

**ПРАКТИЧЕСКИЙ АНАЛИЗ****Well-Being and Wage Arrears in Russian Panel Data<sup>1)</sup>****Andrew Clark, Mathilde Maurel**

This paper attempts to estimate the impact of wage arrears on subjective well being, as measured by the RLMS (Russian Longitudinal Monitoring Survey). This latter is a comprehensive survey, conducted from 1992 up to 1998, on a representative sample of Russian households and individuals. The results are unambiguous: working with wage arrears implies a clear fall in satisfaction. We are able to calculate the shadow price of wage arrears, that is the increase in wages which would place an individual with wage arrears on the same indifference curve as an individual without such arrears. Another result, on the face of it more puzzling, is that the level of satisfaction provided by a job with arrears is lower than that provided by inactivity (although higher than that provided by unemployment). We suggest some explanations which we will test in further work. Sub-regressions show that the psychological impact of wage arrears is greater for men and less well-educated workers, and smaller for women and better-educated workers.

**1. Introduction**

This paper builds upon recent work in economics that has used proxy utility data to describe labour market phenomena. Panel data from Russia (The RLMS) and Great Britain (the BHPS) are used to discuss the relationship between one widely-used proxy measure of utility, overall life satisfaction, and various indicators of labour force status. The paper has three main objectives. The first is to use multivariate modelling techniques (ordered probits) to show that the determinants of life sat-

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**Andrew Clark** – CNRS-LEO, University of Orléans.

**Mathilde Maurel** – CNRS-ROSES, University of Paris-1 Panthéon-Sorbonne, Centre François Simiand and CEPR.

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isfaction are remarkably consistent between the two countries studied. Specifically, males, the higher-educated, the married, workers, and those with higher incomes have significantly higher levels of life satisfaction. As is usual, the unemployed have significantly lower levels of life satisfaction, even when income is controlled for. Last, there is a strong U-shaped relationship (minimising in the forties) between life satisfaction and age in both countries.

The second objective of the paper is to take into account some of the distinguishing features of the transition process in Russia, and model their effect on life satisfaction. We first split workers up into two groups: those with wage arrears and those without wage arrears. The regression results show that the best labour force status, in terms of life satisfaction, is working without wage arrears, followed by inactivity, then working with wage arrears, and lastly unemployment. The differences are all statistically significant at conventional levels. The satisfaction difference between working with wage arrears and inactivity reflects one puzzling aspect of the Russian labour market, namely that wage arrears do not induce workers to move into inactivity (where their satisfaction would be higher). The determinants of labour market mobility are analysed in a special issue of the *Revue Economique*, which extensively discusses the impact of wage arrears and unpaid leave on subsequent labour force behaviour, including mobility from work with arrears into either unemployment, inactivity, or multi-activity, a growing phenomenon observed in the Russian labour market. Sub-regressions by different demographic groups (by sex, by education, and by income) reveal the groups for which wage arrears have the largest well-being effects.

The last section of the paper proposes a simple method for calculating the «shadow price» of wage arrears (and short-time working). Briefly, the estimated life satisfaction equation is of the form  $LS = A + \alpha W + \beta WA + \gamma \ln Y + X\theta + \varepsilon$ , where  $LS$  is life satisfaction,  $A$  is a constant,  $Y$  is some measure of income,  $W$  and  $WA$  are dummy variables for working without and with wage arrears respectively, and  $X$  is a vector of other control variables. The shadow price of wage arrears is defined as the amount of money which would be required to compensate the worker for the presence of such arrears, *i.e.* keep the worker on the same indifference curve. Interpreting life satisfaction as a proxy utility measure, this shadow price is  $\exp[\ln Y_0 + (\alpha - \beta)/\gamma] - Y_0$  for an individual with initial monthly household income of  $Y_0$ . Over the whole sample this shadow price is calculated as to two months of average household income per month, which corresponds roughly to the average stock of wage arrears. The wage arrears premium (as a percentage of household monthly income) is much higher for men than for women, and is somewhat higher for older and less-educated workers.

## 2. Life Satisfaction and Labour Force Status in Russian and British Data

Although economists have traditionally been wary of subjective data, a recent literature has used measures of life and job satisfaction as proxy utility data, particularly in respect to the labour market. Some of the dominant themes have been:

♦ Job satisfaction as a predictor of quits (Akerlof *et al.*, 1988, Clark, 2001b, Freeman, 1978, Lévy-Garboua *et al.*, 1998, and Shields and Wheatley-Price, 1999).

♦ Utility and relative income (Clark, 1999, Donohue and Heywood, 1997, Hamermesh, 1977, and Sloane and Williams, 1996).

♦ Life satisfaction and unemployment (Di Tella *et al.*, 2001, Gerlach and Stephan, 1996, Korpi, 1997, Winkelmann and Winkelmann, 1998, Woittiez and Theeuwes, 1997).

This paper aims to contribute to the third of these themes. The specific subject of the paper is the effect of wage arrears in a proxy utility equation. Working with wage arrears will be shown to be associated with significantly lower levels of life satisfaction than working without such arrears, even after all of the standard demographic controls have been introduced.

The data used in this paper come from waves six to eight of the Russian Longitudinal Monitoring Survey (RLMS), conducted respectively in October-December 1995, October-December 1996 and October 1998-January 1999. The RLMS data are intended to be representative of the whole Russian population, and we exclude individuals with missing or inconsistent information. Although the use of the panel dimension might be useful, there are practical reasons why we have not done so. First, attrition can result in small sample sizes of individuals over time. Second, the length of time between two consecutive surveys is fairly long (two years between waves seven and eight). Nevertheless, further work will consist in checking the robustness of the above results using panel data analysis.

The use of Eastern European data containing proxy utility measures is still rare in economics (as opposed to the now fairly large literature using North American or European data). Exceptions are Kolev (1999), Galindo and Pascal (1997), and Namazie and Sanfey (2001). As a first step, without considering wage arrears, we present some simple regressions modelling life satisfaction in the RLMS as a function of labour force status (employed, unemployed, inactive) and a standard set of demographic controls. For comparison purposes, we run regressions with the same specification on data from waves six and seven of the British Household Panel Survey (BHPS)<sup>2</sup>.

The exact question used to measure life satisfaction in the RLMS is the following: «To what extent are you satisfied with your life in general at the present time?». Five answers are possible: Fully satisfied, Rather satisfied, Both yes and no, Less than satisfied, and Not at all satisfied.

Not at all satisfied	7694	31.75%
Less than satisfied	8634	35.63%
Both yes and no	4815	19.87%
Rather satisfied	2418	9.98%
Fully satisfied	670	2.77%
<b>Total</b>	<b>24231</b>	<b>100%</b>

<sup>2</sup> Questions regarding overall life satisfaction were only introduced into the BHPS in wave six. All waves contain a set of twelve psychological questions, the answers to which can be used to produce an index of individual well-being, the GHQ-12. It is this latter index which is used in Clark and Oswald (1994) and Clark (2001a). In order to have a proxy utility measure which is as close as possible to that in the RLMS, we consider here the responses to the life satisfaction question in waves six and seven of the BHPS.

The mean of the life satisfaction measure is 2.2 (on the one to five scale), and both the median and the mode are «Less than satisfied».

The corresponding question in the BHPS is «*How dissatisfied or satisfied are you with.....your life overall?*». Answers were on a scale of one to seven, where one corresponded to «not satisfied at all», seven corresponded to «completely satisfied», and the integers from two to six represented intermediate levels of satisfaction. The distribution of responses in waves six and seven is summarised below.

Not satisfied	1	279	1.55%
	2	417	2.32%
	3	1043	5.81%
	4	2540	14.15%
	5	5087	28.34%
	6	5722	31.87%
Completely satisfied	7	2865	15.96%
<b>Total</b>		<b>17953</b>	<b>100%</b>

As the scale of the life satisfaction measures is different across the RLMS and the BHPS, we cannot make a direct comparison of the two. It is, however, obvious that BHPS respondents have higher life satisfaction scores than their Russian counterparts. The average life satisfaction score in the BHPS is 5.2 (on the one to seven scale), with both the median and the modal response being «5».

Table 1 (see Appendix) presents «standard» life satisfaction equations for both the Russian and the British data. The purpose here is to underline the degree of concordance between the relations found in the two countries, despite their obvious differences in many other (non-measured) respects. Life satisfaction scores are regressed on simple labour force status dummies (employed and unemployed, the omitted category being inactive), sex, education, age and its square, marital status, number of children and region. In addition, columns two and four of Table 1 control for log of household income, as individual income is only poorly measured in the Russian data. The log of income was preferred by the data to other specifications such as level or a quadratic function. As the dependent variable is ordinal, not cardinal, ordered probit regression techniques are used.

The results show that life satisfaction in both countries is significantly lower for the unemployed, those in poor health, those with higher education (apart from those with University education in Russia), those who are not married, those with more children, and those with lower household income. In addition, a strong U-shaped relation with age is found in both countries, minimising around age 40 in BHPS data and at just under 50 in the RLMS data. The two main differences are found with respect to employment and sex. When household income is not controlled for, employment is associated with higher life satisfaction in the Russian data, but there is no significant correlation in the British data. When household income is controlled for, both estimates become more negative (as might be expected), leading to an insignificant estimated coefficient in the Russian data, but a negative and significant estimate in the British data. The other main difference occurs with respect to the male

dummy. This attracts a positive significant estimate in the Russian data, but a negative and significant estimate in the British data<sup>3)</sup>.

The overall impression is, however, that the general shape of life satisfaction in the RLMS is similar to that found in the BHPS. To this extent, the RLMS data, although rarely studied in this context, can be argued to provide life satisfaction information which is broadly consistent with that found in other datasets.

### 3. Wage Arrears and Life Satisfaction

The main subject of this paper is the psychological effect of wage arrears in Russia. Table 2 (see Appendix) presents a simple picture of the relationship between life satisfaction and wage arrears in Russia. Labour force status is now split up into four categories, as opposed to the three used in Table 1 above: these are employed without wage arrears, employed with wage arrears, unemployed and inactive. Table 2 shows both average life satisfaction scores and (more correctly, as life satisfaction is an ordinal, rather than cardinal, variable) the percentage with high life satisfaction. This latter is defined as a life satisfaction score of «Both yes and no» or higher. Overall, as the previous section showed, only one-third of the respondents in the RLMS had high life satisfaction, even according to this somewhat generous definition.

The estimated life satisfaction equation is of the form

$$(1) \quad LS = A + \alpha W + \beta WA + \gamma \ln Y + X\theta + \varepsilon$$

where  $LS$  is life satisfaction,  $A$  is a constant,  $Y$  is some measure of income,  $W$  and  $WA$  are dummy variables for working without and with wage arrears respectively, and  $X$  is a vector of other control variables. Two wage arrears variables are available in the RLMS. The first shows whether the individual had wage arrears in the current month, and can be considered as a flow measure. The second indicates whether the individual is currently owed wages (even if he or she was paid in full the current month), and is thus a stock measure of arrears. In preliminary analysis, it was obvious that the stock measure explained life satisfaction far better than the flow measure. It is thus this second measure which is used in the statistical analysis.

Average life satisfaction is highest for those employed without wage arrears, and lowest for the unemployed. Inactivity and employment with wage arrears score about the same. The same picture can be seen in the second column of Table 2, where the percentage with high life satisfaction in each cell is presented. The difference between employment with and without wage arrears is 0.35 points in the first column of Table 2, and 14 percentage points in the second column.

In order to check the robustness of the above correlations, Table 3 (see Appendix) shows some transition matrices. Here the panel aspect of the RLMS is appealed to in order to calculate the change in life satisfaction subsequent on the movement in labour force status between waves  $t-1$  and  $t$ . The same analysis with respect to movements in and out of unemployment can be found in Clark (2001a), using BHPS data, and Winkelmann and Winkelmann (1998) using German Socio-Economic Panel data. The diagonal elements in Table 3 thus refer to individuals who

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<sup>3)</sup> Clark (1997) discusses the finding that job satisfaction levels are higher for women than for men in the BHPS data.

did not change their labour force status between waves (according to this four-category definition of labour force status). In general, those who did not change labour force status did not change life satisfaction much either, the exception being those who remained in the situation of employment with wage arrears, for whom life satisfaction dropped significantly. The off-diagonal elements reveal the expected correlations. Moving into unemployment has a sharply negative effect on life satisfaction, while finding a job has a strong positive effect. It is interesting to note that the average change in life satisfaction upon entering unemployment is  $-0.65$  for those who were employed without arrears, but  $-0.30$  for those who were employed with arrears. The difference between these two figures is 0.35 points, exactly the same difference as was found in Table 2's life satisfaction level data<sup>4</sup>). A similar difference can be found looking at the transition from employment into inactivity.

The second panel of Table 3 refers to changes in the percentage with high life satisfaction as a function of changes in labour force status. The same story emerges. The largest falls in the percentage satisfied are associated with movements into unemployment. However, large falls are also associated with movements from inactivity or from employment without wage arrears into employment with wage arrears, as the mean life satisfaction scores in Table 2 suggested.

Table 4 (see Appendix) continues the analysis by introducing all of Table 1's other control variables into a multivariate regression of life satisfaction. The results for the other control variables are largely unchanged from Table 1, and will not be commented on further. The estimates which interest us most are those on the first three dummy variables for labour force status: employed without arrears; employed with arrears; and unemployed. The omitted category, to which the estimated coefficients refer, is labour force inactivity. Two sets of results are presented: the first without and the second with a control for log household income.

The results show that unemployment has a very strong negative effect on life satisfaction, as is almost always found in studies of this kind. Unemployment is, all other things equal, the worst of the four labour force statuses that we consider. The estimated coefficients on the employment dummies reveal that employment without arrears is the best labour force status, the coefficient being positive with a t-statistic of 11 in column 1 and 8 in column 2. However, employment with wage arrears is not only significantly worse than employment without arrears, it is also significantly worse than labour force inactivity. The ranking of the four labour force statuses considered here thus puts employment with arrears next to bottom, better only than unemployment. The rank and size of these estimated coefficients is largely unchanged by controlling for household income<sup>5</sup>).

The fact that employment with wage arrears is worse psychologically than inactivity begs the question of why those with wage arrears do not leave the labour

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<sup>4</sup>) From Table 2 it can be seen that the difference between the decrease in satisfaction induced by move from employment with arrears into unemployment and the decrease in satisfaction induced by move from employment without arrears into unemployment is equal to 0.37 ( $0.37 = (1.89 - 2.07) - (1.89 - 2.44)$ ).

<sup>5</sup>) The same type of analysis can be carried out with respect to almost any amenity or disamenity of the job. In the current dataset, a similar exercise was carried out using information on forced leave from the workplace. However, perhaps because of the relatively small numbers of workers who reported this, no significant estimates were found.

force (the same point can be made with respect to the unemployed). One answer is that keeping one's first job provides access to a broad range of benefits (such as medical care and housing) and income support for workers, and that moving into inactivity cuts off access to such benefits. The second answer is that the measure of life satisfaction used here provides a snapshot of how well the individual is doing at a point in time. However, the relevant variables for decisions regarding labour force status are undoubtedly discounted sums of future utility flows. Working with wage arrears may well be preferable to inactivity in the sense that there is a larger chance of transiting to employment without wage arrears (the best state) from employment with wage arrears than from inactivity: Ariane Pailhé and Boris Najman (2001) estimate the probabilities of finding a job from different statuses (inactivity, unemployment, multi-activity), and show that inactivity does indeed decrease the probability of subsequently re-entering the labour market. Last, a more complete picture of the alternatives available in the Russian labour market would be required to estimate properly the relative cost of being inactive (or unemployed) versus accepting wage arrears. By adopting a classification of the statuses more suited to the Russian labour market, as in Najman and Pailhé (2001) or Pailhé and Pascal (2001) (mono- or multi-activity, with and without wage arrears, inactive etc.), we will be able to compare workers with wage arrears but who combine a number of different jobs (allowing them to avoid the fall in revenue to some extent) and workers having only one job. We expect the satisfaction difference between inactivity and working with wage arrears to depend critically on the exact labour market situation of those with such arrears. More generally, improving our understanding of the different statuses in the Russian labour market – unemployed but involved in the informal sector, employed with wage arrears but working in the informal sector, inactive but working their own plot of land – we will be able to see whether cumulating different jobs, which is frequently associated with the growing informal sector, or the growing phenomenon of working one's own land, influences the level of life satisfaction reported by Russians.

#### 4. The Shadow Price of Wage Arrears

This last section proposes a simple method for calculating the «shadow price» of wage arrears. The shadow price of wage arrears is defined as the amount of money, which would be required to compensate the worker for the presence of such arrears, i.e. keep the worker on the same indifference curve<sup>6</sup>.

From equation (1), the shadow price of wage arrears, for an individual starting with household income  $Y_0$ , is

$$(2) \quad SPWA = \exp[\ln Y_0 + (\alpha - \beta)/\gamma] - Y_0.$$

Over the whole sample, average household income is 7300 Roubles per month (in real terms). Using the above formula, and the estimated parameters in Table 4, the premium for wage arrears can be calculated as 14656 Roubles per month (again, in

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<sup>6</sup> Clark (1996) uses the same method to calculate the shadow wage using BHPS data; Clark and Daniel (1999) also use this approach to calculate compensating differentials for six broad measures of job characteristics.

real terms). That is, for someone working with wage arrears to be made just as satisfied with their life as someone who works without such arrears, their household monthly income would have to treble. This suggests large psychic costs from wage arrears.

It is also possible, running sub-regressions, to calculate the shadow price of wage arrears for different groups in the Russian economy. In all of the sub-regressions, the estimated coefficients on log household income and working without wage arrears are significant. Those on working with wage arrears are not always significantly different from zero. This does not matter as it is the difference between working with and working without arrears which is crucial in the calculation of their shadow price. The difference between the two employment dummies is always significant at very high levels, so in this sense the estimated shadow prices are well-defined. The results are summarised in the table below.

**The Psychological Effect of Wage Arrears, by Sex, Age and Education**

	Employed without	Employed with	Log household income	Average hold income	WA Premium (Roubles)	WA Premium (Percentage)
	wage arrears					
Male	0.284 (0.033)	0.028 (0.024)	0.198 (0.012)	7742	20491	265
Female	0.071 (0.028)	-0.134 (0.027)	0.213 (0.010)	6943	11268	162
Age <= 40	0.086 (0.031)	-0.118 (0.029)	0.177 (0.010)	8135	17484	215
Age > 40	0.313 (0.033)	0.052 (0.030)	0.233 (0.010)	6250	12986	207
Highly-educated	0.162 (0.032)	-0.066 (0.031)	0.232 (0.013)	8362	13998	167
Not highly-educated	0.148 (0.030)	-0.075 (0.026)	0.189 (0.010)	6728	15025	223

The wage arrears premium (as a percentage of household real monthly income) is much higher for men than for women, and is somewhat higher for younger and less-educated workers (in percentage terms). This might simply be due to the fact that the opportunity cost of such arrears is higher for those categories of workers, for whom the probability of finding a new job without arrears is higher. The fact that less-educated workers have better opportunities in the job market is well documented in Koumakhov and Najman (2001). With respect to their average household income, it is men and, to a lesser extent, less well-educated workers who suffer the most from wage arrears.

## 5. Conclusion

This paper has presented some estimates from the RLMS data set on the psychological effects of different labour force statuses. In particular, it has concentrated on working with wage arrears. We have shown that working with wage arrears is associated with far lower levels of life satisfaction than working without such ar-

rears. In the full sample, it is also worse than labour market inactivity, and better than unemployment. In further work, we would like to explore the possibility that taking into account the informal (unofficial) economy might help to explain some of the above significant differences. The assessment of the impact of the informal economy on subjective welfare and perceived life satisfaction, will provide an important counterpart to the more frequent macro-economic analysis of the phenomenon.

Our estimated proxy utility equations enable us to derive the shadow price for wage arrears. Over the whole sample, this turns out to be almost twice as large as average monthly household income. Wage arrears are thus associated with very substantial psychological costs, although it is worth noting that working with arrears is still preferable to unemployment in terms of its psychological impact. Sub-regressions showed that this psychological impact is greater for men and less well-educated workers than for women and better-educated workers.

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#### REFERENCES

1. Akerlof G.A., Rose A.K. and Yellen J.L. *Job Switching and Job Satisfaction in the U.S. Labor Market / Brookings Papers on Economic Activity*, 1988, 2, pp. 495-582.
2. Clark A.E. *Job Satisfaction and Gender: Why are Women so Happy at Work? // Labour Economics*, 1997, 4, pp. 341-372.
3. Clark A.E. *Are Wages Habit-Forming? Evidence From Micro Data // Journal of Economic Behavior and Organization*, 1999, 39, pp. 179-200.
4. Clark A.E. *Unemployment as a Social Norm: Psychological Evidence from Panel Data // Journal of Labor Economics*, 2001, forthcoming.
5. Clark A.E. *What Really Matters in a Job? Hedonic Measurement Using Quit Data // Journal of Labour Economics*, 2001, forthcoming.
6. Di Tella R., MacCulloch R. and Oswald A. *Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness // American Economic Review*, 2001, forthcoming.
7. Donohue and Heywood J. *Job Satisfaction and Comparison Income: Are the U.S. and Britain Different? University of Wisconsin-Milwaukee*, 1997, mimeo.
8. Freeman R.B. *Job Satisfaction as an Economic Variable // American Economic Review*, 1978, 68, pp. 135-141.
9. Galindo C. and Pascal A. *La satisfaction dans l'emploi: Une analyse empirique sur données russes et françaises. LAMIA, Université de Paris 1*, 1997, document de recherche 1997-03.
10. Gerlach K. and Stephan G. *A Paper on Unhappiness and Unemployment in Germany // Economics Letters*, 1996, 52, pp. 325-330.
11. Hamermesh D.S. *Economic Aspects of Job Satisfaction*, in O.C.Ashenfelter and W.E.Oates (eds.), *Essays in Labor Market Analysis*. New York: John Wiley, 1977.
12. Koumakhov R. and Najman B. *La question des sureffectifs en Russie : une explication en termes de compétences // Revue économique*, 2001, forthcoming.
13. Lévy-Garboua L., Montmarquette C., and Simonnet V. *Job Satisfaction and Voluntary External Mobility: an Analysis Based on the German Socio-Economic Panel. LAMIA, University of Paris I*, 1998, mimeo.
14. Kolev A. *Three Essays on Living Standards and Access to Alternative Sources of Labour Income, PhD Thesis. European University Institute*, 1999.

15. Korpi, T. *Is Well-Being Related to Employment Status? Unemployment, Labor Market Policies and Subjective Well-Being among Swedish Youth* // *Labour Economics*, 1997, 4, pp. 125-148.

16. Najman B. and Pailhé A. *Mobilité externe sur le marché du travail russe, 1994-1998 une approche en termes d'activités* // *Revue économique*, 2001, forthcoming.

17. Namazie C. and Sanfey P. *Happiness in Transition: the Case in Kyrgyzstan* // *Review of Development Economics*, 2001, forthcoming.

18. Pailhé A. and Pascal A. *Arriérés de salaire, congés obligatoires et participation au marché du travail russe* // *Revue économique*, 2001, forthcoming.

19. Shields M. and Wheatley Price S. *Racial Harassment, Job Satisfaction and Intentions to Quit. University of Leicester*, 1999, mimeo.

20. Sloane P. and Williams H. *Are 'Overpaid' Workers Really Unhappy? A Test of the Theory of Cognitive Dissonance* // *Labour*, 1996, 10, pp. 3-16.

21. Winkelmann L. and Winkelmann R. *Why Are the Unemployed So Unhappy? Evidence from Panel Data* // *Economica*, 1998, 65, pp. 1-15.

22. Woittiez I. and Theeuwes J. *Well-being and Labour Market Status. Tinbergen Institute Discussion Paper TI 95-123*, 1997.

## Appendix

Table 1.

## Life Satisfaction and Labour Force Status: Ordered Probit Regressions

	<i>Russia (RLMS)</i>		<i>Great Britain (BHPS)</i>	
Employed	0.037 (0.019)	-0.001 (0.019)	Employed	-0.026 (0.021)   -0.052 (0.021)
Unemployed	-0.382 (0.034)	-0.352 (0.035)	Unemployed	-0.351 (0.044)   -0.328 (0.044)
Log monthly household income		0.219 (0.008)	Log monthly household income	0.064 (0.012)
Male	0.086 (0.015)	0.077 (0.015)	Male	-0.043 (0.016)   -0.044 (0.016)
Health: Very Good	0.311 (0.049)	0.334 (0.049)	Health: Excellent	0.872 (0.023)   0.865 (0.023)
Health: Good	0.156 (0.017)	0.156 (0.017)	Health: Good	0.544 (0.019)   0.541 (0.019)
Health: Bad	-0.386 (0.023)	-0.371 (0.023)		
Health: Very Bad	-0.750 (0.049)	-0.723 (0.050)		
Age	-0.053 (0.002)	-0.049 (0.002)	Age	-0.032 (0.003)   -0.032 (0.003)
Age-squared/1000	0.535 (0.026)	0.500 (0.027)	Age-squared/1000	0.393 (0.030)   0.406 (0.031)
Education: General Upper Secondary	-0.055 (0.026)	-0.060 (0.026)	Education: Medium	-0.169 (0.021)   -0.189 (0.022)
Education: Vocational Upper Secondary	-0.060 (0.024)	-0.058 (0.024)	Education: High	-0.131 (0.021)   -0.143 (0.021)
Education: Non-University Tertiary	0.070 (0.024)	0.033 (0.024)		
Education: University Tertiary	0.254 (0.024)	0.181 (0.024)		
Married	0.129 (0.017)	0.071 (0.017)	Married	0.227 (0.026)   0.205 (0.027)
			Separated	-0.287 (0.060)   -0.279 (0.060)
			Divorced	-0.141 (0.037)   -0.133 (0.037)
			Widowed	-0.053 (0.043)   -0.044 (0.043)
Children: One	-0.005 (0.018)	-0.041 (0.018)	Children: One	-0.174 (0.026)   -0.161 (0.026)
Children: Two	-0.053 (0.021)	-0.108 (0.021)	Children: Two	-0.176 (0.027)   -0.162 (0.027)
Children: Three+	-0.098 (0.034)	-0.160 (0.034)	Children: Three+	-0.204 (0.039)   -0.183 (0.039)
Region dummies (8)	Yes	Yes	Region dummies (18)	Yes   Yes
Wave 7	-0.066 (0.017)	-0.040 (0.017)	Wave 6	-0.007 (0.016)   -0.006 (0.016)

	<i>Russia (RLMS)</i>		<i>Great Britain (BHPS)</i>	
Wave 8	-0.169 (0.017)	-0.101 (0.017)		
Mu(1)	-1.662 (0.053)	0.191 (0.084)	Mu(1)	-2.420 (0.067)   -1.965 (0.110)
Mu(2)	-0.680 (0.052)	1.193 (0.084)	Mu(2)	-2.004 (0.065)   -1.547 (0.109)
Mu(3)	0.050 (0.052)	1.938 (0.084)	Mu(3)	-1.499 (0.064)   -1.042 (0.109)
Mu(4)	0.865 (0.054)	2.765 (0.085)	Mu(4)	-0.862 (0.063)   -0.404 (0.108)
			Mu(5)	-0.033 (0.063)   0.426 (0.109)
			Mu(6)	0.985 (0.063)   1.444 (0.109)
N	23815	23815	N	17812   17793
Log Likelihood	-31767.34	-31353.31	Log Likelihood	-27387.99   -27344.66
Log Likelihood at zero	-32947.63	-32947.63	Log Likelihood at zero	-28646.57   -28618.26

Note: Standard errors in parentheses

Recall that the model is specified as follows:  $LS = A + \alpha W + \beta WA + \gamma \ln Y + X\theta + \varepsilon$ . Positive coefficients in the ordered probit regressions are associated with a higher estimated probability that the individual reports job satisfaction of greater than level  $i$  (see Greene, 1993). The ordered probit procedure chooses estimates to maximise  $\ln(p_i)$ , where  $p_i$  is the estimated probability of the observed response and the summation is over all of the observations in the data set. The probability of observing level  $i$  is  $p_i = Pr(\mu_{i-1} < \mathbf{x}'\mathbf{b} + u < \mu_i)$ , where  $u$  is assumed to be normally distributed. The  $\mathbf{b} = (\mathbf{A}, \alpha, \beta, \gamma, \theta)'$  coefficients are estimated by the procedure, as are the thresholds,  $\mu_1, \mu_2, \dots, \mu_{I-1}$ , where  $I$  is the number of categories of the ordered dependent variable ( $\mu_0$  is taken to be  $-\infty$  and  $\mu_I + \infty$ ; the probabilities thus sum to 1).

**Table 2.**

**Life Satisfaction and Wage Arrears: Means**

	<i>Average Life Satisfaction</i>	<i>Percentage with Life Satisfaction &gt; 2</i>	<i>Number of Observations</i>
<b>Employed without arrears</b>	2.44 (0.015)	42.87 (0.69)	5172
<b>Employed with arrears</b>	2.07 (0.012)	28.35 (0.54)	6930
<b>Unemployed</b>	1.89 (0.03)	22.55 (1.16)	1308
<b>Inactive</b>	2.13 (0.011)	31.94 (0.45)	10515

Note: Standard errors in parentheses.

Table 3.

## Life Satisfaction and Wage Arrears: Transition Matrices

*Average Life Satisfaction*

		<u>Labour Force Status at <math>t</math> (columns)</u>			
		<b>Employed without arrears</b>	<b>Employed with arrears</b>	<b>Unemployed</b>	<b>Inactive</b>
<u>Labour Force Status at <math>t-1</math> (rows)</u>					
<b>Employed without arrears</b>		-0.04 (0.031) <b>1371</b>	-0.16 (0.035) <b>1101</b>	-0.65 (0.120) <b>103</b>	-0.41 (0.067) <b>341</b>
<b>Employed with arrears</b>		0.10 (0.054) <b>554</b>	-0.11 (0.022) <b>2468</b>	-0.30 (0.105) <b>138</b>	-0.17 (0.054) <b>460</b>
<b>Unemployed</b>		0.51 (0.150) <b>76</b>	-0.02 (0.120) <b>109</b>	0.13 (0.110) <b>141</b>	0.14 (0.080) <b>273</b>
<b>Inactive</b>		0.14 (0.079) <b>256</b>	-0.19 (0.066) <b>354</b>	-0.30 (0.070) <b>272</b>	-0.10 (0.018) <b>4246</b>

Percentage with fall in Life Satisfaction

		<b>Employed without arrears</b>	<b>Employed with arrears</b>	<b>Unemployed</b>	<b>Inactive</b>
<b>Employed without arrears</b>		30.87 (1.24) <b>1383</b>	35.63 (1.43) <b>1117</b>	51.46 (4.95) <b>103</b>	45.20 (2.65) <b>354</b>
<b>Employed with arrears</b>		26.56 (1.87) <b>561</b>	31.10 (0.93) <b>2495</b>	39.72 (4.14) <b>141</b>	33.84 (2.20) <b>464</b>
<b>Unemployed</b>		19.74 (4.60) <b>76</b>	26.13 (4.19) <b>111</b>	25.00 (3.62) <b>144</b>	24.91 (2.60) <b>277</b>
<b>Inactive</b>		27.78 (2.73) <b>270</b>	39.35 (2.54) <b>371</b>	43.30 (2.91) <b>291</b>	29.22 (0.57) <b>6454</b>

Note: Standard errors in parentheses. Figures in bold are cell sizes.

Table 4.

Life Satisfaction and Wage Arrears: Ordered Probit Regressions		
Employed without arrears	0.233 (0.021)	0.159 (0.021)
Employed with arrears	-0.075 (0.020)	-0.068 (0.020)
Unemployed	-0.373 (0.034)	-0.336 (0.034)
Log monthly household income		0.206 (0.008)
Male	0.096 (0.015)	0.084 (0.015)
Health: Very Good	0.296 (0.049)	0.322 (0.049)
Health: Good	0.148 (0.017)	0.149 (0.018)
Health: Bad	-0.383 (0.023)	-0.368 (0.023)
Health: Very Bad	-0.747 (0.049)	-0.722 (0.050)
Age	-0.054 (0.002)	-0.051 (0.002)
Age-squared/1000	0.541 (0.026)	0.514 (0.026)
Education: General Upper Secondary	-0.052 (0.025)	-0.060 (0.026)
Education: Vocational Upper Secondary	-0.065 (0.024)	-0.065 (0.024)
Education: Non-University Tertiary	0.065 (0.024)	0.029 (0.024)
Education: University Tertiary	0.241 (0.024)	0.173 (0.024)
Married	0.127 (0.017)	0.073 (0.017)
Children: One	-0.006 (0.018)	-0.040 (0.018)
Children: Two	-0.049 (0.021)	-0.101 (0.021)
Children: Three+	-0.079 (0.034)	-0.141 (0.035)
Region dummies (8)	Yes	Yes
Wave 7	-0.041 (0.017)	-0.023 (0.017)
Wave 8	-0.140 (0.017)	-0.083 (0.017)
Mu(1)	-1.635 (0.053)	0.093 (0.084)

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Continued

Му(2)	-0.647 (0.052)	1.099 (0.084)
Му(3)	0.088 (0.052)	1.846 (0.084)
Му(4)	0.906 (0.054)	2.675 (0.086)
N	23815	23815
Log Likelihood	-31647.44	-31290.60
Log Likelihood at zero	-32947.63	-32947.63

Note: Standard errors in parentheses.