Rural	0.250	0.699 **	0.037	0.697 **	0.046
Constant		-1.251 **	0.203	-1.215 **	0.233

Probit Estimates

mean = 0.504

Number of observations = 8687
chi2(32) = 1144.3
Prob > chi2 = 0.0000
Log Likelihood = -5384.3
Pseudo R2 = 0.106

*= significant at the 5% level
**= significant at the 1% level

Random Effects Probit Estimates

Number of observations = 8687
chi2(47) = 962.2
Pearson chi2(8639): 8682.24 Deviance = 10775.2
Dispersion (Pearson): 1.00 Dispersion = 1.25

Table 12. Persistence of Wage Arrears

	1994	1995	1996
No. Times in Arrears			
0	60.9	44.2	26.8
1	39.1	29.1	28.1
2		26.7	22.8
3			22.3
Arrears (000 Rs)			
1	826.4	609.0	846.4
	(912.9)	(710.9)	(862.7)
2		908.6	1220.8
		(952.2)	(1142.2)
3			1451.9
			(1268.6)
Average	826.4	783.5	1176.4
	(912.9)	(872.8)	(1133.6)
Relative Arrears			
10th		0.30	0.60 (.59)
50th		1.03	1.70 (1.68)
90th		2.70	6.30 (6.17)
Arrears Outflow (%)		29	15
Arrears Inflow (%)		29	46

Source: Authors' calculations based on RLMS.

Table 13. Monitor Ordered Probit Estimates of Incidence of Wage Arrears

	Coefficient	SE
Female	-0.146 **	0.052
Married	-0.038	0.054
Dependent Children	0.061	0.050
Age		
20-24	-0.290 **	0.102
25-34	0.010	0.058
35-44		
45-54	0.048	0.063
≥55	-0.080	0.077
Education		
Graduate School		
University/Academy	0.125	0.229
Technical	0.258	0.233
Trade School	0.324	0.240
PTU	0.076	0.244
Any Professional Course	0.366	0.241
High school only	0.252	0.237
Occupation		
Managers		
Professions	-0.315	0.265
Technicians	0.063	0.093
Clerical	-0.053	0.084
Personal Serv.	-0.353 **	0.100
Agric.	-0.288 **	0.107
Craft	-0.517	0.278
Operatives	0.115	0.082
Unskilled Manual	0.015	0.079
Employer Size		
0-9		
10-49	0.150	0.096
50-99	0.271 *	0.107
100-499	0.413 **	0.097
500-999	0.348 **	0.125
≥1000	0.591 **	0.108
Missing	0.303 **	0.099
Length of Employment		
0-5 months		
6-11 months	-0.241 *	0.106
12-23 months	-0.189	0.114
3-5 years	-0.090	0.093
6-10 years	0.049	0.083
11-20 years	0.156	0.088
>20 years	0.228 **	0.086
Missing	0.241 **	0.091

Ownership			
Private stake			
State	0.179	**	0.049
Foreign	-0.040		0.126
Region			
Moscow/St. Petersburg			
North, North-West	0.644	**	0.108
Central & Central Black-Earth	0.165		0.092
Volga-Vyatsnik & Volga Basin	0.586	**	0.092
North Caucasus	0.331	**	0.102
Urals	0.416	**	0.093
Western Siberia	0.517	**	0.103
East Siberia & Far East	0.667	**	0.106
Area			
Rural	0.786	**	0.056
Constant			

Ancillary parameters:
_cut1 .5345627 (.284)
_cut2 1.375799 (.284)
_cut3 2.10528 (.285)
Number of observations = 2768
Chi2(44) = 585.87
Log Likelihood = -3530.8
Pseudo R2 = 0.077

*= significant at the 5% level
**= significant at the 1% level

Table 14. Tobit Estimates of Real and Relative Wage Arrears

Explanatory Variable	Real		Relative	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**
Female	-329.9**	105.7	-0.186	0.421
Married	70.5	109.8	-0.250	0.444
One or more children	98.4	102.2	0.311	0.409
Age 20-24	9.472	209.6	-0.064	0.838
Age 25-34	-49.484	117.9	0.148	0.490
Age 35-44				
Age 45-54	0.594	126.9	-0.324	0.514
Age ≥55	-28.0	156.1	-0.225	0.627
Graduate School	1055.2**	435.6	1.778	1.750
University/Academy	-243.7	444.6	-1.101	0.675
Technical	-82.1	460.3	-0.077	0.560
Trade School	-150.7	470.3	-0.061	0.637
PTU	-253.6	461.3	0.644	0.726
Any Professional Course	102.1	453.4	0.102	0.688
High school only				
Occupation				
Managers	230.2	613.3	3.008	1.984
Professions	435.6	189.3	0.117	0.770
Technicians	113.4	172.9	-0.238	0.717
Clerical	-318.9	206.3	-1.214	0.822
Personal Serv.	-291.5	221.9	-1.773	0.894
Agric.	-185.7	655.5	-0.944	2.283
Craft	490.6**	168.6	0.396	0.708
Operatives	346.4**	163.2	-0.296	0.694
Unskilled Manual				
Employer Size				
0-9	-1229.9**	202.0	-2.619**	0.919
10-49	-960.5**	221.7	-1.683**	0.644
50-99	-536.5**	202.6	-0.069	0.687
100-499	-346.5*	259.9	0.499	0.593
500-999	-772.0**	221.5	-1.142	0.836
³1000				
Missing	-768.1**	157.9	-1.317	0.657
Length of Employment				
0-5 months	-826.0**	225.2	-3.408**	0.950
6-11 months	-589.3**	236.4	-2.202	1.030
12-23 months	-471.1**	187.1	-2.051**	0.766
3-5 years	-251.5	158.7	-0.988	0.638
6-10 years	-116.6	166.0	-0.419	0.669
11-20 years	- 40.6	154.9	-0.494	0.625
>20 years				
Missing	-544.5**	191.8	-2.577	0.792
Ownership				
Private stake				
State	160.9**	100.9	1.022**	0.408

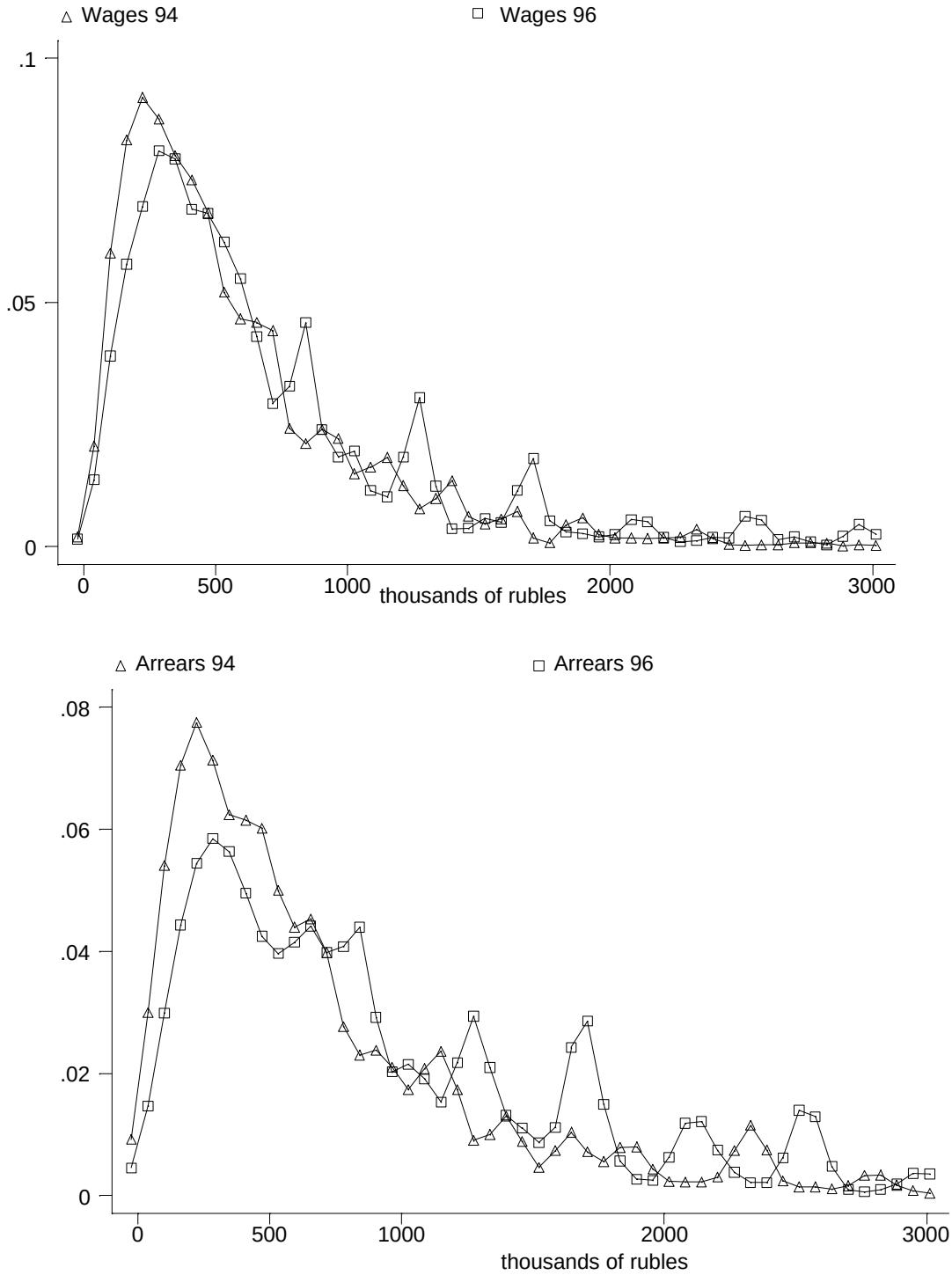
Foreign	-517.0**	261.6	-0.914	1.026
Region				
Moscow/St. Petersburg				
North, North-West	1833.1**	221.2	3.257**	0.887
Central	205.9	190.2	1.237*	0.713
Volga & Volga Basin	610.9**	190.3	3.053**	0.723
North Caucasus	799.4**	208.3	3.345**	0.803
Urals	775.5**	191.9	2.658**	0.724
Western Siberia	1010.7**	211.6	1.956**	0.847
East Siberia & Far East	1446.9**	219.5	3.665**	0.898
Area				
City				
Rural	468.8**	114.4	1.157**	0.535
Constant	-39.1	306.3	-3.047**	1.239
Standard Error	1902.0**	37.9	5.937**	0.175
Pseudo R2	0.014		0.031	
Chi 2 (44)	386.5		170.9	
N	2464		1042	
Censored	1042		1723	

Table 15. Probit Estimates of Effect of Wage Arrears on Mobility

	Job-to-Job			E to Non-Employment			E to Unemployment		
	Coef.	**S.E.**	**Marginal**	**Coef.**	**S.E.**	**Marginal**	**Coef.**	**S.E.**	**Marginal**
Arrears last year	0.210*	0.061	0.023	-0.011	0.057	-0.002	-0.003	0.074	-0.002
Arrears*Mosc./St. P.	0.448**	0.195	0.066	-0.159	0.228	-0.025	-0.239	0.282	-0.016
Region									
Moscow/St. Petersbg.									
North, North-West	-0.102	0.154	-0.010	0.007	0.171	0.001	-0.124	0.218	-0.009
Central	-0.081	0.133	-0.008	0.242*	0.144	0.045	0.148	0.181	0.012
Volga & Volga Basin	-0.097	0.135	-0.009	0.120	0.148	0.022	-0.218	0.193	-0.015
North Caucasus	-0.140	0.149	-0.013	0.293*	0.153	0.058	0.253	0.193	0.024
Urals	-0.047	0.137	-0.004	0.155	0.148	0.028	-0.040	0.189	-0.003
Western Siberia	-0.216	0.153	-0.019	0.130	0.161	0.024	0.037	0.202	0.003
East	0.043	0.151	0.005	0.044	0.166	0.008	-0.025	0.215	-0.002
Area									
Rural	-0.230**	0.075	-0.022	0.095	0.068	0.017	-0.124	0.095	-0.009
Ownership									
State	-0.216**	0.060	-0.025			-0.019			-0.004
Foreign	0.076	0.139	0.008			-0.013			0.001
Constant	-2.043**	0.292		-1.708**	0.318		-1.872	0.487**	
Pseudo R2	0.087			0.070			0.070		
Chi 2 (46)	231.3			201.9			94.0		
Mean Dep. Var.	0.067			0.113			0.046		
N	5313			4328			4060		

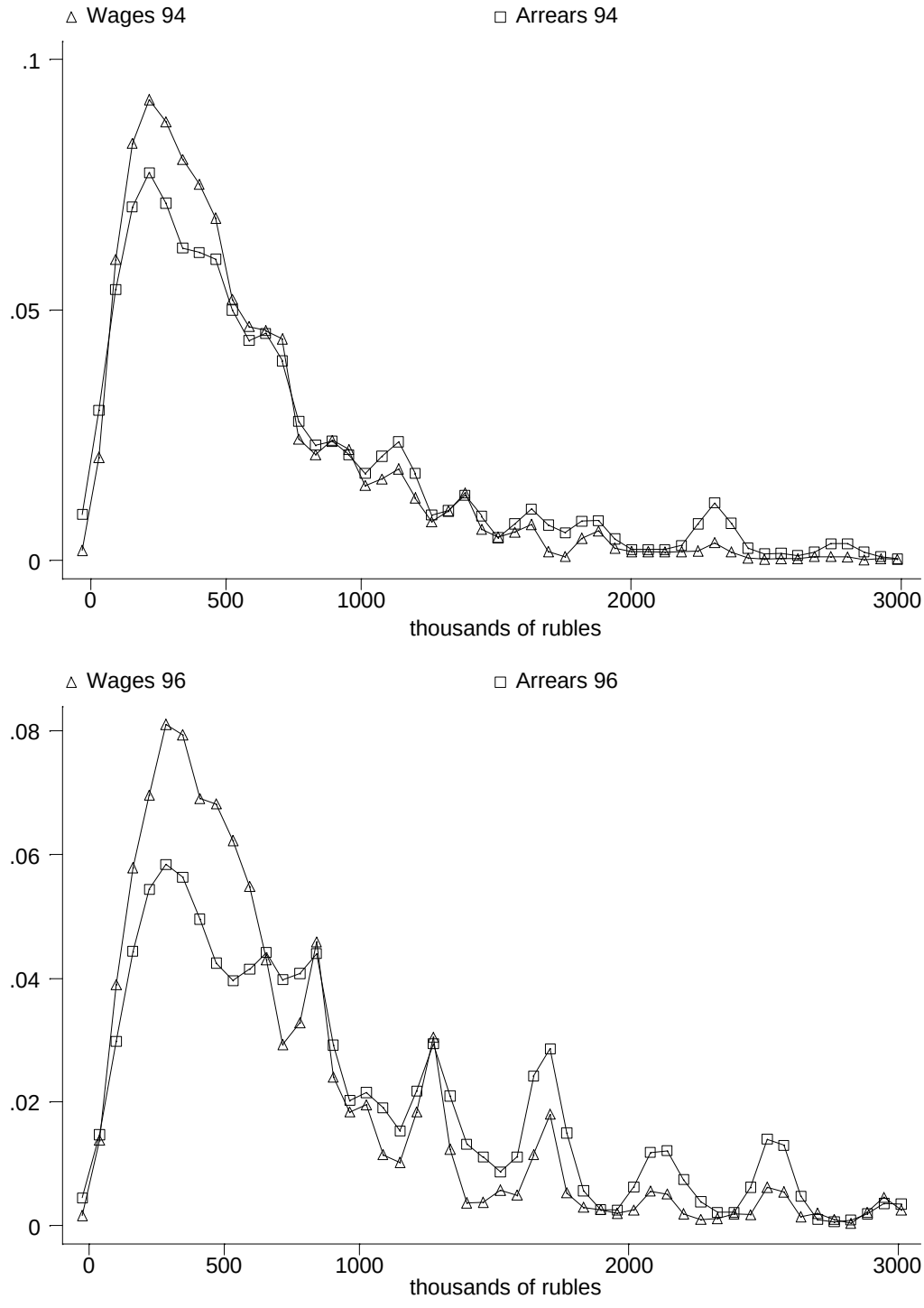
Regressions include controls for age, education, gender marital status, job tenure, establishment size and occupation

Figure 1. Dynamics of Real Wages and Real Wage Arrears 1994/1996



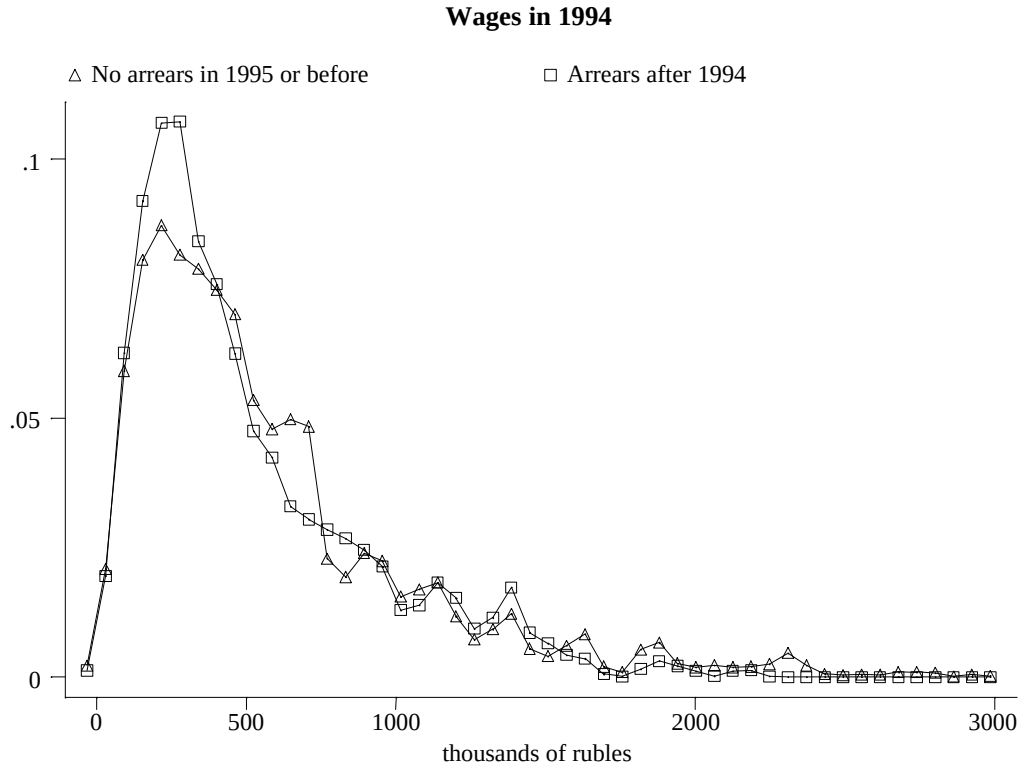
Source: Authors' calculations based on the RLMS.

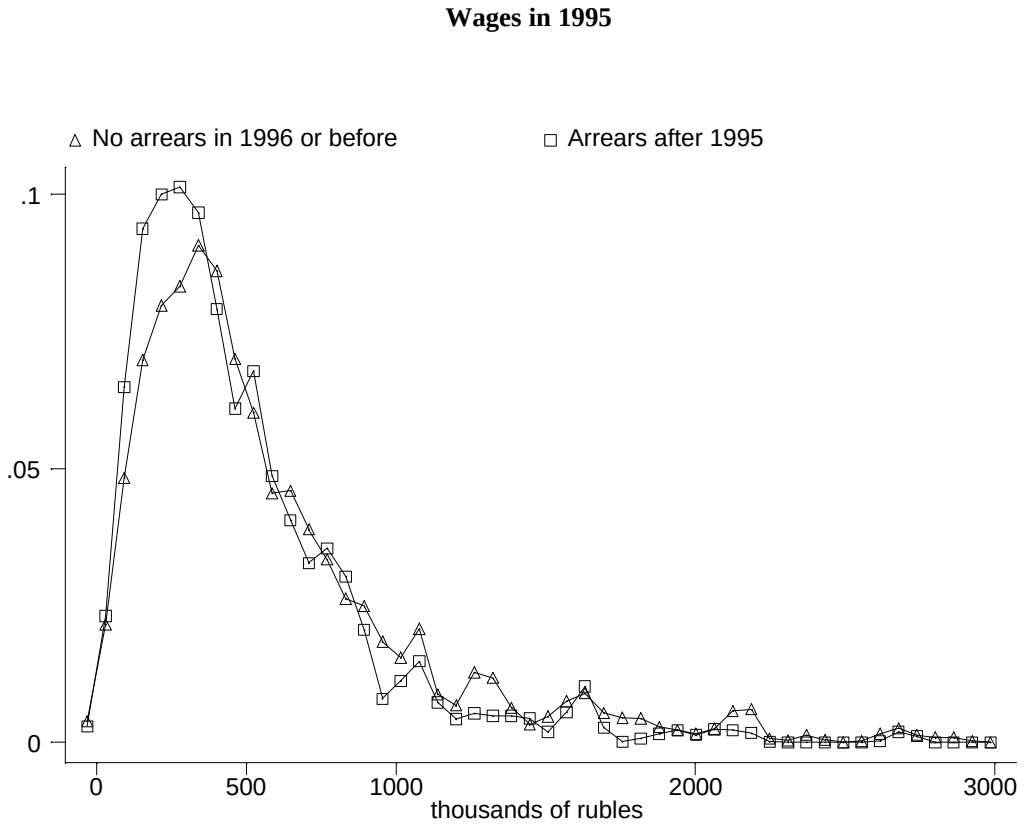
Figure 2. Comparing Monthly Wage Flows and Stocks of Wage Arrears - 1994/1996



Source: Authors' calculations based on the RLMS.

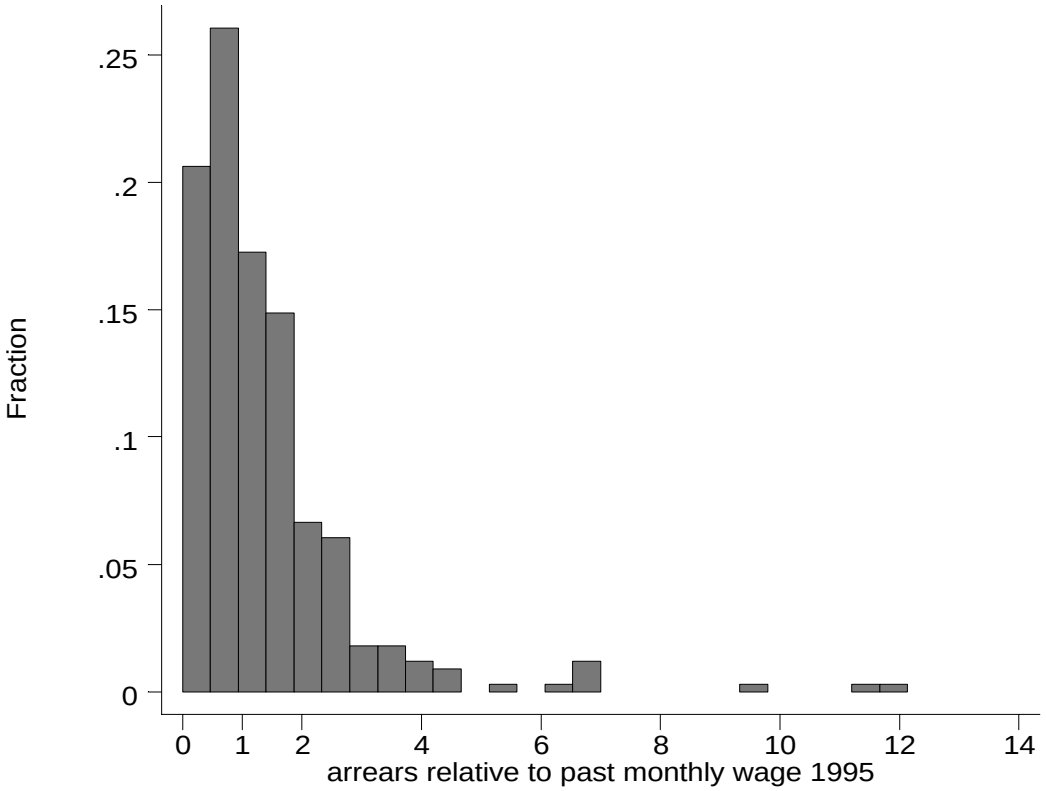
Figure 3. Wage distributions of those unaffected and those affected by wage arrears

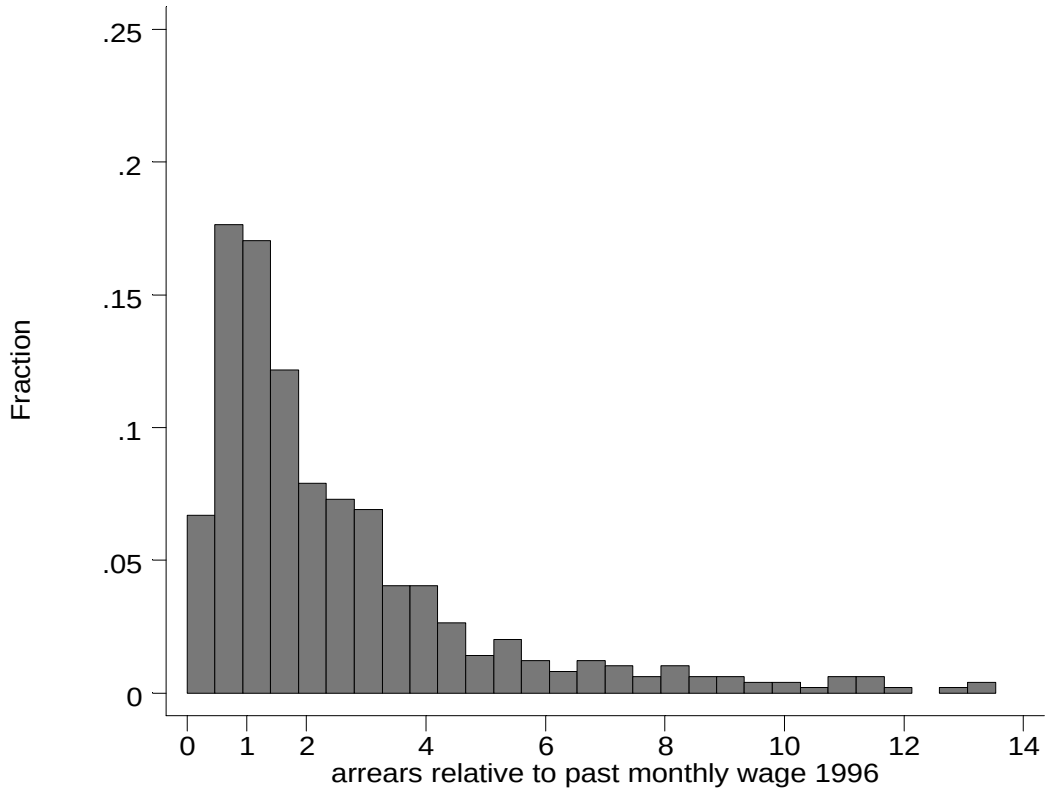




Source: Authors' calculations based on the RLMS.

Figure 4. Wage Arrears Relative to Previous Earnings - New Claims, 1995, 1996





References

Alfandari, G. and Schaffer, M.E., (1996). ‘'Arrears' in the Russian Enterprise Sector’, in Commander, S., Fan, Q. and Schaffer, M.E. (eds.), *Enterprise Restructuring and Economic Policy in Russia*, EDI/World Bank.

Commander, S., McHale, J. and Yemtsov, R., (1995). ‘Russia’, in Commander, S. and Coricelli, F. (eds.), *Unemployment, Restructuring, and the Labor Market in Eastern Europe and Russia*, EDI/World Bank.

Commander, S., Dhar, S. and Yemtsov, R., (1996). ‘How Russian Firms Make Their Wage and Employment Decisions’, in Commander, S., Fan Q. and Schaffer, M.E. (eds.), *Enterprise Restructuring and Economic Policy in Russia*, EDI/World Bank.

Desai, P. and Idson, T., (1997), ‘The Non-Payment Crisis in Russia’, Columbia University Economics Department Working Paper, July.

Foley, M., (1995). ‘Labor Market Flows in Russia: Evidence from the Russian Longitudinal Monitoring Survey’, World Bank, March, mimeo.

Gimpelson, V. and Lippoldt, D., (1996). ‘Labour Restructuring in Russian Enterprises: A Case Study’, OECD, Paris.

Gordon, L.A., (1997). *Polozhenie naiemnykh pabotnikov b Rossii 90-kh godov* (*Dependent Workers in Russia in the Nineties*), Moscow, IMEMO.

Gregg, P. and Wadsworth, J., (1996). ‘Mind the Gap? The Changing Nature of Entry Jobs in Britain’, Centre for Economic Performance Discussion Paper No. 303.

Gosudarstvenyj Komitet Rossijskoj Federacii Po Statistike (Gostkomstat), (1996a). ‘Rynok truda Rossijskoj Federacii v 1996 godu’ (‘The Labour Market of the Russian Federation in 1996’), *Informacionyj statisticzeskij bjuletten'*, No. 13, November 1996, 45-64.

Gosudarstvenyj Komitet Rossijskoj Federacii Po Statistike (Gostkomstat), (1996b). ‘O differenciacii zarabotnoj platy rabotajushchych na predprijatjach (organizacjach) v I polugodii 1996 goda’ (‘The Differentiation of wages of workers in enterprises (organisations) during the first half of 1996’), *Informacionyj statisticzeskij bjuletten*, No. 13, November 1996, 65-82.

Hanson, P., (1986). ‘The Serendipitous Soviet Achievement of Full Employment: Labour Shortage and Labour Hoarding in the Soviet Economy’, in Lane D. (ed.*), Labour and Employment in the USSR*.

Layard, R. and Richter, A., (1995). ‘How much unemployment is needed for restructuring: the Russian experience’, *Economics of Transition*, Volume 3 (1), 39-58.

Malle, S., (1990). *Employment Planning in the Soviet Union: Continuity and Change*.

Metalina, T., (1996). ‘Employment Policy in an Industrial Enterprise’, in Clark, S. (Ed.), *Labour Relations in Transition. Wages, Employment and Industrial Conflict in Russia*, Cheltenham.

Nuti, D.M., (1986). ‘Systemic Aspects of Employment and Investment in Soviet-Type Economies’, in Lane D. (Ed.*), Labour and Employment in the USSR*.

Richter, A. and Schaffer, M.E. (1996). ‘The Performance of *De novo* Private firms in Russian Manufacturing’, Centre for Economic Reform and Transformation Discussion Paper No. 96/10, Edinburgh.

Russian Economic Trends, (1997). Russian European Centre for Economic Policy.

Shleifer, A., (1997). ‘Government in Transition’, *European Economic Review*, 41, 385-410.

Standing, G., (1996a). *Russian Unemployment and Enterprise Restructuring. Reviving Dead Souls*, ILO, Geneva.

Standing, G., (1996b). ‘The Shake-Out in Russian Factories: The RLFS Fifth Round, 1995’, ILO Labour Market Papers No. 14, ILO, Geneva.

[1] Layard and Richter (1995) report a cross-tabulation of the extent of 1994 wage arrears using a VCIOM survey of individuals, while Gordon (1997), using VCIOM data, shows the overall rising incidence of wage arrears between 1992 and 1996.

[2] The supplement was developed by the authors, Evgenyi Gontmacher, Ingrid Leiprecht, Douglas Lippoldt, Viktor Starodubrovskyi and Ruslan Yemtsov within the TACIS-Ace project *The Performance of Regional Labour Market Types in the Russian Federation* (T94-1073-R).

[3] The RLMS is ambiguous on the nature of self-employment, referring instead to the extent of self-ownership in the enterprise where the individual works. We exclude only those who say they own between 51 and 100% of the enterprise.

[4] There are no population weights in either dataset.

[5] One should note that more than 90% of those on fixed term contracts would have preferred to have a permanent contract.

[6] Gregg and Wadsworth (1996) show that the proportion of temporary jobs in the stock of new jobs in Britain is around 17%.

[7] Standing (1996b) finds that 15.2% of workers in the metals sector and 9.2% in textiles were on unpaid leave, using a survey of Russian enterprises in May 1995.

[8] In the Russian Labour Force Survey questionnaire persons are asked whether in the reference week they worked full- or part-time and if the latter whether they did so voluntarily or against their wishes. Involuntary part-time work can be understood here as an upper bound of short-time work, where the latter is defined as shorter working hours than usual imposed by management.

[9] According to Goskomstat (1996a) employment fell between the beginning of 1992 and the end of 1995 by about 7%, while the fall of GDP amounted to around 40% and production by medium and large enterprises shrank by even 60% for the same period (Russian Economic Trends 1995, vol. 4, No.4).

[10] In March 1996 around 42% of all employees still worked in the budgetary sphere. Those in state-owned firms in other services, transport, distribution and trade, health and education and finance are considered workers in the budgetary sphere.

[11] Workers of the "state firm production sphere" are working in state-owned firms in agriculture, manufacturing, construction and mining.

[12] The results of this regression are available from the authors upon request.

[13] The RLMS indicates that around 9.9% of those in arrears left employment one year later, compared with around 8.5% of those not in arrears.

[14] Clarke, Ashwin and Borisov (1997) note that unemployment benefit arrears are now a feature in many regions.

[15] Shleifer (1996) provides some compelling evidence on how entrepreneurs differ in their perception of the reform stance of their respective regional government. Entrepreneurs in Moscow see their regional government as reform-friendly and supportive of private business activities, while provincial entrepreneurs complain about an administrative environment that is hostile to private business endeavours.