The Gender Wage Gap and Wage Arrears in Russia: Evidence from the RLMS

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Abstract: This paper re-examines the gender wage gap in Russia between 1994 and 1998 taking into account the pervasiveness of Russia's non-payment institutions. Using censored regression techniques we investigate wage discrimination at different sections of the income distribution and for various important sub-groups. We find that the wage gap is distributed unevenly. Most notably, women at the lower end of the income distribution suffer the highest degree of discrimination. However, we find that wage arrears and payment in-kind attenuated wage discrimination, particularly amongst the lowest paid workers, suggesting that Russian enterprise managers assigned importance to equity considerations when allocating these forms of non-payment.

Key Words: Russia, gender wage gap, wage arrears, payment in-kind.

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1. Introduction

Russia's ongoing transformation into a market economy has given rise to dramatic increases in wage inequality, a substantial decline in female participation rates[1] and the emergence of peculiar and widespread labour market institutions such as wage arrears and payment in-kind. It is not obvious *a priori* how the changing wage structure would combine with the emergence of these institutions in influencing the gender wage differential. Thus, in this paper we add an important strand to the growing literature on the Russian gender pay gap by examining the effects of wage arrears and payment in-kind on the differential across the wage distribution.

To date, there have been several attempts to measure and explain the extent of the gender wage gap in Russia (Silverman and Yanowitch, 1997; Ogloblin, 1999; Reilly, 1999; Brainerd, 1998, 2001; Glinskaya and Mroz, 2000; Newell and Reilly, 1996, 2001; Lehman and Wadsworth, 2001). One stylised fact emerging from this literature is that, following an initial increase during the early transition period, the gender wage gap has remained relatively stable in the years since. However, these studies largely ignore the presence of wage arrears and payment in-kind in their analysis of the wage gap[2] and in most cases do not go beyond 1996.

Any study of the Russian wage structure is incomplete without accounting for the emergence of Russia's unique labour market characteristics. Unprecedented delays in the payment of wages and the widespread use of payment in-kind have become endemic features of the Russian labour market in transition. Wage arrears accumulated rapidly between 1994 and 1998, amounting to 275 per cent of the monthly wage bill of employees in receipt of wage arrears (Russian Economic Trends, 1997, 1). Our household data, from the Russian Longitudinal Monitoring Survey (RLMS), reveal an increase in the incidence of wage arrears from 30 per cent in 1994 to 55% in 1998 and a rise in the incidence of payment in-kind from 7 per cent to 14 per cent during the same period.

Several studies claim that the allocation of wage arrears is differentiated across employees and used strategically by employers. Desai and Idson (2000a) suggest that employers tried to reduce the incidence of wage arrears for highly productive workers to retain them in the firm and, as a result, less productive workers became the primary targets for delays in wage payment. Earle and Sabirianova (1999) maintain that firms use wage arrears in a discriminating way against employees who have job specific skills. In the same spirit, Lehman et al. (1999) find that firms allocate wage arrears to the most stable employees. In sum, although there has been substantial variation in wage arrears across regions, industries and occupations; unskilled, male workers, in large 'Soviet style' enterprises have proved to be amongst the most vulnerable to accumulating a large volume of wage arrears (Earle and Sabirianova, 1999).

A significant number of studies analyse the gender pay differential and the phenomena of wage arrears in separate strands but there have been few attempts to combine these themes by investigating the relationship between wage arrears and the gender wage gap. Specifically, did enterprise managers use wage arrears as a discriminatory tool favouring male workers, or were wage arrears allocated among female employees in a manner that compensated them for the losses arising from higher wage discrimination? Were in-kind payments used to mitigate the effects of the most severe gender wage gaps? Did the allocation of arrears and in-kind payments follow similar patterns across the wage distribution for men and women? Bearing in mind that, ultimately, the effect of wage arrears and payment in-kind on the gender wage differential is an empirical matter this paper sets out to investigate the above questions.

We found that explicitly incorporating wage arrears and payment in-kind provides important insights into the gender wage gap missing from other studies. Accounting for censored wages, the wage gap itself is more substantial and is distributed unevenly across the income distribution. For example, women at the lower end of the income distribution suffer the highest degree of discrimination. Notwithstanding this however, our analysis indicates that wage arrears and payment in-kind served to attenuate discrimination, in particular amongst the lowest paid workers. The evidence seems to

suggest that Russian enterprise managers assigned importance to equity considerations when allocating arrears and payment in-kind.

We proceed as follows. Section 2 provides an outline review of the literature. In section 3, following a brief discussion of the data, we test for selectivity bias and estimate a range of wage equations. Section 4 details the size and composition of the gender wage gap and examines its relationship with wage arrears and payment in-kind. Section 5 concludes the paper.

2. Wage discrimination and wage arrears: related literature

There have been a number of attempts to explain and measure the extent of Russia's gender wage gap since transition began. These studies have largely been based on the Oaxaca-Blinder (1973) decomposition in which wage equations are estimated separately for men and women in order to allow for different rewards by gender to a set of productive characteristics. The male-female average wage differential is explained in terms of the difference in average endowments evaluated at the male (female) pay structure and the difference in returns evaluated at the female (male) average endowment. Thus, in the absence of discrimination, men and women will have the same return for similar endowments, and hence the latter difference is interpreted as 'discrimination'.

This approach has been supplemented in a variety of ways. In the absence of information regarding the true non-discriminatory pay structure, Cotton (1998) proposes estimating a weighted linear combination of the female and male returns; whilst Oaxaca and Ransom (1989) suggest using the estimates from a pooled male-female wage equation. Juhn, Murphy and Pierce (1993) and Blau and Kahn (1996) extend the basic decomposition to study the wage differential over time as a function of changes in observable characteristics and their associated returns, changes in ranking within the wage distribution and changes in the wage distribution itself.

There is a growing empirical literature relating to the gender wage differential in the transition economies[3]. For Russia, Silverman and Yanowitch (1997) find that the *average* female-male wage ratio was 0.68 but that the pay gap exhibits substantial variation depending on which gender dominates a particular occupational category. Following Juhn et al (1993), Reilly (1999) examines the evolution of the gender pay gap in Russia between 1992 and 1996. He finds that women's relative wages remained broadly stable, since although they suffered from dramatic increases in the level of wage dispersion, this suffering was offset by favourable changes in returns to human capital. Applying similar methodology, Glinskaya and Mroz (2000) find that the slight changes observed in the pay gap were attributed to the combination of large increases/decreases in wages for men at the $90^{th}/10^{th}$ percentile of the wage distribution alongside the relative stability of the female wage structure. Finally, Arabsheibani and Lau (1999) assess the gender pay gap in Russia, correcting for selectivity bias in the female wage equation. They find that although the degree of discrimination was still high it was lower than in studies not correcting for selectivity bias.

As a result of data limitations, the above studies derive their results from analysis of wages paid rather than wages due, yet it is not implausible that the incidence of payment arrears may have important gender implications. Indeed, Glinskaya and Mroz (2000) acknowledge that failure to account for the effect of non-payment of wages may seriously undermine any analysis of gender wage inequality. They approximate the contractual wage[4] from information on the incidence and extent of wage arrears and conclude that the effect of arrears on the gender pay gap is ambiguous but that the inclusion of occupational controls[5] may help in mitigating such effects.

Ogloblin (1999) also recognises the complications in estimating the wage gap arising from wage arrears and, correcting for (wage arrears) selectivity, assesses the wage gap for workers *not* in receipt of wage arrears. Implementing the selectivity correction Ogloblin finds that the gender earnings ratio increased from 68% to 72%. The majority of the remaining gender wage gap is explained by occupational and industrial affiliation with women being concentrated in industries and occupations that pay

substantially less. Desai and Idson (2000b) also emphasise the importance of occupation in finding that women were predominantly to be found in lower paying occupations – often employed as technicians, associated professionals or clerks. Notwithstanding this and the fact that low paid workers usually receive less arrears, Desai and Idson suggest that women with similar demographic and job market attributes as men were more likely to be in receipt of arrears. Furthermore, they find no strong evidence that payment in-kind was used to compensate workers denied their wages. This highlights an additional complication in such estimations. Namely, if there is occupational gender discrimination, then controls for occupation in wage equations cannot be considered as legitimate exogenous variables.

Lehman and Wadsworth (2001) pursued a different approach to overcoming the wage arrears problem. They constructed various counterfactual estimates of the wage distribution and examined what the gender pay gap would have looked like had workers been paid in full and on time. They find that, were everyone paid in full, the level of wage dispersion between men and women would be substantially larger; indeed, the mean wage gap would have increased from 19% to 30%. This reflects the fact that women are prone to less severe wage arrears than men and provides support for the observation that women dominate in low paid occupations.

What lessons can be culled from this literature to inform our analysis of Russia's gender pay gap? Firstly, the chosen measure of 'discrimination' is reliant on the robustness of the wage equations and hence, issues relating to selectivity, endogeneity and specification are particularly important. Secondly, there is a growing literature documenting the importance of occupational 'gender discrimination' in Russia and thus the role of occupation merits examination. Thirdly, and perhaps most importantly, the incidence of wage arrears, and to a lesser extent payments in-kind, have been widespread in transitional Russia to such an extent that focusing only on wages paid may produce erroneous results. Hence, the empirical results should reflect these peculiar features of the Russian labour market. Finally, analysis of discrimination based on average wage comparisons is of limited help if the discrimination experienced is not homogeneous. Therefore, analysis of the gender

wage gap should take into account the complete distribution of discrimination experienced (Jenkins, 1994).

3. Estimation of the Wage Equations

This study is based on data procured from the second phase of the RLMS and consists of 8,954 individuals, on whom we have complete information, drawn from rounds 5 (1994), 6 (1995), 7 (1996) and 8 (1998). The RLMS is a nationally representative survey of the Russian Federation providing a range of demographic and settlement characteristics together with rich information pertaining to labour market activity. Regarding wage arrears and payment in-kind, respondents are asked whether, conditional on having a 'main' job, they are owed money by the firm at that time and/or they have received goods in lieu of wages during the previous month.

We pool our data across waves and, in all of our estimations, account for the fact that we have repeated observations on individuals[6]. Our sample is restricted to those of working age; that is, aged 18 to 60 for men and 18 to 55 for women. We measure real wage as the average real hourly wage received from the main job. This measure is obtained using the Goskomstat regional consumer price index, the total primary job hours reported for the month prior to the interview and the total net amount of money received from employers in the previous month. The survey does not ask whether the wage received is the contracted wage or not and, since we do not know the month in which wage arrears accrued *or* their real value, we have no way of establishing the contractual wage.

As mentioned, any gender wage decomposition is dependent on the specification of the underlying wage equations. Indeed, the legitimacy of the approach is contingent on a stable set of parameter estimates consistent with economic theory. This poses the problem of how best to capture the effect of premiums arising from an individual's particular occupational category or industrial sector when it could also be the case that their presence in that sector reflects the outcome of some discriminatory process. There is no accepted solution to this problem and so, our analysis is based on the comparison of two types of wage equation, estimated separately for men and women[7].

Initially, we include just the standard set of human capital characteristics and then add controls for job tenure, occupation category and, where appropriate, wage arrears and payment in kind. This approach has two main appeals. First, it enables us to test for selectivity bias and omitted variable bias in our basic wage equations. Second, it allows us to present a 'discrimination band', in which the lower limit takes into account the extent to which women may be over-represented in unskilled, poorly paid occupations. For reasons detailed later in this section, we apply both OLS and right-censored interval regression techniques to the different wage specifications.

In our basic human capital equations, we use five education categories[8] reflecting the highest qualification achieved by the respondent. We include controls for age and age squared, whether the respondent is married or not, the settlement type, regional characteristics and dummy variables controlling for the year. Our augmented equations include additional controls for occupation[9], job tenure, wage arrears and payment in-kind.

Given data limitations and, as suggested by Earle and Sabirianova (1999), we include a qualitative variable which indicates whether or not the interviewee is experiencing wage arrears in the main job at the time of the interview. This is, we know, a crude approximation of wage arrears, though no more so, given the available data, than attempts at constructing a 'contractual' wage[10]. As with wage arrears, we encounter data problems with payment in-kind and so include it as a qualitative dummy variable. Table 1 provides a full definition of the variables and summary statistics.

Moving on to the estimation, we first address the problem of selectivity bias and then discuss the problems of omitted variable bias and endogeneity bias. Following the work of Heckman (1979) it is well established that, if the error term from the selection rule (i.e. the work/not work probit equation) and the market wage are correlated, then standard OLS techniques applied to the wage equation will yield biased results[11]. In implementing this selectivity correction it is important to note that, for identification of the reservation wage function, at least one variable should be included in the selection equation which is not included in the wage equation. Moreover, since the

participation decision (based on the reservation wage) depends on the mean of the wage offer distribution, all of the variables included in the market wage equation must also be included in the probit equation[12].

In addition to the variables from our basic wage equation, the likelihood of working is assumed also to depend on the number of under-18 year olds in the household and a dummy variable capturing the presence of elderly dependants. Dumwork is the binary variable identifying the observations for which wages are observed (or selected). Given the growing informal sector in Russia, dumwork takes the value of 1 if the person is working in the formal sector, informal sector or both[13]. Here, the implicit assumption made is that the formal and informal sectors are both affected by the same reservation wage function. Whilst we recognise that this is far from realistic, modelling work choice applying conditional probit equations, which is more realistic, is complex and outside the scope of the present paper.

We do not incorporate job tenure, occupation, wage arrears or payment in-kind in the wage or probit equations because they are meaningless for people not working. However, we do examine the extent of any omitted variable bias in this 'restricted' wage equation by conducting a Lagrange Multiplier (LM) test for omitted variables[14].

We find no evidence (see table A1) that either the male or female wage equations exhibit selectivity bias at conventional five-percent levels[15]. Interestingly, the effect of marriage is statistically significant and increases the probability of being in work for males but decreases it for females. The number of children and the presence of elderly dependants in the household affect participation negatively, and significantly, for both males and females. The magnitude of the children effect is almost double for females. Note that, in the wage equations, these 'identifiers' are negative but not statistically significant[16].

Overall, as in Newell and Reilly (1996) and Reilly (1999), our restricted human capital

wage equation provides a satisfactory fit to the Russian data (see table A.2). In terms of returns to education, university qualifications and technical/medical training have a significant effect on both male and female wages. As expected, the female and male earnings pattern suggests that university graduates are the highest earners followed by technical and medical graduates, high school leavers and those with vocational training. However, females tend to be rewarded more for their qualifications than males.

Workers living in Central and Central-Black Earth, Volga-Vyatski and Volga-Basin, the North Caucasus and the Urals fare less well, in terms of wages, than those living in other regions. The magnitude of the female disadvantage is larger than that for males. Living in Moscow and St. Petersburg does not significantly explain the male or female wage, although the sign, as expected, is positive. Not surprisingly, workers in towns and rural non-agricultural areas have a significant wage premium over workers living in rural agricultural areas.

Thus far, in our analysis, we have ignored possible biases arising from the exclusion of potentially important variables such as wage arrears, payment in-kind, job tenure and occupational category. To investigate this we implement LM tests for omitted variables. We first estimate the 'restricted' equation and obtain the estimated residuals. If the unrestricted regression is the true one, then the residuals from the restricted equation will be related to the omitted variables. Hence, we regress the estimated residuals from the restricted version on all of the regressors (i.e. those in the restricted version plus the additional variables from the unrestricted version) in an 'auxiliary' regression. The sample size (n) multiplied by the R^2 from this auxiliary regression follows a chi-square distribution with degrees of freedom equal to the number of added variables. For both males and females, our 'restricted' human capital regression is rejected in favour of the inclusion of wage arrears and payment in-kind, and this regression is, in turn, rejected in favour of a specification also including job tenure and occupation type[17]. Since it is not possible to apply Heckman selectivity tests to the auxiliary regressions and the LM tests reflect the importance of the additional variables, in what follows, we compare Oaxaca decompositions (without selectivity

corrections) from the basic wage specification and from that including wage arrears, payment in-kind, occupation and job tenure.

The augmented regression (Table A.3) shows that; wage arrears and payment in-kind have a significantly negative impact on the wage in both the male and female wage equations; job tenure has a positive and significant effect on wages for males; managers, professionals and manual workers tend to earn significantly more than non-manuals and unskilled males fare especially badly. The results from the basic human capital model remain robust to the inclusion of the extra labour market variables.

Nevertheless, such an approach exposes an additional issue. Besides the problem of measuring the 'contractual' wage when we do not have information about when and in what quantity each individual accrued wage arrears, another cause for concern is the potential endogeneity of these variables. A possible strategy for surmounting these problems is to apply interval regression - a generalisation of the tobit and censored regression models.

In short, since we are unable to decipher the true contractual wage from the wage actually received in the previous month, we observe only the lower endpoints of individual wages whereas, in the presence of arrears or payment in-kind, the true contractual wage may be higher. Thus our data is 'right-censored'[18] and the unobserved wage is represented by a missing value. When the respondent has no arrears or payment in-kind, the wage at the upper and lower end points is identical. Note that we have two dependent variables defining the endpoints of the interval within which we know that the unobserved wage lies. Pursuing this line enables us to attenuate the problem of endogeneity, with regard to wage arrears and payment in-kind, whilst still estimating regressions with and without occupation dummies.

Thus, when it comes to estimation of the wage equations, we have male, female and pooled estimates embracing two distinct methodologies and yielding four separate specifications. That is, the standard OLS approach yields a basic human capital specification (Table A.2) plus an augmented estimate (Table A.3), whilst the interval

regression approach, incorporating the effects of wage arrears and payment in-kind as part of the dependent variable, yields a basic human capital estimation plus one including occupational characteristics (Tables A.4 and A.5).

The estimated coefficients from the interval regressions exhibit similar patterns to those found in the OLS regressions, except that the estimated coefficients of job tenure and round 7 are positive and statistically significant in both the female and male regressions. Nevertheless, the estimated coefficients might be biased because of possible selection problems and endogeneity. It may prove possible to implement a modified double (likelihood of working *and* the likelihood of wage arrears given that the individual works) Heckman selectivity test applying multivariate and conditional probabilities. However, for the purposes of this paper, we simply acknowledge this caveat and leave it on our agenda for further research.

4. Measuring the Gender Wage Gap

According to Oaxaca and Ransom (1989, 1994), the gross wage differential can be written as:

$$\ln \overline{W}_m - \ln \overline{W}_f = \overline{X}_m \hat{B}_m - \overline{X}_f \hat{B}_f \qquad (1)$$

and can de decomposed as

$$\ln \overline{W}_m - \ln \overline{W}_f = (\overline{X}_m - \overline{X}_f)\hat{B}^* + [(\hat{B}_m - B^*)\overline{X}_m + (B^* - \hat{B}_f)\overline{X}_f] \qquad (2)$$

where $\ln \overline{W}_m$ and $\ln \overline{W}_f$ are the average log wages of males and females, $\overline{X}_m$ and $\overline{X}_f$ are the average male and female characteristics or endowments, $\hat{B}_m$ and $\hat{B}_f$ are the estimated coefficients from the male and female regressions and B^* is the vector of estimated coefficients from the non-discriminatory wage structure. We assume that B^* is an estimate of the common wage structure obtained from OLS estimation using a pooled sample of males and females. That is, the gender wage gap is explained by the differences in average endowments and by the differences in returns to those endowments. In the above equation, the first term on the right hand side represents the wage difference due to differential endowments, whilst the left-hand side of the

term in brackets is interpreted as the 'male advantage' (MA) and the right hand side as the 'female disadvantage' (FD).

4.1. The size and composition of the gender wage gap

International comparisons show that the gender wage differential in Russia, which stood at 0.26, according to our pooled data, is higher than that of the UK where it is approximately 0.20 (Wright and Ermish, 1991), the US where it is around 0.24 and the Scandinavian countries where it stands at approximately 0.15 (Gupta, Oaxaca and Smith, 2001). However, it is largely in line with the range of gross wage differentials in Central and Eastern European transition economies. According to Pailhé (2000), the raw wage gap between male and female employees in 1993 is the lowest in Hungary (0.23) and the highest in Poland (0.30).

However, once we consider the predicted wages from the interval regressions, the average gross log gender wage gap is much larger and stands 25 % higher than the mean actual log wage differential, at 0.33. This is in line with expectations since workers with wage arrears and payment in-kind would receive higher wages were they paid according to their contracts.

Table 2 presents summary statistics of the log wage differential for all four specifications. In each case, the proportion of the gap explained by differences in returns overwhelms that explained by endowment differences suggesting that discrimination occurs mainly in the wage determining process (i.e. as represented by 'returns'). Note that, regardless of the estimation technique, the size of the 'wage discrimination' is lowered by the inclusion of job-related controls, implying the presence of occupational discrimination. If the 'discrimination' experienced by women is confined simply to differences in rewards accruing to human capital characteristics (i.e. wage discrimination) then it should be reflected in the human capital model. However, if discrimination also takes the form of occupational or workplace related discrimination, then the 'wage discrimination' (FD plus MA)

derived from the restricted human capital models should be interpreted as maximums and that derived from the augmented models, as minimums. This defines what we refer to as discrimination 'bands'[19].

According to the different OLS wage estimations, the raw wage gap indicates that between 87% and 94% of the women in the sample receive lower wages than they would receive were they rewarded in accordance with the non-discriminatory pay structure whilst between 83% and 97% of males would have been worse off. Similarly, the interval regression estimations indicate that at least 89% of women are at a disadvantage even when controlling for occupations and 82% of men are at an advantage. That is, however measured, the vast majority of women (men) would have been better off (worse off) had they received the non-discriminatory returns to characteristics. In percentage terms the mean of the FD falls from 4.9% to 3.4%, as we incorporate the additional variables in the OLS estimations and from 5.4% to 3.5% using the interval regressions. In all cases the lower percentages occur once labour market controls are incorporated.

Comparing our two estimation techniques, three points suggest themselves: a) the relative extent of 'wage discrimination', in the OLS model, is broadly in line with that derived from the censored interval regressions[20]; b) occupational affiliation is an important factor in explaining the gender pay gap and c) wage arrears and payment in-kind have a substantial influence on the gender pay gap and this is best captured through the application of interval regressions. In the light of these observations, as well as for ease of exposition, the remaining analysis will draw only on the augmented interval regression estimates, representing the lower bound of our discrimination 'band'[21]. Thus, henceforth, taking what we consider to be the most apposite way of explaining 'wage discrimination', we investigate the relationship between gender wage discrimination, the wage distribution, and the unique institutional features of the Russian labour market.

Table 3 examines the variation of wage discrimination across the wage distribution. Looking at the distribution of the MA, there is some evidence that men in the central

percentiles of the wage distribution enjoyed the highest MA. However, much more palpably, in terms of FD, women in the lower percentiles of the wage distribution experienced by far the highest degree of discrimination and this declines progressively as we move up the wage distribution. That is, we find that women in the highest percentiles of the wage distribution suffer less wage discrimination compared to women in the low and middle deciles. This finding supports that of Lehman and Wadsworth (2001) who find that, in the absence of wage arrears, the largest wage gap is to be found at the 10^{th} percentile. The authors note that this contrasts with most Western economies where the widest divergence is more normally found towards the top of the distribution.

4.2. The gender wage gap, wage arrears and income in-kind

We now turn to an analysis of whether, across gender and income percentiles, there is a positive or negative correlation between wage discrimination and wage arrears/payment in-kind. Since we have observed that wage discrimination is highest at the lower end of the wage distribution, a negative association would suggest that wage arrears were allocated amongst female employees according to the principle of equity. In contrast, a positive correlation will be found if an employer allocates wage arrears to women who are less educated or skilled and thus subject to higher levels of wage discrimination. That is, we examine whether those with the lowest wages were also those workers made to suffer by experiencing delays in wage payment.

In our sample, only 58% of all workers are paid in full. That is, 43% of male workers and 40% of female workers experienced wage arrears or payment in-kind or both. The majority of these workers (76% of males and 79% of females) have wage arrears. Moreover, 63% (69%) of the males (females) that receive payment in-kind also suffer from wage arrears. That is to say, only a small percentage (9% of males and 3% of females) suffered from payment in-kind alone. Clearly, the more prevalent form of labour payment adjustment is wage arrears.

Table 4 details the extent of the MA and the FD for the different combinations of wage arrears and in-kind payments. The results reveal a very consistent and interesting pattern. Exploring the MA, males experiencing any form of 'pay adjustment' enjoy a lower MA than those paid in full. For those experiencing only wage arrears the fall in MA is marginal compared to those with full pay.

In contrast, for males with no wage arrears, but who are in receipt of goods as payment, the MA is substantially lower than for both males paid in full and males with only arrears. Indeed, for those experiencing payment in-kind, with *or* without arrears, the MA was no greater than 1% for the bottom two deciles and for those with both arrears and in-kind payments the MA was below 2% throughout the wage distribution. Once more, the decline in MA associated with experiencing pay adjustment mechanisms is less severe at higher deciles.

In general, throughout the distribution, male workers in receipt of arrears, wages in-kind or both enjoy a lower MA. More particularly, amongst males in the lowest deciles with payment in-kind and wage arrears, we observe the sharpest fall in the magnitude of the MA. It would appear that these methods of labour market adjustment are allocated in a manner which reduces the discriminatory wage advantage for males, but does so most noticeably at the lower end of the income distribution.

Next we analyse equivalent statistics for the female disadvantage. In contrast to male workers, women receiving full pay fare less well than all other groups in comparison with the non-discriminatory structure. Additionally, the differences are more clearly discernible than in the male case. Aside from the bottom income decile, workers with both wage arrears and payment in-kind endure the lowest FD across the distribution. Interestingly, whilst the FD of women with wage arrears decreases in severity at higher deciles, and is always below that experienced by those with full pay, females with payment in-kind experience the lowest FD in the bottom deciles but their FD increases through the higher deciles.

We have provided some evidence suggesting that workers experiencing wage arrears and payment in-kind have been subjected to lower levels of wage discrimination,

particularly amongst the ‘poorest’ workers. That is to say, females with wage arrears, payment in-kind or both tend to meet with lower FD, relative to their full paid counterparts, whilst equivalent males tend to experience lower MA. It would seem that wage arrears and payment in-kind were allocated in a manner that served to reduce the degree of wage discrimination in the labour market. A plausible interpretation of this finding is that enterprise managers were responding to equity considerations in their wage payment decisions.

In sum, wage arrears and payment in-kind act to reduce both the MA and the FD, and in so doing reduce the gender wage gap. That is, wage arrears and payment in-kind have transpired to act as ‘compensating’ mechanisms offsetting, at least partially, the gender wage differential. This result is in line with evidence provided by Earle and Sabirianova (1999) that the probability and magnitude of arrears depend positively on being a male. Furthermore, it lends support to Friebel and Guriev's (1999) association of in-kind payments with enterprise ‘attachment’ strategies.

5. Conclusions

There has been a plethora of research relating separately to the Russian gender pay gap and to the emergence of wage arrears and payment in-kind in transitional Russia. Yet, in this paper, we forward evidence that these two important phenomena are in fact related in a manner that may shed light on both the ‘real’ composition and level of the aggregate gender pay gap and on the behavioural traits of Russia’s enterprise managers.

Our basic and augmented OLS wage regressions provide a satisfactory fit to the Russian data and the relative sizes of the MA and FD are in line with those from the interval regressions.

Accounting for the presence of wage arrears and payment in-kind we find a broader wage gap (33%) than relying simply on OLS (26%). The various wage estimations, show that between 87% and 97% (82% and 98%) of the women (men) in the sample

receive lower (higher) wages than they would receive were they rewarded in accordance with the non-discriminatory pay structure. In all cases, the lower percentages refer to discrimination once additional labour market factors are controlled for, thus suggesting 'discrimination' in occupational 'attainment' over and above earnings discrimination.

Concentrating only on the estimates from the augmented interval regression and looking at discrimination across the distribution we found evidence that, women (men) in the lower (central) percentiles of the wage distribution experienced the highest FD (MA). We scrutinised discrimination according to arrears and in-kind payment and found that workers at the lower end of the income distribution encountering wage arrears and/or payment in-kind faced lower levels of discrimination than workers on full pay. That is, both mechanisms acted as 'compensating levers' lowering the MA and the FD and thus reducing the pay gap. Indeed the evidence seems to suggest that, amongst women, arrears and payment in-kind have been allocated to those in more favourable labour market situations. This, in turn, suggests that equity considerations were important to those responsible for allocating these payment mechanisms.

Finally, some caveats regarding our conclusions. First, although we have bypassed the problem of endogeneity bias in our treatment of wage arrears and payment in-kind, our interval wage regression estimates make no distinction between them. Second, the lower bound of the discrimination band is drawn from wage estimates incorporating job tenure and occupation. The latter two variables are potentially endogenous.

A further problem that needs to be more systematically addressed is that of selectivity bias. We need to account for the decline in formal sector employment and the increase in informal sector employment. We partially address this problem when testing for selectivity bias in the OLS human capital model, although a more thorough account requires the application of conditional probit equations in either a sequential or a simultaneous framework. Of equal import, our interval wage regressions might suffer from selectivity bias and it would be helpful to design a modified Heckman selection

test. Aside from the role of regional, industrial and occupational disparities, these issues offer up stimulating themes for future research.

Endnotes

[1] For details, see Boeri et al. (1998).

[2] Notable exceptions are Ogloblin (1999) who uses a wage arrears selection equation in his analysis and Lehman and Wadsworth (2001) who construct counterfactual wage distributions in order to reassess the gender pay gap.

[3] Newell and Reilly (2001) provide decompositions for eleven transition countries, Paternostro and Sahn (2000) applied the Oaxaca-Ransom framework to Romanian data, Orazem and Vodopivec (1995, 2000) applied the Juhn et al. decomposition to Eastern Europe and Pailhe (2000) applies the Oaxaca decomposition to the countries of Central Europe.

[4] The construction of contractual wages using the RLMS is not straightforward since, although the amount of arrears is recorded, the time of accrual is not and hence the real value of wage arrears cannot be determined.

[5] In fact, given the policy driven spatial dimension to Russia's industrial landscape an equally important control variable might be industrial sector. However, the RLMS does not record this information. Hence, it is plausible that this effect is partially reflected in the regional coefficients.

[6] In preliminary investigations, we tested our data using fixed and random effects models. The Breusch and Pagan LM test rejects the fixed effects model in favour of the random effects model, but the latter is rejected by the Hausman test. Hence, in this paper we use 'clustered' estimates. Although such estimates do not depend on the assumptions of the random effects model, the coefficient estimates were similar and, allowing for the residuals to be correlated within clusters whilst independent between clusters, provides us with consistent standard errors.

[7] For our full set of wage regression specifications, the Wald (chi-square) test of whether the male estimated coefficients of the data are equal to the female estimated coefficients is rejected at the one percent level. These results are available from the authors on request.

[8] This was preferred to ‘years of education’ because the effects of education on wages were found to be non-linear. See Newell and Reilly (1996) for details concerning the advantages of using a set of educational qualifications in place of years of education in transitional economies.

[9] Classified according to the ISCO one digit classification scheme.

[10] For example, Glinskaya and Mroz (2000) constructed ‘contractual’ hourly wages using reported income in-kind paid in the last 30 days plus the total amount of arrears, divided by the number of months owed.

[11] For a clear exposition of selectivity issues see Maddala (1983).

[12] Arabsheibani and Lau (1999) test for selection bias in the female wage equation but include more variables in the observed wage equation than in the selection equation. Pailhé (2000) includes occupational classification and firm ownership in the wage and selection equation.

[13] We experimented with various definitions for the work dummy variable. For example, specifying it according to the number of informal work hours, we assigned 1 to people working for at least 8 informal hours (equivalent to the minimum formal work hours), but found that the results do not differ substantially and are not reported.

[14] We thank an anonymous referee for this suggestion.

[15] The coefficient on the inverse mills ratio is negative for both males and females indicating a negative correlation between the error term in the wage and probit equations. That is, on average, individuals observed to be working earn less than an average non-worker would if drawn at random from the population. Despite being somewhat counter intuitive, this does concur with the findings of Arabsheibani and Lau (1999). A possible explanation for this negative truncation in Russia might lie in the dramatic fall in the participation rates (particularly amongst women) amongst a traditionally highly skilled labour force.

[16] The results of the regressions are not reported in the paper but are available upon request.

[17] For ease of exposition, these results are not presented in the paper but are available from the authors.

[18] We make the implicit assumption that if a respondent has wage arrears then their wage this month is not their contractual wage but their contractual wage minus the arrears. In reality, the data does not allow us to identify the exact time at which the arrears accrued so our estimates may be viewed in some sense as representing the worst-case scenario.

[19] That is, following the OLS approach the lower and upper wage discrimination bands are 0.187 and 0.268, whilst pursuing the interval regression approach the lower and upper bounds are 0.216 and 0.341.

[20] Further investigation indicated that, not only was the relative size of the MA and FD from the OLS estimates in line with that derived from the interval regressions, but that the composition of the wage gap itself was also consistent across specifications. Details regarding the composition of the wage gap are available upon request from the authors.

[21] As expected, both the MA and the FD are lower in the augmented regression but the decline is much steeper for the FD. This suggests that, after controlling for differential endowments, women are more likely to be employed in lower paid occupations. That aside, the minimum and maximum discrimination results are qualitatively similar. Equivalent results, based on the upper bound of the discrimination band, are available from the authors upon request.

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Table 1

Definitions and Summary Statistics for Variables

Variable	Mean		Definition
	Male	**Female**	
Demographic Characteristics			
Age	38.5 (10.5)	38.2 (8.7)	Males: 18-59; Females: 18-54
Married	0.77 (.42)	0.65 (.48)	Whether respondent was married or not
Primary Employment			
Lnrwrlm	2.80 (1.03)	2.54 (.97)	Gross average real hourly wages in primary job
Job tenure	6.9 (8.3)	7.6 (7.8)	Job tenure in current primary job
Human Capital Controls			
University	0.22 (.42)	0.25 (.44)	Undergraduate university education or higher
Technical & medical	0.16 (.37)	0.34 (.47)	Technical and Medical School
Vocational training	0.27 (.45)	0.16 (.37)	Vocational Training (PTU, FZU, FZO)
High school	0.26 (.44)	0.19 (.40)	Complete high School education (11 years)
Incomplete high school	0.08 (.28)	0.05 (.21)	Incomplete high school education (8 years)
Occupation Type			
Manager	0.03 (.16)	0.02 (.13)	Legislators, senior managers & officials
Professional	0.21 (.41)	0.50 (.50)	Professionals, technicians & associated professionals
Non-manual	0.07 (.26)	0.23 (.42)	Clerks, service workers & market workers
Manual	0.58 (.49)	0.13 (.34)	Agriculture, fisheries, plant and machine operators, crafts and related trades
Unskilled	0.09 (.29)	0.12 (.32)	Unskilled occupations
Region and Settlement Type			
Town	0.78 (.41)	0.77 (.42)	Urban areas
Rural non agricultural	0.05 (.22)	0.06 (.24)	Non-agricultural village
Rural agricultural	0.17 (.37)	0.16 (.37)	Agricultural village
Moscow, St. Petersburg	0.12 (.33)	0.11 (.32)	Moscow and St. Petersburg
North & North Western	0.08 (.27)	0.08 (.27)	North and North Western
Central&Central Black-Earth	0.19 (.39)	0.20 (.40)	Central and Central Black-Earth
Volga-Vyatski&Volga Basin	0.16 (.37)	0.17 (.38)	Volga-Vyatski and Volga Basin
North Caucasus	0.11 (.32)	0.09 (.29)	North Caucasus
Urals	0.17 (.38)	0.17 (.38)	Urals
Western Siberia	0.09 (.29)	0.09 (.28)	Western Siberia
Eastern Russia	0.08 (.27)	0.09 (.28)	Eastern Siberian and Far-Eastern
Selection Variables			
Dumpen	0.15 (.36)	0.16 (.36)	Household contains elderly dependants (dummy)
Children	1.01 (.92)	1.02 (.89)	Number of under 18's in the household
Other Variables			
Payment in-kind	0.10 (.30)	0.08 (.28)	Received goods in lieu of payment in last 30 days
Wage arrears	0.40 (.49)	0.38 (.49)	Owed money by enterprise at time of interview
Sample Size	**4,354**	**4,600**	

Standard deviations are reported in parenthesis.
Source: RLMS Rounds 5-8.

Table 2: Summary statistics of the log wage differential, male advantage (MA) and female disadvantage (FD)

	OLS human capital		OLS human capital, wage arrears, payment in-kind, occupation		Intreg human capital		Intreg human capital and occupation	
Differences								
Log wages	0.260		0.260		0.327		0.327	
Endowment	-0.007		0.074		-0.014		0.107	
Returns	0.268		0.187		0.341		0.216	
	MA	FD	MA	FD	MA	FD	MA	FD
Mean	0.138	0.130	0.096	0.091	0.170	0.171	0.109	0.109
Median	0.141	0.127	0.086	0.095	0.174	0.166	0.101	0.112
Max	0.315	0.393	0.414	0.373	0.414	0.556	0.530	0.440
Min	-0.105	-0.145	-0.354	-0.265	-0.149	-0.204	-0.364	-0.221
Std deviation	0.066	0.083	0.111	0.081	0.084	0.103	0.129	0.087
% positive	97.4	94.1	82.5	87.0	97.5	96.5	81.7	89.3
Mean	5.212	4.934	3.539	3.351	5.398	5.446	3.498	3.523
Median	5.141	4.643	3.154	3.545	5.457	5.128	3.081	3.620
Maximum	12.259	18.179	19.875	15.699	13.776	18.329	19.079	14.331
Minimum	-5.485	-7.573	-19.747	-18.438	-4.256	-5.958	-9.994	-6.991
Std deviation	2.574	3.275	4.498	3.342	2.675	3.414	4.255	2.858
Number Obs.	**4,354**	**4,600**	**4,354**	**4,600**	**4,354**	**4,600**	**4,354**	**4,600**

Table 3

Minimum female disadvantage (FD) and minimum male advantage (MA) according to income percentiles based on interval regression estimates

Cum sample share %	MA	FD
10	3.395	4.401
20	3.615	4.213
30	3.714	4.210
40	3.740	4.128
50	3.717	4.066
60	3.694	3.992
70	3.638	3.928
80	3.526	3.837
90	3.417	3.696
100	3.313	3.555

Table 4

Minimum male advantage according to wage arrears and income in-kind (%)
based on interval regression

Cum. Sample share	No wage arrears, no payment in-kind	Wage arrears, payment in-kind	Wage arrears, no payment in-kind	Payment in-kind, no wage arrears
10	4.110	0.926	3.385	0.631
20	4.267	0.805	3.526	1.021
30	4.174	0.875	3.705	2.011
40	4.091	1.227	3.791	2.385
50	3.994	1.475	3.783	2.483
60	3.972	1.546	3.731	2.567
70	3.905	1.660	3.649	2.764
80	3.775	1.672	3.556	2.679
90	3.646	1.822	3.445	2.544
100	3.518	1.907	3.327	2.531

Minimum female disadvantage according to wage arrears and income in-kind (%)
based on interval regression

Cum. Sample share	No wage arrears, no payment in-kind	Wage arrears, payment in-kind	Wage arrears, no payment in-kind	Payment in-kind, no wage arrears
10	4.973	2.255	3.920	1.207
20	4.716	2.647	3.644	3.012
30	4.608	2.895	3.692	3.556
40	4.524	2.834	3.616	3.756
50	4.432	2.877	3.587	3.780
60	4.351	2.680	3.526	3.999
70	4.273	2.500	3.490	4.015
80	4.178	2.463	3.398	4.034
90	4.045	2.354	3.249	4.084
100	3.900	2.399	3.100	3.918

Appendix

Table A.1

Probit equation estimation results

	Male		Female	
	coefficient	t- value	coefficient	t- value
Age	0.013	1.00	0.138	8.14
Age-squared	-0.2E-3	-1.53	-0.002	-7.20
Married	0.088	1.92	-0.183	-4.69
Town	0.450	9.60	0.237	5.10
Rural non-agricultural	0.084	1.05	0.086	1.06
Rural agricultural	Omitted		Omitted	
University	0.212	2.97	0.209	2.41
Technical & medical	0.131	1.79	0.203	2.44
Vocational training	0.050	0.75	0.017	0.19
Complete High school	0.021	0.32	0.104	1.22
Incomplete High school	Omitted		Omitted	
Moscow & St Petersburg	0.320	3.50	0.450	5.15
North & North Western	Omitted		Omitted	
Central&CentralBlack-Earth	-0.028	-0.35	0.209	2.78
Volga-Vyatski &Volga-Basin	-0.201	-2.56	-0.048	-0.65
North Caucasus	-0.104	-1.24	-0.094	-1.18
Urals	0.048	0.59	0.122	1.62
Western Siberia	-0.302	-3.43	-0.093	-1.14
Eastern Russia	-0.375	-4.31	-0.054	-0.67
Round 5	Omitted		Omitted	
Round 6	-0.174	-4.11	-0.137	-3.42
Round 7	-0.454	-10.75	-0.385	-9.00
Round 8	-0.269	-6.16	-0.255	-5.86
Children	-0.054	-2.53	-0.102	-4.72
Dumpen	-0.162	-3.41	-0.111	-2.26
Constant	-0.146	0.60	-2.251	-7.43
Lambda (inverse Mills ratio)	-0.115	-1.85	-0.153	1.30
N censored	2,626		2,589	
N uncensored	4,354		4,600	

t-values obtained from Huber/White/sandwich variance estimates

Table A.2

OLS wage equation estimation results: human capital
Dependent variable: log of hourly (gross) wage from main job

	Pooled		Male		Female	
	coefficient	t-value	coefficient	t-value	coefficient	t-value
Age	0.007	0.86	0.024	2.07	0.022	1.54
Age-squared	-0.1E-3	-1.09	-0.4E-3	-2.50	-0.3E-3	-1.47
Married	0.095	3.76	0.108	2.72	0.007	0.21
Town	0.672	18.59	0.747	14.30	0.571	11.64
Rural non-agricultural	0.579	9.15	0.647	6.69	0.523	6.25
Rural agricultural	Omitted		Omitted		Omitted	
University	0.451	8.86	0.408	5.95	0.587	8.17
Technical & medical	0.186	3.62	0.217	2.96	0.333	4.70
Vocational training	0.111	2.13	0.065	0.95	0.159	2.11
Complete High school	0.145	2.86	0.113	1.71	0.207	2.78
Incomplete high school	Omitted		Omitted		Omitted	
Moscow & St Petersburg	0.073	1.34	0.130	1.69	0.013	0.18
North & North Western	Omitted		Omitted		Omitted	
Central &CentralBlack-Earth	-0.400	-7.66	-0.373	-5.04	-0.424	-5.87
Volga-Vyatski &Volga-Basin	-0.661	-12.93	-0.597	-8.08	-0.716	-10.27
North Caucasus	-0.383	-6.84	-0.307	-3.83	-0.484	-6.43
Urals	-0.283	-5.52	-0.165	-2.30	-0.393	-5.56
Western Siberia	0.053	0.87	0.097	1.10	-0.005	-0.06
Eastern Russia	-0.014	-0.22	-0.005	-0.05	-0.013	-0.17
Round 5	Omitted		Omitted		Omitted	
Round 6	-0.235	-10.42	-0.235	-6.92	-0.221	-7.57
Round 7	-0.203	-8.05	-0.227	-6.10	-0.166	-4.96
Round 8	-0.622	-24.66	-0.642	-17.34	-0.594	-17.46
Constant	2.245	13.26	2.044	9.18	1.875	6.87
F	98.67		52.43		53.03	
R-squared	0.211		0.222		0.218	
N	8,954		4,354		4,600	

t-values obtained from Huber/White/sandwich variance estimates

Table A.3

OLS wage equation estimation results: human capital, wage arrears, payment in-kind and occupation
Dependent variable: log of hourly (gross) wage from main job

	Pooled		Male		Female	
	coefficient	t-value	coefficient	t-value	coefficient	t-value
Age	0.015	1.76	0.029	2.57	0.031	2.23
Age-squared	-0.2E-3	-2.23	-0.4E-3	-3.14	-0.4E-3	-2.33
Married	0.092	3.81	0.105	2.76	0.021	0.67
Town	0.549	16.27	0.637	13.10	0.434	9.28
Rural non-agricultural	0.455	7.56	0.525	5.58	0.384	4.89
Rural agricultural	Omitted		Omitted		Omitted	
University	0.457	8.63	0.273	3.66	0.554	7.69
Technical & medical	0.192	3.83	0.155	2.20	0.306	4.47
Vocational training	0.052	1.05	0.011	0.17	0.115	1.61
Complete High school	0.124	2.60	0.071	1.13	0.190	2.73
Incomplete high school	Omitted		Omitted		Omitted	
Moscow & St Petersburg	-0.007	-0.13	0.042	0.57	-0.096	-1.33
North & North Western	Omitted		Omitted		Omitted	
Central &CentralBlack-Earth	-0.466	-9.42	-0.426	-6.16	-0.522	-7.57
Volga-Vyatski &Volga-Basin	-0.689	-14.17	-0.611	-8.75	-0.767	-11.53
North Caucasus	-0.440	-8.28	-0.362	-4.85	-0.558	-7.66
Urals	-0.316	-6.50	-0.192	-2.86	-0.445	-6.55
Western Siberia	0.033	0.58	0.077	0.95	-0.040	-0.50
Eastern Russia	0.011	0.19	0.048	0.54	-0.025	-0.32
Round 5	Omitted		Omitted		Omitted	
Round 6	-0.230	-10.34	-0.241	-7.19	-0.210	-7.26
Round 7	-0.121	-4.89	-0.141	-3.86	-0.093	-2.80
Round 8	-0.496	-19.64	-0.513	-13.93	-0.477	-13.88
Wage arrears	-0.369	-16.80	-0.372	-11.74	-0.383	-12.72
Payment in-kind	-0.329	-8.27	-0.404	-7.21	-0.236	-4.26
Job tenure	0.003	1.99	0.004	1.95	0.004	1.74
Manager	0.415	5.58	0.391	4.08	0.253	1.94
Professional	0.116	3.65	0.154	2.62	0.104	2.79
Manual	0.316	10.47	0.104	2.10	0.273	5.45
Non-manual	Omitted		Omitted		Omitted	
Unskilled	-0.057	-1.41	-0.191	-3.00	0.052	-0.97
Constant	2.258	13.64	2.205	10.29	-1.955	7.26
F	105.69		54.98		52.87	
R-squared	0.2669		0.2771		0.2677	
N	8,954		4,354		4,600	

t-values obtained from Huber/White/sandwich variance estimates

Table A.4

Interval regression wage equation estimation results: human capital
Dependent variable: log of hourly (gross) wage from main job

	Pooled		Male		Female	
	coefficient	t-value	coefficient	t-value	coefficient	t-value
Age	0.027	2.79	0.046	3.57	0.061	3.93
Age-squared	-0.3E-3	-2.70	-0.6E-3	-3.60	-0.001	-3.80
Married	0.153	5.45	0.130	2.91	0.062	1.76
Town	0.283	6.46	0.398	6.43	0.156	2.64
Rural non-agricultural	0.131	1.76	0.270	2.41	0.040	0.42
Rural agricultural	Omitted		Omitted		Omitted	
University	0.430	7.07	0.310	3.94	0.666	7.69
Technical & medical	0.195	3.18	0.238	2.88	0.415	4.83
Vocational training	0.109	1.78	0.045	0.59	0.187	2.08
Complete High school	0.178	2.93	0.115	1.50	0.303	3.41
Incomplete high school	Omitted		Omitted		Omitted	
Moscow & St Petersburg	-0.304	-4.87	-0.213	-2.46	-0.389	-4.48
North & North Western	Omitted		Omitted		Omitted	
Central &CentralBlack-Earth	-0.668	-11.26	-0.578	-7.06	-0.750	-9.01
Volga-Vyatski &Volga-Basin	-0.829	-13.61	-0.712	-8.18	-0.928	-11.13
North Caucasus	-0.674	-10.12	-0.562	-6.21	-0.813	-8.78
Urals	-0.452	-7.45	-0.303	-3.66	-0.599	-7.05
Western Siberia	-0.001	-0.02	0.109	1.16	-0.122	-1.25
Eastern Russia	-0.026	-0.35	0.153	1.39	-0.154	-4.54
Round 5	Omitted		Omitted		Omitted	
Round 6	-0.232	-9.08	-0.251	-6.56	-0.191	-5.81
Round 7	0.030	1.03	0.009	0.21	0.071	1.88
Round 8	-0.226	-7.46	-0.267	-6.07	-0.185	-4.58
Constant	2.682	14.12	2.396	9.70	1.961	6.46
Chi-squared	982.33		502.59		620.94	
N	8,954		4,354		4,600	
Right-censored	3,768		1,896		1,872	

t-values obtained from Huber/White/sandwich variance estimates

Table A.5

Interval regression wage equation estimation results: human capital and occupation
Dependent variable: log of hourly (gross) wage from main job

	Pooled		Male		Female	
	coefficient	t-value	coefficient	t-value	coefficient	t-value
Age	0.025	2.65	0.041	3.19	0.058	3.74
Age-squared	-0.4E-3	-3.16	-0.6E-3	-3.66	-0.001	-3.95
Married	0.128	4.68	0.118	2.70	0.057	1.63
Town	0.271	6.46	0.392	6.50	0.138	2.39
Rural non-agricultural	0.151	2.13	0.264	2.39	0.060	0.65
Rural agricultural	Omitted		Omitted		Omitted	
University	0.473	7.48	0.255	2.90	0.591	6.88
Technical & medical	0.222	3.68	0.195	2.35	0.359	4.34
Vocational training	0.063	1.07	0.015	0.20	0.142	1.66
Complete High school	0.162	2.81	0.082	1.08	0.268	3.22
Incomplete high school	Omitted		Omitted		Omitted	
Moscow & St Petersburg	-0.269	-4.42	-0.188	-2.20	-0.389	-4.62
North & North Western	Omitted		Omitted		Omitted	
Central &CentralBlack-Earth	-0.652	-11.41	-0.553	-6.84	-0.759	-9.57
Volga-Vyatski &Volga-Basin	-0.828	-14.15	-0.704	-8.21	-0.945	-11.90
North Caucasus	-0.653	-10.14	-0.539	-6.03	-0.806	-9.03
Urals	-0.461	-7.91	-0.306	-3.76	-0.622	-7.67
Western Siberia	0.002	0.03	0.108	1.17	-0.109	-1.17
Eastern Russia	0.001	0.01	0.170	1.57	-0.132	-1.37
Round 5	Omitted		Omitted		Omitted	
Round 6	-0.213	-8.40	-0.241	-6.32	-0.173	-5.24
Round 7	0.062	2.19	0.044	1.05	0.095	2.51
Round 8	-0.200	-6.66	-0.239	-5.46	-0.170	-4.24
Job tenure	0.009	5.12	0.012	5.00	0.007	3.15
Manager	0.515	6.17	0.370	3.53	0.398	2.66
Professional	0.217	5.97	0.133	1.92	0.237	5.72
Manual	0.463	13.30	0.133	2.28	0.425	7.58
Non-manual	Omitted		Omitted		Omitted	
Unskilled	0.050	1.04	-0.198	-2.55	0.079	1.24
Constant	2.499	13.27	2.445	9.89	1.937	6.41
Chi-squared	1,303.25		594.73		725.87	
N	8,954		4,354		4,600	
Right Censored	3,768		1,896		1,872	

t-values obtained from Huber/White/sandwich variance estimates