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IS EDUCATION A SIGNAL ON THE RUSSIAN LABOUR MARKET?

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This research focuses on estimating the signalling role of education on the Russian labour market. Two well-known screening hypotheses are initially considered. According to first of these, education is an ideal filter of persons with low productivity: education does not increase the productivity of a person, but it does give him the possibility to signal about his innate productivity via an educational certificate. The second of these hypotheses admits that productivity actually does increase during the period of study, but nevertheless the main objective of getting an education is to acquire a signal about one's productivity. Information theory suggests that employees use education signals during the hiring processes — the processes whereby employers screen potential employees. Employers and other categories of self-employed workers are usually not screened by the labour market via their educational attainments. Comparison of the returns to education of employees vs. self-employed workers could show the difference between the returns to signals and the returns to human capital. Yet another way to understand the signals is to consider the time dynamics of the returns to education for employees staying in the same firm. This helps us to answer the question about whether the signals are valuable only during the hiring process, or whether they remain valuable during the whole experience with the firm. This research is based on the Mincerian-type earnings functions, estimated on RLMS-HSE[3] and NOBUS[4] data. On the basis of the available information, we cannot say that the returns to signals and human capital differ significantly in Russia. Nevertheless we can say that, for the majority of men, the return to educational signals decreases with time spent in the same firm, while we observe the opposite for women.

Keywords: return to education, screening hypotheses, educational signals, human capital.

JEL Classification: D82, I24, J24, J31, J41.

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[3] "Russia Longitudinal Monitoring survey, RLMS-HSE", conducted by Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS. http://www.cpc.unc.edu/projects/rlms-hse

[4] The National Survey of Household Welfare and Social Program Participation, known as NOBUS (after its Russian acronym) was developed with the technical assistance of the World Bank and administered by Russia's Federal State Statistics Service. http://surveynetwork.org/home/index.php?q=activities/catalog/surveys/ihsn/643-2003-002

Introduction

Higher education has been quite popular in Russia for quite some time. Both during the transitional period as well as now, many individuals obtain two and even three higher degrees.

Usually education is considered as an investment in human capital. But it is interesting to consider the informational function of credentials. Do we really invest in human capital during schooling, or do we just acquire certificates to signal about our innate productivity? Is it possible to estimate the private return on such educational signals? These questions are closely connected with the well-known hypotheses, referred to in the literature as "screening hypotheses". Brown and Sessions (1999) formulate these as follows: "... The strong screening hypothesis (SSH) presumes productivity to be immutable with schooling being used exclusively as a signal (Psacharopoulos, 1979). The weak screening hypothesis (WSH)... concedes that whilst the primary role of schooling is to signal, it may also augment inherent productivity (Spence, 1973; Arrow, 1973; Stiglitz, 1975)."

The second of the above definitions seems difficult to test empirically due to the word "primary". In this paper, we test both hypotheses, but formulate the second one more softly:

- Education increases an individual's productivity and could play a role of signalling about such productivity.

It is thus rational to expect that

- The returns to educational signals and human capital should be the same if the labour market is in equilibrium.

Similar research has usually been based on the Mincerian type earnings functions estimates, which allow for the analysis of the private return to education. Considering the experience of previous researchers, a comparison of the return to education for employees with that of self-employed workers seems to be the most convincing way to test these two hypotheses. For employees, we observe the return to signals used in the hiring process. For self-employed workers, who are neither signalling about their education nor being screened by the labour market, we observe the return to their human capital. By comparing the slope of the coefficients of schooling or credentials in the earnings functions estimated from samples of employees and self-employed workers, we can compare the return to educational signals with the return to human capital.

The other way to detect educational signals consists in analysing the dynamics of the return to education with time spent on the same firm. Because signals are usually used in the hiring process, they should attenuate with the experience of work in the same firm, since other factors, such as observed productivity, contribute to the earnings.

In the context of economic policy, this research may help to understand and predict expected flows in the labour and education markets if any disproportions in the returns to education are observed.

Literature Review

Stigler's (1962) work can be considered as the first step in discussing the role of information in explaining the peculiarities of the labour market. Stigler (1962) described the decision-making process during a job search under the conditions of imperfect information as a multi-periodic model of utility maximization. Confirming his theoretical model with simple empirical estimates, he showed that the more information extant, the closer worker's marginal product is to its maximum. Information on the labour market facilitates the optimal distribution of workers in jobs.

Another theoretical model of market equilibrium suggested by Spence (1972, 1973, 1974) included education as an information criterion in the hiring process. He compared the hiring process with risky investments or the lottery. An employee signs a contract with a defined wage, which cannot be revised for some time. The employer should estimate the costs on the employee beforehand, relying only on those formal characteristics that are available, such as education. The employee considers education as the acquisition of a signal regarding his abilities. Individuals with low productivity do not acquire the signal due to the high costs of acquisition, which could exceed the net present value of future income. As a result, the labour market could come into equilibrium, which separates workers according to productivity. Supposing a negative correlation of educational costs and worker productivity, the education system could be a system for filtering out unproductive workers.

Arrow (1973) developed a theoretical model of education as a filter, pointing out its limited applicability in that some fields require special knowledge. In his model, education functions as a pure filter, which does not increase the human capital of graduates. Relying on the results of such filtering, the employer assigns wages corresponding to the average productivity of employees with respective levels of education. Commenting this, Arrow notes that the filtering role of education loses relevance if an employer sets additional filters that are more efficient than a system of education.

Taubman and Wales (1973), on the basis of NBER-TH data, empirically showed that a worker's level of education could be a cheap instrument for screening. According to their estimates, the return to education in an unscreened group of employees was considerably less than in a group subjected to screening in a hiring process.

According to Layard and Psacharopoulos (1974), it follows from the screening theory that the private return to education as a signal should decrease with work experience, but a study based on data from the US presented by Taubman and Wales (1973) and Hanoch (1967) did not confirm this.

Riley's (1975, 1979) models demonstrated that firms rely on screening to varying degrees. Using the data from the Current Population Survey (U.S. Bureau of the Census 1971–1975), Riley sorted out specialities in which employees are usually screened during a hiring process.

A great achievement of Wolpin (1977) was the idea to use self-employed workers as an unscreened group. Using NBER-TH data, he showed that persons who have no intention to signal about their productivity apply less effort to acquire the signals. As a result, they are less educated than the signalling groups.

Psacharopoulos (1979) argued that screening, if it exists, should be more evident in the non-competitive state sector of economies. Since the state sector is more bureaucratic, the return to education should be greater than in the competitive private sector. Psacharopoulos' other idea suggested that the income curves of persons with different education levels should approach each other as time spent in the same firm increases. Screening based on educational signals makes the wage profile of more-educated workers flatter and that of less-educated workers steeper.

Liu and Wong (1982) highlighted that educational certificates, rather than years of schooling, are used as signalling devices and, therefore, have to be used in empirical screening tests.[5] If signalling takes place, the return to certificates will decrease as experience in a firm increases because the employer can gather additional information about the true productivity of an employee.

Clark (2000) is unique in his efforts to study educational signals on the Russian labour market. He has made estimates with the use of RLMS-HSE data (1994-1996 and 1998), following the ideas of Wolpin (1977), Psacharopoulos (1979) and Liu and Wong (1982).

Repeating Psacharopoulos' (1979) idea, Clark (2000) has made estimates for the state and private sectors using the Mincerian earnings functions (Mincer & Polachek, 1974) in the following form:

$$\ln w = \alpha + \beta S + \gamma_1 Exp + \gamma_2 Exp^2 + \gamma_3 Male + \varepsilon, \tag{1}$$

$$\ln w = \alpha + \beta S + \gamma_1 Exp + \gamma_2 Exp^2 + \gamma_3 Male + \gamma_4 Hours + \gamma_5 Tenure + \gamma_6 Tenure^2 + \varepsilon, \tag{2}$$

where $\ln w$ is a logarithm of monthly wages, S is the amount of schooling in years, Exp is experience, $Male$ is dummy variable for gender, $Hours$ is hours of work, and $Tenure$ is years spent in the same firm. He hoped to receive greater slope coefficients of schooling in the more bureaucratic state sector in comparison to the private due to the fact that the private sector remunerates for productivity, but not for educational signals, which in many cases may not correspond with true personal productivity.

Clark (2000) has made OLS and the standard Heckman (1979) bivariate approach estimates for each of years using the wages of respondents from the primary place of work, the sum of wages from the first job plus a secondary job, and the total monthly income (including occasional earnings). After the separating state and private sectors, he showed that the returns to education in the private sector were greater than in the state sector. From his point of view, this rejects both of the screening hypotheses. He explained this result by the transition period. Employers in a transitional economy are more flexible than the state sector and pay more to workers with a high level of human capital.

To continue Clark's (2000) approach, it seems correct to use the wage only from the primary place of work (to avoid the problems of mixing sectors and job status during the earnings aggregation).

[5] It was also mentioned by Layard and Psacharopoulos (1974) as a "sheepskin" effect.

To avoid the effect of the transitional economy, it seems better to find signals in comparison of the return to education of employees and self-employed workers (Wolpin, 1977). The return to education for self-employed workers (with the exception of some special cases of professionals, such as dentists and so on) is the return to their human capital accumulated during their studies, because usually neither the market nor employers screen them. When the employee is hired, only the return to his educational signal is observed. If the SSH is true, educational credentials and years of schooling should not influence the self-employed individual's income. Using OLS and Heckman's (1979) model, Clark (2000) demonstrated insignificant slope coefficients for schooling in the entrepreneurs earnings functions and significant coefficients in the employees equations. It looks like the validity of the SSH, if the insignificance has a fundamental cause besides the small sample of entrepreneurs (61–75 observations in the estimates of equation (2)).

In addition, Clark (2000) estimated Mincerian earnings functions in the form:

$$\ln w = \alpha_0+\alpha_1 C_1+\alpha_2 C_2+\alpha_3 C_3+\alpha_4 C_4+\alpha_5 C_5+\alpha_6 State+\alpha_7 Hours+\alpha_8 Exp+\alpha_9 Exp^2+\varepsilon, \quad (3)$$

$$\ln w = \alpha_0 + \alpha_1 C_1 + \alpha_2 C_2 + \alpha_3 C_3 + \alpha_4 C_4 + \alpha_5 C_5 + \alpha_6 State + \alpha_7 Hours + \varepsilon, \quad (4)$$

in two cases: with the different samples of employees with different years spent in the same firm (tenures) and on the samples of employees with different years of labour-market experience (as suggested by Liu and Wong (1982)). In these equations, variables C_1–C_5 are binary and correspond to the level of education. *State* was not explained; according to the name, it should be the binary variable for the state sector. Coefficients for equations (3) and (4) were estimated[6] for the different overlapping intervals of the tenures and experiences (0–2, 1–3, etc., and 0–4, 2–6, etc., respectively). The returns to the levels of education were not stable due to differences in the samples. Nevertheless, individuals received positive and, on average, significant returns to university of education. The effects tended to lose significance after approximately 8–10 years of tenure and 10–14 years of experience. The author concludes that SSH should be rejected.

To avoid the influence of sample attrition on the significance level, it is reasonable to conduct research on larger samples of respondents or to simply include an interactive term of education level with tenure in the earnings function.

Empirical Framework

This research is based on estimates using Mincerian earnings function (Mincer & Polachek, 1974) in the following specification:

$$\ln y_i = \alpha + S_i\beta + R_i\gamma + \varepsilon_i, \quad (5)$$

[6] It appears that the OLS estimator was applied.

where the logarithm of monthly earnings y_i of person i is the dependent variable, α is an intercept term, R_i is the vector of explanatory and control variables, γ is vector of parameters, and ε_i is an error term.

We are interested in β in the earnings function (5). It reflects the private return to education. According to the purpose of our study, it is reasonable to use the binary variables S_i indicating the highest level of a person's education rather than years of schooling, because an individual could use a diploma as a signal about his productivity. This idea is well known in literature as a "sheepskin" effect (Layard & Psacharopoulos, 1974; Liu & Wong, 1982; Hungerford & Solon, 1987). Nevertheless, if we try to reject the SSH, we can use years of schooling as S_i, supposing, in contrast to SSH, that education increase human capital. A significant β for self-employed workers rejects SSH. A more detailed discussion on this topic is given in the next section.

Earnings functions are estimated separately for men and women.

Gorodnichenko and Sabirianova Peter (2005) found a significant increase in the return to schooling in Russia in 1990–1996. To control this effect, earnings functions in the present research are estimated separately for each year.

Some problems appear in the estimates. One of them is sample selection bias. This bias can be controlled by using sample selection models, such as the well-known Heckit (Heckman, 1979).

Another problem is the endogeneity of education. In this case, IV or GMM[7] estimates can be used. The frequently used instruments in this case are the education levels of parents and spouses (Wooldridge, 2002). Unfortunately, in the household surveys used in the present research, we only have information about the education of parents if they are living in the same household as the respondent. In order to maintain the highest possible sample size, we use only the spouse's education as an instrument for the respondent's level of education.

Wooldridge (2002, p. 568–569) describes in detail how to solve endogeneity and sample selection problems simultaneously. We use this technique, but replace 2SLS with a GMM estimator on the second stage. On the first stage, the labour force participation equation is estimated. The number of children in the family, a person's age, the spouse's monthly earnings, and all exogenous variables of the main equation (5) with spouse's education instead of the person's education are used in the participation equation. Then we use the number of children in the family, a person's age, the spouse's monthly earnings along with the spouse's education, and nonselection hazard[8] are used as instruments in the GMM estimator of equation (5). This procedure is referred to as "GMM-Hekit" hereafter.

[7] GMM is preferable in the linear model only because it provides a heteroskedastically consistent estimate of a variance-covariance matrix.

[8] Following the terminology of StataCorp (http://www.stata.com/support/faqs/stat/invmills.html), we use the name "nonselection hazard" instead of "inverse Mills". The nonselection hazard is $\frac{f(z\hat{\delta})}{1-F(z\hat{\delta})}$, where z is the vector of explanatory variables in the labour force participation equation, $\hat{\delta}$ is a vector of estimates of the corresponding parameters, f and F are standard normal pdf and CDF, respectively.

Methodology

The research hypotheses are tested in two ways. One is to compare the private return to education β in (5) in screened and unscreened groups of respondents. The other is to consider the evolution of the return in time spent in the same firm.

A commonly used approach is to compare the return to education in screened and unscreened groups. This is based on the idea that respondents from the unscreened group do not use educational certificates as a signal about their productivity. In the screened group we observe the return to these signals.

Self-employed workers do not have to signal their productivity via educational attainments and usually are considered as part of the unscreened group of respondents. If we suppose that education increases their human capital, β in (5) corresponds to the return to human capital. In this case if β is statistically significant, then the SSH is rejected. This reasoning, commonly used in the literature, has a bottleneck. Suppose that people (like in former Soviet Union) try to receive higher education in order to compete for a better place on the labour market, since they traditionally think that the market is highly regulated or believe that it will be regulated. Suppose that it does not matter what they planned to do after university (to be employees or self-employed workers) and that they tried to receive education in any event. If the educational system is a perfect filter of abilities, then persons with low productivity cannot receive a diploma. In this case, we can observe a significant return to educational certificates among self-employed workers even if education does not increase their human capital. So, if we conclude that the SSH is rejected because β in (5) is significant in the group of self-employed persons, it should be added that we believe that there are a lot of self-employed persons in the sample who never tried to receive high levels of education. In other words, the productivity of many of them have not been "marked" by the corresponding certificates issued by filtration system of education.

At the same time, taking into account the above-mentioned remarks, the insignificance of β in (5) on the sample of the self-employed persons with the different levels of education could lead to two different conclusions. One of them is that the SSH is true (education does not increase innate productivity). The second one is that educational system is a bad filter of persons with different productivities (both productive and non-productive persons pass through the filter and receive diplomas). The conclusion about the educational system as a bad filter can be made only if the return to education is insignificant both in screened and unscreened groups of respondents: the labour market does not believe in educational signals. This is a highly unexpected result, which contradicts all the previous empirical research and the fact of existence of education at all.

We have to notice that insignificance of parameters in this empirical model can be a consequence of the lack of degrees of freedom of the model and/or of the small variation of the corresponding explanatory variable in the sample. We have no guarantees that β in (5) remains insignificant if we change the sample of the unscreened group. For this reason, we could not prove the SSH empirically for sure, but we can try to reject it.

What can we say after comparing βs in screened and unscreened groups of respondents, provided that β is significant in the unscreened group? According to research edited by Gimpelson and Kapelyushnikov (2007, Ch. 4), so called "budget" enterprises in Russia are highly regulated by the state. Very often monthly pay is not determined by the productivity of the worker in the budget enterprise (Gimpelson & Kapelyushnikov, 2007, Ch. 4). In this situation, the formal requirements for candidates, such as education, could determine the outcome of the recruitment to a high extent. For these reasons, in the state sector β in (5) corresponds to the private return to educational signals, at least when considering persons with small tenure. In spite of some "pessimistic" phrases in the work (Gimpelson & Kapelyushnikov, 2007, Ch. 4), we believe that, due to its perks, the return to human capital could be added to the return to educational signals during the time spent in the same firm. This means that the productivity of some persons could be underestimated in the hiring process and that return to human capital accumulated during the previous education would be added to the return to educational signal after some probationary period for the worker inside the firm. Some persons accumulate specific human capital due to learning by doing, and they also would be rewarded. The same situation (an additional return to human capital) will take place in non-state and private firms. So, as usual (according to the other literature devoted to the screening hypotheses), we suppose that the return to signals plus the return to human capital is observed in the screened group of respondents. Are the returns to education greater in screened or unscreened groups? As it follows from the previous discussion, if the labour market underestimates educational signals, then the return to education in the screened group, just after the hiring process, could be even less than in the unscreened one. This means that, by comparing returns to education in screened and unscreened groups, we can only answer the question about the extent to which the Russian labour market relies on educational signals.

A similar kind of answer might prove feasible if we compare the dynamics of the private return to education for employees with the time spent in the same firm. Let us suppose that education is an ideal sorting device that separates more-able and less-able persons perfectly. In this situation, more-educated workers are better able to raise their monthly pay than less-educated workers after the same time spent in the firm. If this is true, then wage differences provided by the different levels of education for workers do not change with experience in the firm. Unfortunately, the same result takes place if education is an investment in human capital. The other situation observes that education is not an ideal sorting device or that persons with the same level of education have different amounts of human capital. In this case, a variation in wages of persons with the same initial level of education arises and increases with time because the employer obtains information about the real productivity of the workers. This productivity may differ from expectations based on the observed individual's education in the hiring process. In this case, the relative differences in private returns to education of persons with different initial levels of education decrease with work experience within the same firm. So, considering the evolution of private return to education in time spent on the same firm, we can judge regarding the extent to which education is an ideal sorting device or the best way to investment in human capital, but we cannot separate these two theories.

Data and Constructed Variables

The research is made on the RLMS-HSE (1994–2009) and NOBUS (2003) data.

The RLMS-HSE is an annual survey (except for 1997 and 1999) with a representative sample of the population of the Russian Federation. 88% of the respondents were interviewed in October–November.

The NOBUS allows researches to obtain representative data for the Russian Federation at the regional level for 47 out of 89 subjects of the Russian Federation. More that 99% of respondents were interviewed in May–June.

Regional consumer price indexes supplied by the Federal State Statistics Service[9] are used to adjust nominal values to 1994 roubles for the RLMS-HSE data.

Earnings functions are estimated for the primary job. The dependent variable is the logarithm of monthly contractual wage for an employee and monthly earnings for a self-employed worker.

Most of the variables in regression analysis have self-explanatory names and, to avoid ambiguity, Appendix Table 2 can be used.

Persons in a range of 15–72 years old are considered in this study.

The RLMS-HSE questionnaires do not allow us to pick out all of the self-employed workers according to the ICSE-93[10] definition. Nevertheless, in all of the rounds, direct questions on whether the respondent is personally an owner or a co-owner of the enterprise and about his entrepreneurial activity are present. It seems fallacious to identify all such persons as employers because some them answered that they owned less than 6% of the enterprise.[11] They could be de facto employees who received privatization vouchers during Perestroika. Nevertheless, they are only a small part of the sample and we believe, and hope Clark (2000) believed too, that they have a negligible influence on the private return to education in the sample. For this reason, following Clark's (2000) idea, we include the entrepreneurs in the sample of self-employed workers.

What has Clark (2000) yet to do? A number of questions about work as a private individual, alone or with family members or friends and question about hired employees were included in the RLMS-HSE questionnaires after 1998.[12] These questions give us the opportunity to identify the own-account workers[13] and use them as an unscreened group.

[9] Russia's Federal State Statistics Service. http://www.gks.ru/wps

[10] Resolution concerning the International Classification of Status in Employment. The Fifteenth International Conference of Labour Statisticians (Jan. 1993). http://www.ilo.org/global/statistics-and-databases/statistics-overview-and-topics/status-in-employment/current-guidelines

[11] The samples are described in Appendix Tables 3 and 4.

[12] The last year in Clark's (2000) research is 1998.

[13] The samples are described in Appendix Table 3.

We use NOBUS data to check the robustness of the results with regard to the choice of samples of screened and unscreened respondents. The status of self-employed persons are assigned to persons who answered that one of the following categories describes the status of their activity: entrepreneur without being a legal entity, farmer, self-employed, member of a producers' co-operative, owner or co-owner of an enterprise or business. The sizes of the samples of employees and self-employed workers are described in Table 1.

Employee vs. Self-employed

Most of the self-employed workers have no need to signal or cannot signal about their professional qualification or productivity using educational certificates (a small number of professions should be excluded, such as dentists, architects, etc.). If we control for learning-by-doing (including labour market experience as an explanatory variable in the regressions) then the return to education for the self-employed persons should be equal to the return to human capital accumulated during the series of educational stages.

On the contrary, during the hiring process, most employees have to use their diplomas as signals about their qualification and productivity to get the appropriate job. This rule is strictly adhered to in the bureaucratic system. Officially registered working places usually require the corresponding educational certificates, especially in cases when labour market experience is absent. Controlling for experience, the return to education for the employees is the return to educational signals.

Table 1. Means of selected variables.

	Men			Women		
RLMS-HSE (1994–2009)	Empl-ee	Own-acc.	Entrep.	Employee	Own-acc.	Entrep.
Log of monthly pay	5.549	5.982	5.845	5.156	5.537	5.623
	(0.005)	(0.029)	(0.031)	(0.005)	(0.032)	(0.037)
Schooling (years)	12.797	13.430	14.050	13.350	13.555	14.385
	(0.016)	(0.068)	(0.088)	(0.015)	(0.073)	(0.101)
Incompl. sec-ry,primary,no prim.ed.	0.028	0.027	0.006	0.037	0.021	0.007
	(0.001)	(0.004)	(0.002)	(0.001)	(0.004)	(0.003)
Secondary education	0.042	0.045	0.017	0.054	0.030	0.022
	(0.001)	(0.006)	(0.004)	(0.001)	(0.005)	(0.005)
Primary vocational education	0.474	0.341	0.281	0.241	0.215	0.132
	(0.003)	(0.013)	(0.013)	(0.002)	(0.013)	(0.012)
Secondary vocational education	0.214	0.305	0.198	0.358	0.473	0.407
	(0.002)	(0.012)	(0.011)	(0.002)	(0.015)	(0.018)
Higher education	0.226	0.270	0.426	0.294	0.258	0.425
	(0.002)	(0.012)	(0.014)	(0.002)	(0.014)	(0.018)
Postgraduate higher education	0.015	0.012	0.071	0.016	0.004	0.008
	(0.001)	(0.003)	(0.007)	(0.001)	(0.002)	(0.003)
Sample size, log of monthly pay	31079	1110	1078	36225	826	655
Sample size, other variables	33244	1362	1260	38331	1039	744
Sample size, log of mon.pay, 2003	2166	100	80	2632	88	44
NOBUS (2003)	Employee	Self-employed		Employee	Self-employed	
Log of monthly pay	8.057	7.474		7.722	7.304	
	(0.005)	(0.094)		(0.005)	(0.100)	
Incompl. sec-ry,primary,no prim.ed.	0.100	0.106		0.061	0.078	

Table 1. (*continued on next page*)

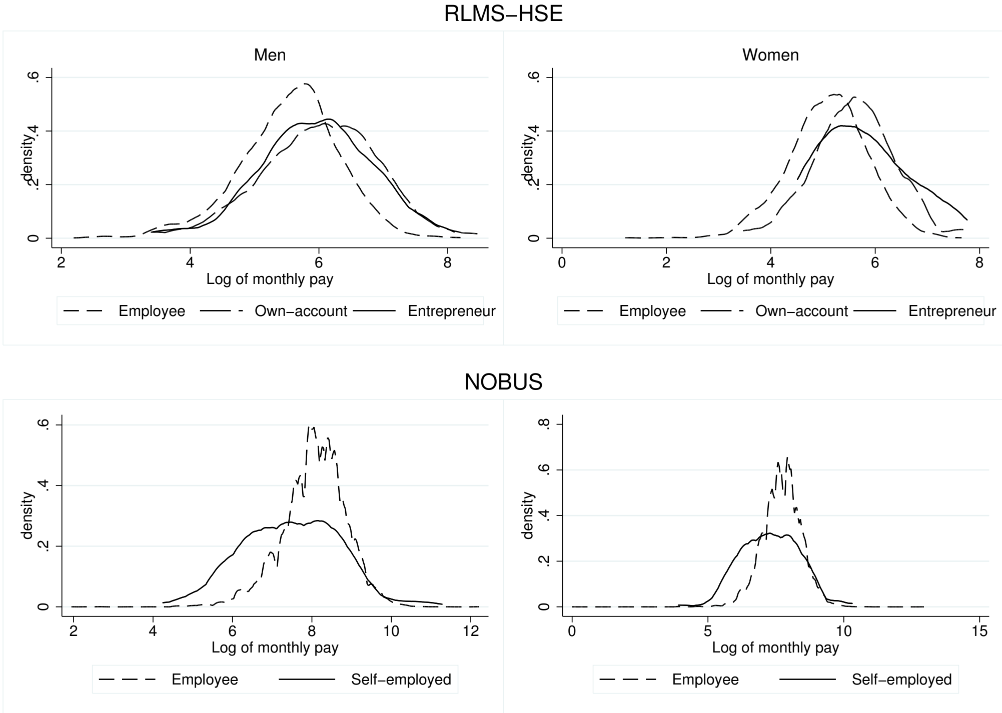

Figure 1. Kernel density estimates of log of monthly earnings in 2003.

Table 1. (*continued*)

	Men		Women	
NOBUS (2003)	Employee	Self-employed	Employee	Self-employed
	(0.002)	(0.007)	(0.002)	(0.007)
Secondary education	0.228	0.259	0.182	0.231
	(0.003)	(0.010)	(0.002)	(0.011)
Primary vocational education	0.149	0.110	0.098	0.104
	(0.002)	(0.007)	(0.002)	(0.008)
Secondary vocational education	0.303	0.272	0.375	0.344
	(0.003)	(0.010)	(0.003)	(0.013)
Incomplete higher education	0.033	0.032	0.039	0.049
	(0.001)	(0.004)	(0.001)	(0.006)
Higher education	0.184	0.218	0.243	0.193
	(0.003)	(0.009)	(0.003)	(0.011)
Postgraduate higher education	0.003	0.002	0.002	0.001
	(0.000)	(0.001)	(0.000)	(0.001)
Sample size, log of monthly pay	22174	175	24581	116
Sample size, other variables	23035	1939	25308	1361

Standard errors of means are in parentheses.

Table 1[14] and Figure 1 show that the RLMS-HSE and NOBUS samples include employees and self-employed workers with different monthly pay distributions.[15] This makes the robustness check of the results from the choice of the sample more interesting.

RLMS-HSE questionnaires have rather detailed questions about professional courses, e.g., tractor driving, chauffeuring, typing, accounting, etc. For this reason we can see the less

[14] The definitions of the variables are presented in Appendix Table 2.

[15] It is well known that RLMS-HSE sample is biased towards the poor families (Kalugina & Najman, 2003).

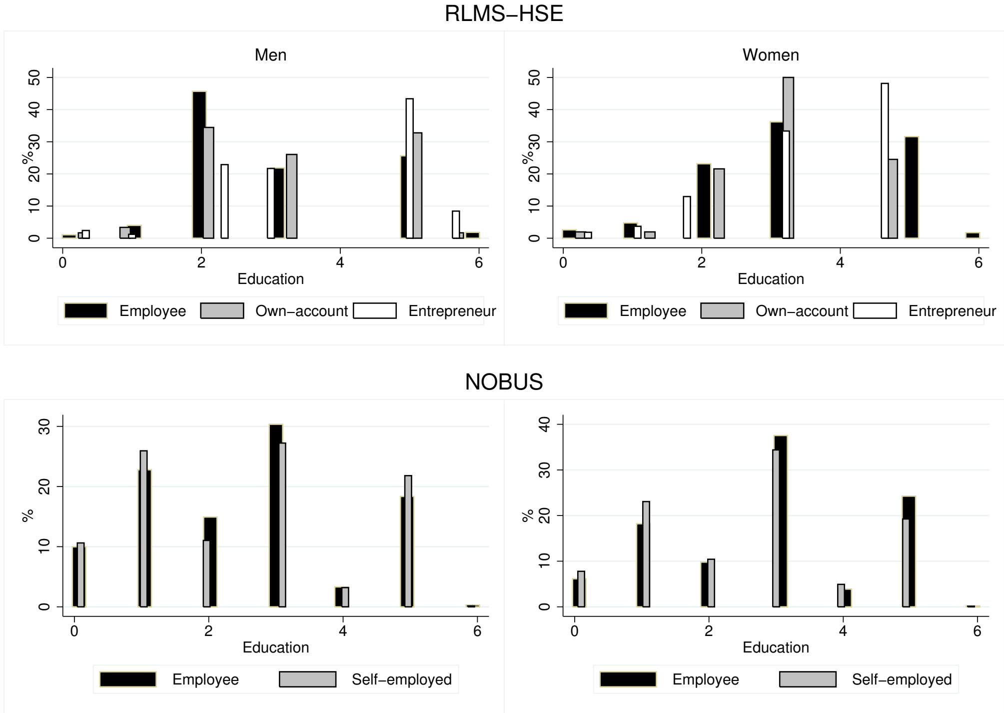

Figure 2. Histograms of education in 2003: 0 — Incomplete secondary, primary and no primary education; 1 — Secondary education; 2 — Primary vocational education; 3 — Secondary vocational education; 4 — Incomplete higher education (NOBUS); 5 — Higher education; 6 — Postgraduate higher education.

weighted left tail of the distribution of respondents' education in the RLMS-HSE data in comparison to the NOBUS (Table 1 and Figure 2). Nevertheless, what is most important for the present research is that various levels of education are presented in both samples.

Taking into account gender differences in occupational mobility (Maltseva, 2005; Maltseva & Nesterova, 2010) and differences in the descriptive statistics presented in Table 1, Appendix Table 5 and Figures 1 and 2, we run separate regressions for men and women. It is a quite common approach and the results below confirm that some coefficients in the Mincerian earnings functions for men and women are significantly different.

It was shown by Gorodnichenko and Sabirianova Peter (2005) that in 1990–1996 the private return to education doubled in Russia. Fersterer and Winter-Ebmer (1999) found that returns to education fell in Austria in 1981–1997. This phenomenon is explained by a rising supply of highly educated workers in Austria. Taking into account these facts, we use cross-section estimates in the present research to monitor possible changes in the return to education in Russia during the period of 1994–2009.

The GMM-Hekit estimates presented in Figure 3 show insignificant return to years of schooling for self-employed workers.[16] No doubt that the sample of the self-employed workers is too small to judge the significance of the return. Nevertheless, we can see that, taking into account confidence intervals, there are no significant differences in the returns to schooling

[16] The view of corresponding regressions for some years are presented in Appendix Tables 6–9.

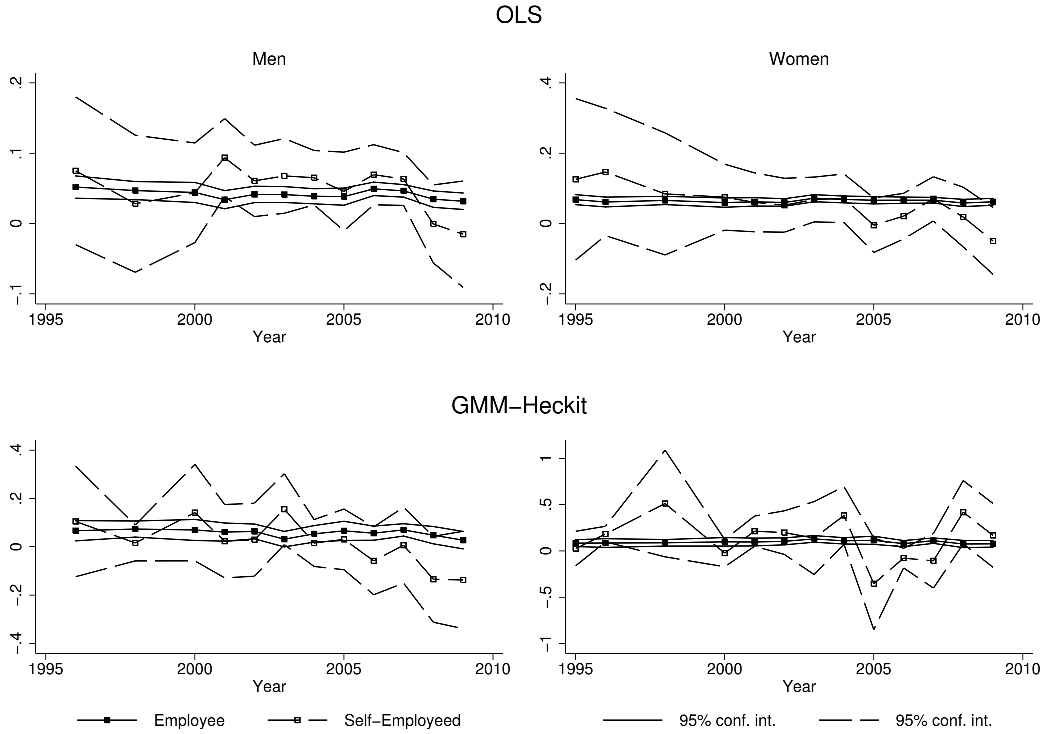

Figure 3. Estimates of the private return to years of schooling, based on the RLMS-HSE data.

in the screened and unscreened groups of respondents.

Taking into account the "sheepskin" effect, binary variables for levels of education can be used instead of years of schooling. Unfortunately, if we do have binary endogenous explanatory variables (levels of education) and binary instruments (spouse's level of education), β is not identified (Wooldridge, 2002, p. 630). Only one continuous instrument (spouse's years of schooling) is at our disposal if we use the RLMS-HSE data. For this reason we can put only one binary explanatory variable (for the one level of education) in (5) if we are going to use instrument for it. An example of the return to higher education is shown in Figure 4, the corresponding regressions for some years are presented in Appendix Tables 12–15. Once again, the GMM-Heckit estimates for self-employed workers in most cases are insignificant and insignificantly different from estimates for employees. It seems that the small size of the sample is the main reason of these effects.

NOBUS data can be used as a check on the robustness of the results from the chosen sample. At first sight, this data has its large sample size as an advantage. The number of self-employed workers in the NOBUS is about 10 times greater than in the RLMS-HSE. Unfortunately, only 10% of the self-employed workers reported their monthly income in the NOBUS. For this reason the sample size of the self-employed workers in the regression analysis remains small, and we have not obtained better estimates of βs and their standard errors for the self-employed workers. Figure 5 reports the results and corresponding regressions are shown in Appendix Tables 18 and 19.[17] There are no significant differences in the returns

[17] Only sample selection bias is controlled for by Heckit. GMM-Heckit estimates are not used because

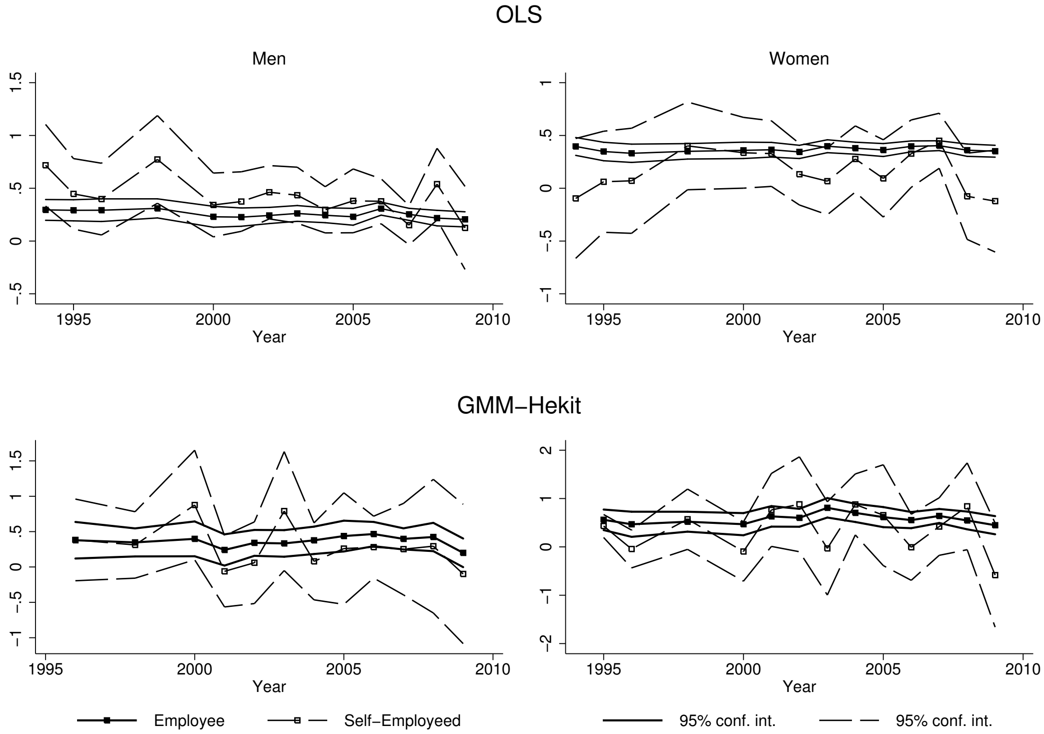

Figure 4. Estimates of the private return to higher education, based on the RLMS-HSE data. Base category is all levels below than higher education.

to education in the screened and unscreened groups of respondents.

To check the robustness of the results from the sample size, it is easy to take random sample of employees of comparable size with that of the sample of self-employed workers. These examples are presented in Figure 6 and in Appendix Tables 20 and 21. We can see that estimates of βs in the screened and unscreened groups in this case look alike.

Does Tenure Matter?

Small samples sizes of self-employed workers could be the reason for the large confidence intervals for the βs of our interest and create difficulties in tests for screening via a comparison of the returns to education of employees and self-employed workers. For this reason, another method to reveal educational signals on the labour market can be used.

If employees use educational certificates as a signal about their productivity only in the hiring process, then the return to certificates should decline with the time spent in the firm, given that the certificates are not ideal signals. The reason for this is that employers after some while will observe the actual productivity of the hired workers and pay them wages according to observed productivity (Liu & Wong, 1982; Clark, 2000). Some employees will

of an identification problem: endogenous levels of education and instruments for them (spouse's levels of education), available in the NOBUS, are binaries. Spouse's levels of education instead of the subject's levels are used in the participation equations for comparability with the previous GMM-Heckit estimates, based on the RLMS-HSE data.

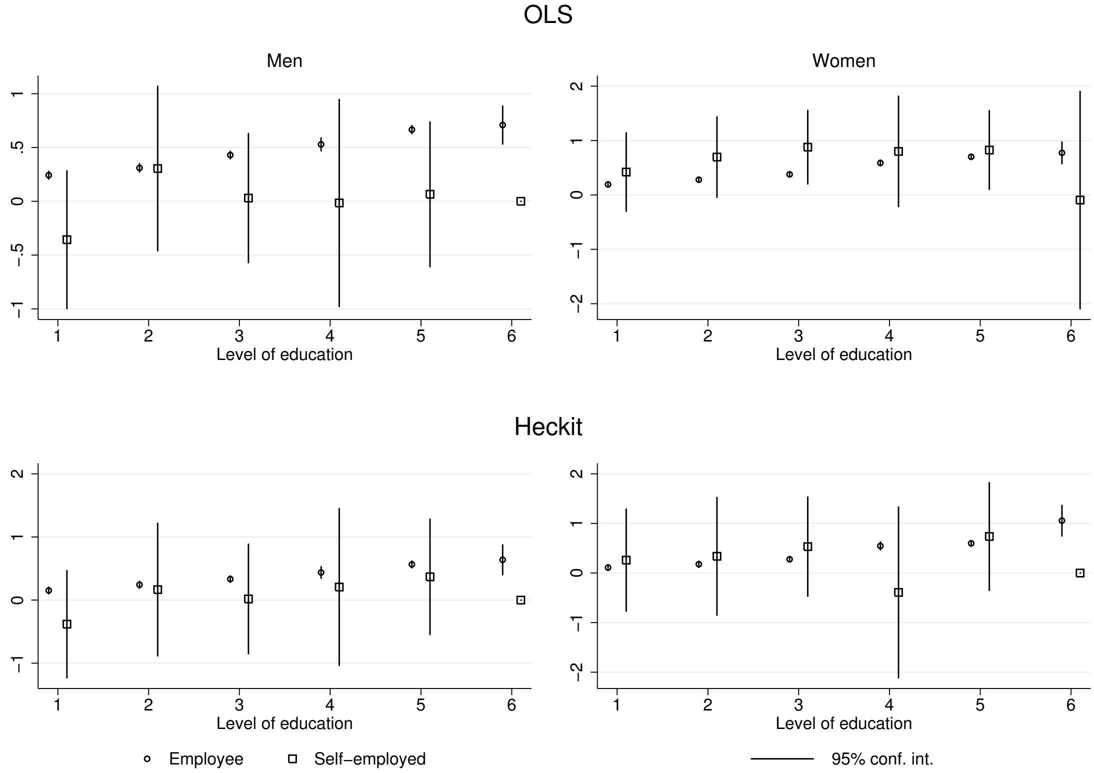

Figure 5. Estimates of the private return to education, based on the NOBUS data. Levels of education: 1 — Secondary education; 2 — Primary vocational education; 3 — Secondary vocational education; 4 — Incomplete higher education; 5 — Higher education; 6 — Postgraduate higher education. Base category is "Incomplete secondary, primary and no primary education". Zero values without confidence interval at level 6 correspond to omitted variables.

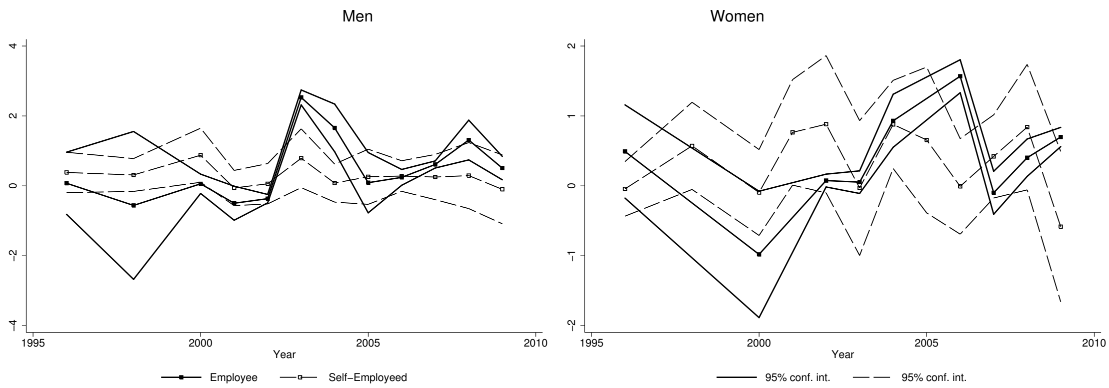

Figure 6. GMM-Heckit estimates of the private return to higher education, based on the RLMS-HSE data. Base category is all levels lower than higher education. Small random samples of employees were used.

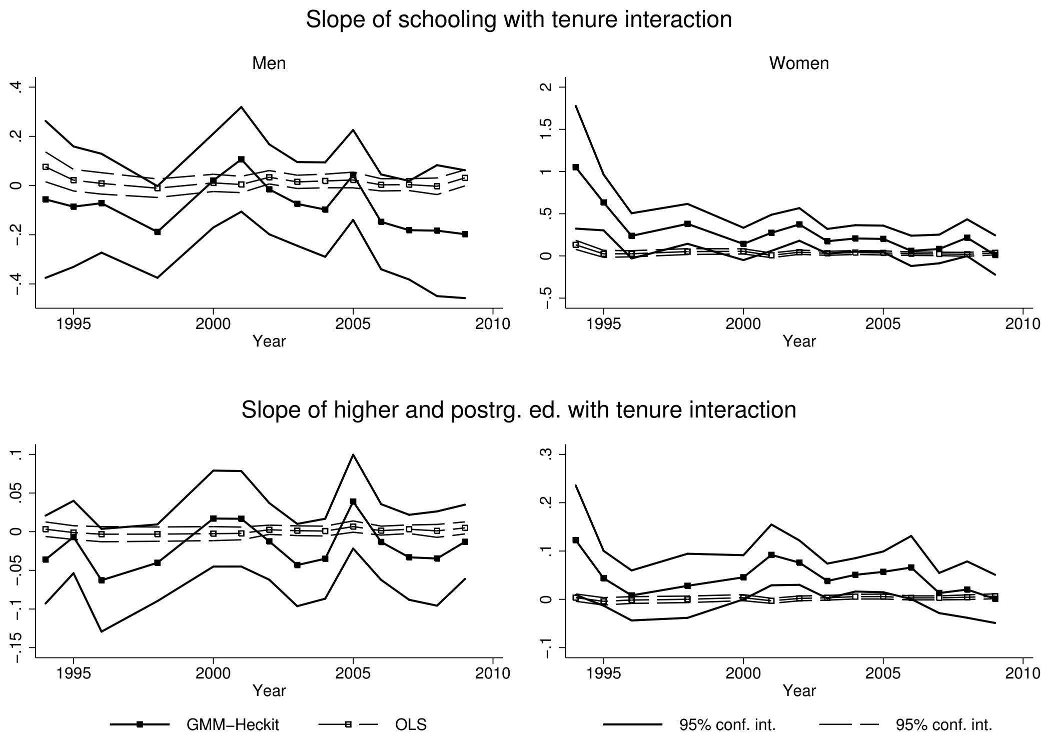

Figure 7. Slope coefficients of interaction terms for years of schooling and levels of education with tenure.

earn less, some of them will earn more, and after some time spent in the firm education ceases to be the main reason for the differences in wages.

On the other hand, if the educational system is ideal filter of "productivity", and certificates exactly correspond to "productivity", then the differences in wages caused by different levels of education remain unchanged over time. Unfortunately, the same situation is observed if education really increases human capital and the certificate matches exactly to the level of human capital. So we cannot separate the human capital hypothesis from the SSH by the suggested regression analysis. Considering the evolution of the returns to education with time spent in the firm, we can only assess the extent to which the market believes the signals or human capital corresponds to the certificates.

The simplest way to do this is to include the interaction of education and experience with the firm in the earnings function:

$$\ln y_i = \alpha + \beta\ S_i + \delta\ tenure_i \times S_i + R_i\gamma + \varepsilon_i, \tag{6}$$

where $tenure_i$ represents the years spent in the same firm. A negative δ means that an educational signal is used in the process of hiring and after some time its impact on earnings is reduced if the employee stays in the same firm.

Estimates of δ are presented in Figure 7, and some of the corresponding regressions are shown in Appendix Tables 22, 23, 26 and 27. In the upper row of Figure 7 we see the results with years of schooling used as an explanatory variable S_i; below S_i is a binary variable

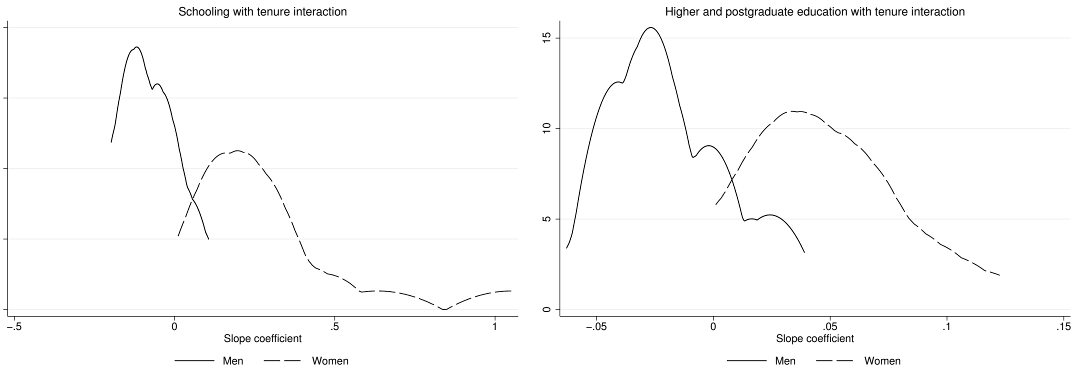

Figure 8. Distributions of GMM-Heckit estimates corresponding to the results presented in Figure 7.

equal to 1 when the respondent has higher or postgraduate education. Otherwise, it is equal to 0.

Distributions of GMM-Heckit estimates for δ, shown in Figure 8[18], illustrate that the average evolutions of the returns to education with tenure are different for men and women.[19] In most cases for men, the influence of education on earnings decreases with the length of in-firm employment. On the contrary, the differences in women's wages caused by different levels of education grow in the most cases with time spent in the same firm. It seems that education is an ideal sorting device for women, and the corresponding signal does not decrease with as years of experience with a firm build up.

Once again, it has to be noticed that the above tests do not allow us to separate human capital theory from the screening hypotheses. We simply observe the dynamics of how the market rewards holders of certificates.

Conclusion

In this analysis, RLMS-HSE and NOBUS data are used to find empirical evidence for screening hypotheses in Russia. The basic idea of these hypotheses is that educational certificates may be used as signals about the productivity of the holders of such certificates. The strong screening hypothesis claims that education does not increase innate productivity and that the educational system is just an eliminator of unproductive persons. The weak hypothesis supposes that productivity can be increased due to education.

Two methods are used to test these hypotheses empirically. The first is based on the idea of comparing the private returns to education in screened and unscreened groups of respondents. Formal screening is the process of investigation or gathering information about something. On the labour market the private employer or the formal bureaucratic state system should balance the marginal costs of the workers with their marginal products. So

[18] The plotted densities use Epanechnikov kernels.

[19] If years of schooling are explanatory variables, the mean value of δ is –0.081 for men and 0.289 for women. When binary explanatory variables indicating higher and postgraduate education are used, the corresponding values equal –0.018 and 0.047, respectively.

the wage is settled in proportion to productivity. A potential worker could signal about his productivity by using education certificates during the hiring process. The process of obtaining information on productivity by supervising education signals. We refer to this as screening in this analysis. Self-employed workers are usually not screened by the labour market via their certificates. For these reasons, if we measure return to education, then we get the return to signals for employees and the return to human capital for self-employed workers.

We find that the returns to education for employees and self-employed workers are not significantly different from each other in Russia. This could be explained by the labour market equilibrium and the history of the Russian labour market. Not long ago, people in Russia simply could not imagine the possibility of being a self-employed worker, and thus they tried, and may still be trying, to receive an education in order to get a job with higher pay. This may be the reason for the equal returns to education in screened and unscreened groups of respondents in Russia, since the marginal costs of being an employee and a self-employed worker are the same, and marginal returns in the equilibrium should be the same. In contrast, the marginal costs of being self-employed is less than those of being an employee in developed countries because people there have gotten used to thought that they do not need to get more education in order to be self-employed. As the result, the literature review shows that the return to education for employees is greater than that for self-employed workers in developed countries. Many authors usually explain this by the fact that in the screened group the return to education and from human capital are observed together, but in the unscreened group only the return to human capital is observed. It seems that if we consider an official way of hiring, without acquaintances and recommendations from friends, relatives, etc., the only return to signals should be observed after the hiring process for employees, and a return to human capital is observed for most self-employed workers in all times. The differences in their earnings can be explained only by the different marginal costs of being an employee and a self-employed worker.

The second goal of this paper is to consider the dynamics of the return to education with the years spent in the same firm by employees.

It is shown that for most men the influence of education on earnings decreases, while for most women the influence increases with experience in the firm. The simplest explanation for men is that after some time following the hiring process, the return to specific human capital accumulated thanks the process of learning-by-doing prevails over the return to educational signals observed during the hiring process. Educational signals are not as important for men in comparison with women, given that they continue to work in the same firm.

The increase of women's return to education with time spent in the same firm may have many explanations. One of them is that education is an ideal sorting device for women: education certificates correctly reflect their productivity and educational signals continue to influence earnings if a woman stays in the same firm. The explanation, connected to the previous one, is that immediately following the hiring process, a woman gets paid less than her potential productivity, as defined by the certificate. After some time, earnings grow proportionally to education because the more educated women are more productive in comparison to the less educated. We can add that more educated women may have more chances from successful learning-by-doing.

We have noticed that the dynamics of the return to education within a firm does not explain whether human capital is accumulated during studies or whether the educational system is simply a filtering system of persons with low innate productivity.

The by-product of this research is evidence regarding the constant returns to education during the considered period in Russia in contrast to the increasing return to education in 1985–1996 that Gorodnichenko and Sabirianova Peter (2005) described.

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Table 2. Constructed variables.

Variables	Comments
Log of monthly pay	Logarithm of monthly pay from the primary job (in 1994 roubles for the RLMS-HSE and nominal for the NOBUS data).
Schooling (years)	Years of schooling (RLMS-HSE).
Incomplete secondary, primary and no primary education	Binary variable equals to 1 if person has incomplete secondary, primary and no primary education, otherwise — 0.
Secondary education	Binary variable equals to 1 if person has secondary education, otherwise — 0.
Primary vocational education	Binary variable equals to 1 if person has primary vocational education, otherwise — 0.
Secondary vocational education	Binary variable equals to 1 if person has secondary vocational education, otherwise — 0.
Incomplete higher education	Binary variable equals to 1 if person has incomplete higher education, otherwise — 0 (NOBUS).
Higher education	Binary variable equals to 1 if person has higher education, otherwise — 0.
Postgraduate higher education	Binary variable equals to 1 if person has postgraduate higher education, otherwise — 0.
Experience (years)	Years of the labour market experience (RLMS-HSE).
Experience < 1 year	Binary variable equals to 1 if the labour market experience is less than 1 year, otherwise — 0 (NOBUS).
$1 \leq$ Experience < 3	Binary variable equals to 1 if the labour market experience is not less than 1 and less than 3 years, otherwise — 0 (NOBUS).
$3 \leq$ Experience < 5	Binary variable equals to 1 if the labour market experience is not less than 3 and less than 5 years, otherwise — 0 (NOBUS).
$5 \leq$ Experience < 10	Binary variable equals to 1 if the labour market experience is not less than 5 and less than 10 years, otherwise — 0 (NOBUS).
$10 \leq$ Experience	Binary variable equals to 1 if the labour market experience is not less than 10 years, otherwise — 0 (NOBUS).
Tenure (years)	Years spent working in the same (the last) firm.
Married	Binary variable equals to 1 if person is not single (married or living together), otherwise — 0.
Number of children 0–2 years	Number of children aged 0–2 years.
Number of children 3–6 years	Number of children aged 3–6 years.
Number of children 7–17 years	Number of children aged 7–17 years.
City	Binary variable equals to 1 if person is living in a city/town, otherwise — 0.

Table 3. RLMS-HSE samples of respondents aged 15–72.

Year	Employees, N	Own-account workers[21], N	Entrepreneurs, N	Entrepreneurs owned 6–100% of the enterprise[22], N
1994	4745		146	75 (23)
1995	4370	35	169	55 (58)
1996	4163	54	163	52 (70)
1998	4018	94	145	26 (86)
2000	4198	160	128	36 (61)
2001	4724	187	156	51 (72)
2002	4932	227	150	47 (74)
2003	5084	243	152	
2004	5149	244	134	
2005	5026	230	134	
2006	6330	255	152	
2007	6394	259	141	
2008	6302	238	124	
2009	6328	175	115	

Table 4. Part of the enterprise owned by the entrepreneurs (RLMS-HSE).

Year	$< 1\%, N$	$1–5\%, N$	$6–10\%, N$	$11–20\%, N$	$21–50\%, N$	$51–100\%, N$	"Doesn't know" and refuses to answer, N
1994	28	20	15	12	25	23	23
1995	39	17	12	7	20	16	58
1996	29	12	4	8	17	23	70
1998	27	6	4	3	8	11	86
2000	25	6	3	7	10	16	61
2001	24	9	3	10	19	19	72
2002	22	7	5	7	14	21	74

Table 5. Means of selected variables.

	Men			Women		
RLMS-HSE (1994–2009)	Empl-ee	Own-acc.	Entrep.	Empl-ee	Own-acc.	Entrep.
Age (years)	38.585	37.253	39.781	38.980	40.474	41.848
	(0.067)	(0.242)	(0.290)	(0.061)	(0.302)	(0.358)
Experience (years)	14.619	13.436	14.992	14.845	15.558	18.156
	(0.068)	(0.251)	(0.314)	(0.060)	(0.329)	(0.435)
Tenure (years)	7.015	5.148	7.330	8.316	7.111	10.446
	(0.048)	(0.131)	(0.218)	(0.047)	(0.211)	(0.348)
Married	0.812	0.870	0.931	0.679	0.781	0.706
	(0.002)	(0.009)	(0.007)	(0.002)	(0.013)	(0.017)
Number of children 0-2 years	0.104	0.112	0.112	0.084	0.062	0.054
	(0.002)	(0.009)	(0.009)	(0.001)	(0.007)	(0.009)
Number of children 3-6 years	0.137	0.203	0.207	0.134	0.118	0.132
	(0.002)	(0.012)	(0.013)	(0.002)	(0.010)	(0.013)
Number of children 7-17 years	0.414	0.651	0.566	0.453	0.561	0.531
	(0.004)	(0.023)	(0.022)	(0.003)	(0.023)	(0.026)
Log of spouse's monthly pay	4.527	4.152	4.546	5.318	4.987	5.413

Table 5. (*continued on next page*)

[21] Questions, which allow us to recognize own-account workers were absent before 2000, the only those who did not change occupation are in samples before 2000.

[22] Questions about a part of the enterprise owned were removed from the questionnaires since 2003. Number of respondents without answers to this question when it was in the questionnaires is shown in parentheses.

Table 5. (*continued*)

	Men			Women		
RLMS-HSE (1994–2009)	Empl-ee	Own-acc.	Entrep.	Empl-ee	Own-acc.	Entrep.
	(0.012)	(0.073)	(0.063)	(0.011)	(0.078)	(0.082)
Spouse's years of schooling	12.972	13.595	13.886	12.785	13.057	13.695
	(0.018)	(0.081)	(0.085)	(0.019)	(0.101)	(0.141)
Sp-se's inc.sec-ry,prim.,no prim.ed.	0.041	0.023	0.024	0.020	0.022	0.002
	(0.001)	(0.005)	(0.005)	(0.001)	(0.006)	(0.002)
Spouse's secondary education	0.063	0.091	0.052	0.039	0.045	0.025
	(0.002)	(0.009)	(0.007)	(0.001)	(0.008)	(0.007)
Spouse's primary vocational ed.	0.253	0.228	0.160	0.457	0.380	0.302
	(0.003)	(0.013)	(0.011)	(0.003)	(0.019)	(0.022)
Spouse's secondary vocational ed.	0.364	0.340	0.303	0.218	0.244	0.305
	(0.003)	(0.014)	(0.014)	(0.003)	(0.017)	(0.022)
Spouse's higher education	0.267	0.313	0.443	0.247	0.309	0.323
	(0.003)	(0.014)	(0.015)	(0.003)	(0.018)	(0.022)
Spouse's postgraduate higher ed.	0.012	0.004	0.018	0.018	0.000	0.043
	(0.001)	(0.002)	(0.004)	(0.001)	(0.000)	(0.010)
City	0.714	0.737	0.789	0.735	0.727	0.808
	(0.002)	(0.012)	(0.012)	(0.002)	(0.014)	(0.014)

NOBUS (2003)	Employee	Self-employed	Employee	Self-employed
Age (years)	40.057	39.709	40.404	40.056
	(0.078)	(0.228)	(0.070)	(0.276)
Experience < 1 year	0.035	0.039	0.031	0.036
	(0.001)	(0.004)	(0.001)	(0.005)
$1 \leq$ Experience < 3	0.067	0.053	0.067	0.051
	(0.002)	(0.005)	(0.002)	(0.006)
$3 \leq$ Experience < 5	0.068	0.063	0.060	0.069
	(0.002)	(0.006)	(0.002)	(0.007)
$5 \leq$ Experience < 10	0.127	0.143	0.111	0.138
	(0.002)	(0.008)	(0.002)	(0.009)
$10 \leq$ Experience	0.703	0.702	0.731	0.707
	(0.003)	(0.011)	(0.003)	(0.013)
Married	0.756	0.807	0.624	0.651
	(0.003)	(0.009)	(0.003)	(0.013)
Number of children 0-2 years	0.075	0.097	0.052	0.052
	(0.002)	(0.007)	(0.001)	(0.006)
Number of children 3-6 years	0.098	0.130	0.101	0.109
	(0.002)	(0.008)	(0.002)	(0.009)
Number of children 7-17 years	0.425	0.595	0.500	0.614
	(0.005)	(0.019)	(0.004)	(0.021)
Log of spouse's monthly pay	7.760	7.687	8.141	8.174
	(0.007)	(0.030)	(0.007)	(0.045)
Sp-se's inc.sec-ry,prim.,no prim.ed.	0.071	0.075	0.085	0.089
	(0.002)	(0.007)	(0.002)	(0.010)
Spouse's secondary education	0.199	0.223	0.228	0.271
	(0.003)	(0.011)	(0.003)	(0.015)
Spouse's primary vocational ed.	0.100	0.086	0.144	0.124
	(0.002)	(0.007)	(0.003)	(0.011)
Spouse's secondary vocational ed.	0.377	0.339	0.318	0.305
	(0.004)	(0.012)	(0.004)	(0.016)
Spouse's incomplete higher ed.	0.035	0.039	0.025	0.015
	(0.001)	(0.005)	(0.001)	(0.004)
Spouse's higher education	0.217	0.234	0.197	0.195
	(0.003)	(0.011)	(0.003)	(0.013)
Spouse's postgraduate higher ed.	0.001	0.004	0.003	0.000
	(0.000)	(0.002)	(0.000)	(0.000)
City	0.750	0.609	0.770	0.683
	(0.003)	(0.011)	(0.003)	(0.013)

Standard errors of means are in parentheses.

Table 6. Earnings functions for men, OLS estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)	0.052***	0.075	0.047***	0.028	0.044***	0.044
	(0.008)	(0.054)	(0.007)	(0.050)	(0.007)	(0.036)
Experience (years)	-0.011*	-0.059	0.003	0.057	0.007	-0.003
	(0.006)	(0.041)	(0.005)	(0.052)	(0.005)	(0.031)
Experience^2/100	0.011	0.182	-0.022**	-0.173	-0.030***	-0.014
	(0.014)	(0.121)	(0.011)	(0.151)	(0.012)	(0.091)
City	0.677***	1.023***	0.642***	0.277	0.631***	-0.011
	(0.051)	(0.300)	(0.042)	(0.273)	(0.044)	(0.225)
Constant	4.181***	4.407***	3.881***	4.474***	4.052***	5.118***
	(0.110)	(0.723)	(0.092)	(0.810)	(0.101)	(0.526)
Observations	1706	45	1651	50	1790	97
Adj.R^2	0.142	0.233	0.175	-0.033	0.142	-0.019
F	71.7	4.3	88.5	0.6	75.0	0.6
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)	0.041***	0.068**	0.049***	0.069***	0.032***	-0.015
	(0.006)	(0.027)	(0.005)	(0.022)	(0.006)	(0.039)
Experience (years)	0.006	0.058**	0.018***	0.034	0.023***	0.081**
	(0.004)	(0.028)	(0.004)	(0.021)	(0.004)	(0.038)
Experience^2/100	-0.028***	-0.223***	-0.056***	-0.102*	-0.057***	-0.209**
	(0.010)	(0.083)	(0.008)	(0.057)	(0.011)	(0.099)
City	0.547***	0.426**	0.343***	0.576***	0.284***	-0.146
	(0.035)	(0.172)	(0.030)	(0.139)	(0.036)	(0.222)
Constant	4.623***	4.547***	4.917***	4.615***	5.174***	5.740***
	(0.082)	(0.399)	(0.070)	(0.332)	(0.087)	(0.606)
Observations	2164	138	2721	162	2790	145
Adj.R^2	0.149	0.136	0.110	0.162	0.045	0.011
F	95.9	6.4	85.1	8.8	34.2	1.4

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 7. Earnings functions for women, OLS estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)	0.061***	0.147	0.066***	0.084	0.060***	0.075
	(0.007)	(0.092)	(0.006)	(0.089)	(0.007)	(0.048)
Experience (years)	-0.007	-0.059	0.018***	-0.038	0.021***	-0.012
	(0.005)	(0.083)	(0.005)	(0.059)	(0.005)	(0.029)
Experience^2/100	0.008	0.097	-0.047***	0.004	-0.051***	0.008
	(0.013)	(0.246)	(0.011)	(0.177)	(0.012)	(0.078)
City	0.443***	0.140	0.397***	-0.624	0.418***	0.019
	(0.045)	(0.438)	(0.038)	(0.455)	(0.039)	(0.241)
Constant	3.775***	3.665***	3.194***	4.935***	3.373***	4.378***
	(0.100)	(1.209)	(0.087)	(1.194)	(0.096)	(0.661)
Observations	1941	31	1913	39	2025	63
Adj.R^2	0.100	0.066	0.133	0.042	0.111	0.009
F	54.9	1.5	74.2	1.4	63.9	1.1
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)	0.072***	0.068**	0.066***	0.021	0.062***	-0.049
	(0.005)	(0.032)	(0.005)	(0.033)	(0.005)	(0.049)
Experience (years)	0.016***	0.056**	0.015***	0.061**	0.023***	-0.019
	(0.004)	(0.024)	(0.003)	(0.029)	(0.004)	(0.041)
Experience^2/100	-0.036***	-0.129*	-0.043***	-0.134*	-0.052***	0.030
	(0.010)	(0.065)	(0.008)	(0.073)	(0.009)	(0.093)
City	0.389***	0.222	0.319***	0.263	0.204***	0.059
	(0.032)	(0.170)	(0.028)	(0.196)	(0.031)	(0.284)
Constant	3.717***	4.158***	4.244***	4.741***	4.426***	6.474***
	(0.077)	(0.443)	(0.070)	(0.512)	(0.077)	(0.808)
Observations	2631	109	3259	105	3396	99
Adj.R^2	0.140	0.102	0.118	0.037	0.071	-0.028
F	107.6	4.1	110.0	2.0	66.4	0.3

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 8. Earnings functions for men, GMM-Heckit estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)[23]	0.066***	0.105	0.073***	0.016	0.070***	0.142
	(0.021)	(0.117)	(0.017)	(0.038)	(0.022)	(0.102)
Experience (years)	-0.015**	0.074	-0.010*	0.081*	-0.005	-0.039
	(0.006)	(0.059)	(0.005)	(0.043)	(0.006)	(0.026)
Experience^2/100	0.032*	-0.132	0.015	-0.323***	0.008	0.048
	(0.017)	(0.173)	(0.013)	(0.116)	(0.014)	(0.090)
City	0.658***	1.074***	0.588***	0.421	0.556***	-0.014
	(0.067)	(0.238)	(0.051)	(0.257)	(0.057)	(0.240)
Nonselection hazard	-0.332*	-6.333**	-0.278**	1.656	-0.360**	0.484
	(0.176)	(2.851)	(0.140)	(1.655)	(0.169)	(1.277)
Constant	4.103***	4.134**	3.780***	4.539***	3.988***	3.958***
	(0.275)	(1.694)	(0.227)	(0.610)	(0.299)	(1.525)
Observations	1371	31	1353	38	1466	69
χ^2	243	69	303	20	275	10
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years) [23]	0.032*	0.156**	0.056***	-0.058	0.027	-0.137
	(0.016)	(0.075)	(0.015)	(0.072)	(0.018)	(0.103)
Experience (years)	-0.010*	0.027	0.003	0.027	0.011**	0.084
	(0.005)	(0.028)	(0.004)	(0.024)	(0.005)	(0.051)
Experience^2/100	0.017	-0.094	-0.011	-0.041	-0.022*	-0.158
	(0.013)	(0.080)	(0.011)	(0.068)	(0.013)	(0.137)
City	0.488***	0.146	0.277***	0.594**	0.216***	-0.130
	(0.049)	(0.243)	(0.043)	(0.269)	(0.047)	(0.365)
Nonselection hazard	-0.446***	-1.152	-0.557***	-1.061	-0.566***	-1.759
	(0.102)	(0.793)	(0.089)	(0.733)	(0.138)	(1.106)
Constant	5.034***	3.896***	5.127***	6.590***	5.504***	7.588***
	(0.224)	(1.088)	(0.197)	(0.961)	(0.251)	(1.217)
Observations	1625	94	2077	105	2138	102
χ^2	266	24	265	30	109	12

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 9. Earnings functions for women, GMM-Heckit estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)[24]	0.086***	0.183***	0.088***	0.513*	0.099***	-0.023
	(0.024)	(0.043)	(0.018)	(0.294)	(0.024)	(0.075)
Experience (years)	-0.019***	0.060	-0.011	-0.044	-0.003	0.014
	(0.007)	(0.086)	(0.007)	(0.049)	(0.008)	(0.026)
Experience^2/100	0.075***	-0.424	0.051**	-0.046	0.033	-0.102
	(0.020)	(0.309)	(0.020)	(0.232)	(0.024)	(0.106)
City	0.419***	0.434	0.348***	-1.514**	0.332***	0.276
	(0.058)	(0.398)	(0.046)	(0.684)	(0.053)	(0.332)
Nonselection hazard	-0.522***	3.870**	-0.560***	0.624	-0.661***	0.237
	(0.147)	(1.615)	(0.089)	(2.136)	(0.126)	(0.717)
Constant	3.566***	2.011*	3.210***	-0.513	3.169***	5.391***
	(0.315)	(1.195)	(0.242)	(3.994)	(0.313)	(0.873)
Observations	1244	18	1267	23	1275	37
χ^2	161	95	207	29	183	11
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Schooling (years)[24]	0.130***	0.139	0.079***	-0.077	0.077***	0.168
	(0.018)	(0.201)	(0.017)	(0.054)	(0.018)	(0.176)
Experience (years)	-0.010	-0.029	-0.001	0.059*	0.013**	0.039
	(0.007)	(0.047)	(0.005)	(0.033)	(0.006)	(0.066)
Experience^2/100	0.052**	0.153	0.012	-0.122	-0.015	-0.196

Table 9. (*continued on next page*)

[23] Years of schooling are instrumented by nonselection hazard and explanatory variables of the labour force participation equation (Table 10).

[24] Years of schooling are instrumented by nonselection hazard and explanatory variables of the labour force participation equation (Table 11).

Table 9. (*continued*)

	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
	(0.020)	(0.137)	(0.014)	(0.095)	(0.016)	(0.186)
City	0.248***	-0.049	0.320***	0.227	0.147***	-0.173
	(0.046)	(0.344)	(0.041)	(0.272)	(0.046)	(0.467)
Nonselection hazard	-0.668***	-1.985***	-0.371***	-0.756	-0.556***	1.318
	(0.120)	(0.748)	(0.071)	(0.801)	(0.097)	(0.951)
Constant	3.300***	4.327	4.223***	6.206***	4.456***	3.052
	(0.251)	(2.864)	(0.231)	(0.771)	(0.250)	(2.542)
Observations	1530	54	1869	59	1976	55
χ^2	233	26	228	22	157	7

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 10. Earnings functions for men, Heckit estimates on the RLMS-HSE data. Participation equations from here were used to construct nonselection hazards for Table 8.

	1996	1998	2000	2003	2006	2009
Schooling (years)	0.040***	0.041***	0.041***	0.043***	0.044***	0.036***
	(0.008)	(0.007)	(0.007)	(0.006)	(0.005)	(0.006)
Experience (years)	-0.018***	-0.007	-0.006	-0.006	0.008*	0.011**
	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)
Experience^2/100	0.053***	0.007	0.006	0.003	-0.028***	-0.011
	(0.015)	(0.013)	(0.013)	(0.013)	(0.010)	(0.013)
City	0.659***	0.629***	0.570***	0.485***	0.360***	0.125***
	(0.057)	(0.048)	(0.049)	(0.043)	(0.036)	(0.044)
Constant	4.519***	4.169***	4.368***	4.864***	5.175***	5.449***
	(0.121)	(0.107)	(0.111)	(0.102)	(0.084)	(0.099)
Labour Force Participation						
Spouse's schooling (years)	0.041***	0.047***	0.060***	0.074***	0.069***	0.051***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.011)	(0.009)
Experience (years)	-0.092***	-0.080***	-0.074***	-0.024**	-0.031***	-0.043***
	(0.014)	(0.014)	(0.013)	(0.011)	(0.011)	(0.010)
Experience^2/100	0.112***	0.119***	0.104***	0.047*	0.080***	0.085***
	(0.026)	(0.026)	(0.027)	(0.025)	(0.023)	(0.022)
City	0.154*	0.358***	0.474***	0.456***	0.477***	0.387***
	(0.083)	(0.081)	(0.076)	(0.072)	(0.066)	(0.063)
Age	0.269***	0.259***	0.220***	0.225***	0.199***	0.161***
	(0.028)	(0.027)	(0.026)	(0.024)	(0.021)	(0.018)
Age^2/100	-0.309***	-0.316***	-0.275***	-0.298***	-0.276***	-0.210***
	(0.030)	(0.030)	(0.029)	(0.027)	(0.024)	(0.020)
Number of children 0–2 years	0.161	-0.019	0.009	0.132	0.258**	0.048
	(0.156)	(0.141)	(0.137)	(0.128)	(0.120)	(0.095)
Number of children 3–6 years	-0.069	-0.033	-0.034	-0.141	0.011	0.141
	(0.102)	(0.111)	(0.109)	(0.098)	(0.095)	(0.091)
Number of children 7–17 years	0.002	-0.066	-0.050	-0.157***	-0.154***	-0.153***
	(0.055)	(0.055)	(0.054)	(0.049)	(0.050)	(0.044)
Log of spouse's month. earn-gs	0.022	0.011	0.008	0.050***	0.037**	0.014
	(0.017)	(0.018)	(0.020)	(0.018)	(0.016)	(0.014)
Constant	-3.880***	-3.743***	-3.178***	-3.963***	-3.203***	-2.233***
	(0.565)	(0.523)	(0.527)	(0.480)	(0.435)	(0.376)
atanh ρ	-0.880***	-0.419***	-0.424***	-0.493***	-0.576***	-1.434***
	(0.118)	(0.140)	(0.123)	(0.122)	(0.096)	(0.078)
ln σ	-0.010	-0.251***	-0.194***	-0.289***	-0.334***	-0.023
	(0.024)	(0.024)	(0.023)	(0.022)	(0.019)	(0.017)
Observations	1945	1979	2145	2365	2893	2793
Censored observations	483	530	566	584	650	481
χ^2	197.6	238.6	198.9	219.1	202.9	62.0
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 11. Earnings functions for women, Heckit estimates on the RLMS-HSE data. Participation equations from here were used to construct nonselection hazards for Table 9.

	1996	1998	2000	2003	2006	2009
Schooling (years)	0.061***	0.068***	0.062***	0.072***	0.064***	0.057***
	(0.009)	(0.008)	(0.009)	(0.007)	(0.006)	(0.007)
Experience (years)	-0.022***	-0.004	0.003	-0.000	0.007	0.002
	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)
Experience^2/100	0.086***	0.027	0.012	0.019	0.001	0.017
	(0.019)	(0.018)	(0.020)	(0.017)	(0.015)	(0.015)
City	0.420***	0.362***	0.351***	0.320***	0.335***	0.085**
	(0.056)	(0.048)	(0.049)	(0.044)	(0.038)	(0.043)
Constant	3.922***	3.418***	3.587***	3.934***	4.344***	4.826***
	(0.133)	(0.119)	(0.130)	(0.112)	(0.100)	(0.104)
Labour Force Participation						
Spouse's schooling (years)	0.037***	0.026**	0.028**	0.021**	0.025***	0.036***
	(0.012)	(0.011)	(0.011)	(0.011)	(0.010)	(0.009)
Experience (years)	-0.079***	-0.029**	0.011	0.018	0.027***	0.009
	(0.015)	(0.013)	(0.012)	(0.011)	(0.010)	(0.010)
Experience^2/100	0.112***	0.033	-0.051*	-0.044*	-0.027	0.001
	(0.031)	(0.030)	(0.029)	(0.026)	(0.024)	(0.023)
City	0.170**	0.261***	0.211***	0.339***	0.317***	0.421***
	(0.086)	(0.080)	(0.077)	(0.070)	(0.062)	(0.063)
Age	0.281***	0.259***	0.253***	0.184***	0.187***	0.147***
	(0.029)	(0.024)	(0.024)	(0.020)	(0.019)	(0.016)
Age^2/100	-0.359***	-0.341***	-0.344***	-0.268***	-0.277***	-0.216***
	(0.032)	(0.028)	(0.028)	(0.023)	(0.022)	(0.019)
Number of children 0-2 years	-0.545***	-0.476***	-0.609***	-0.464***	-0.498***	-0.549***
	(0.146)	(0.114)	(0.131)	(0.122)	(0.096)	(0.082)
Number of children 3-6 years	-0.145	-0.137	-0.154	-0.350***	-0.057	0.125
	(0.104)	(0.099)	(0.099)	(0.093)	(0.085)	(0.091)
Number of children 7-17 years	-0.099*	0.011	-0.196***	-0.127***	-0.117**	-0.107**
	(0.052)	(0.053)	(0.051)	(0.049)	(0.047)	(0.046)
Log of spouse's month. earn-gs	0.033*	0.048***	0.089***	0.044**	0.051***	0.054***
	(0.017)	(0.018)	(0.020)	(0.020)	(0.018)	(0.016)
Constant	-3.741***	-3.893***	-3.997***	-2.504***	-2.835***	-2.281***
	(0.560)	(0.463)	(0.457)	(0.395)	(0.369)	(0.340)
atanh ρ	-0.806***	-0.646***	-0.589***	-0.686***	-0.671***	-1.225***
	(0.122)	(0.111)	(0.102)	(0.107)	(0.102)	(0.078)
ln σ	-0.089***	-0.252***	-0.193***	-0.224***	-0.281***	-0.088***
	(0.025)	(0.026)	(0.025)	(0.025)	(0.023)	(0.019)
Observations	1883	1980	2026	2310	2815	2697
Censored observations	575	655	679	679	833	625
χ^2	156.0	171.5	142.4	215.5	258.1	111.3
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 12. Earnings functions for men, OLS estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.292***	0.397**	0.309***	0.773***	0.230***	0.342**
	(0.055)	(0.173)	(0.046)	(0.212)	(0.051)	(0.154)
Experience (years)	-0.010*	-0.035	0.005	0.041	0.005	-0.003
	(0.006)	(0.031)	(0.005)	(0.033)	(0.005)	(0.024)
Experience^2/100	0.005	0.079	-0.027**	-0.130	-0.026**	-0.007
	(0.014)	(0.099)	(0.012)	(0.079)	(0.013)	(0.058)
City	0.699***	1.030***	0.631***	0.777***	0.647***	0.242
	(0.051)	(0.194)	(0.045)	(0.242)	(0.047)	(0.200)
Constant	4.757***	5.160***	4.417***	4.083***	4.594***	5.163***
	(0.057)	(0.216)	(0.054)	(0.348)	(0.056)	(0.270)

Table 12. (*continued on next page*)

Table 12. (*continued*)

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Observations	1697	97	1450	93	1551	124
Adj.R^2	0.138	0.261	0.166	0.177	0.137	0.020
F	68.7	9.5	73.3	5.9	62.3	1.6
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.262***	0.434***	0.307***	0.377***	0.205***	0.125
	(0.038)	(0.135)	(0.031)	(0.109)	(0.037)	(0.201)
Experience (years)	0.004	0.043*	0.019***	0.045**	0.023***	0.097**
	(0.005)	(0.023)	(0.004)	(0.018)	(0.004)	(0.037)
Experience^2/100	-0.022**	-0.131**	-0.058***	-0.126***	-0.058***	-0.250**
	(0.011)	(0.058)	(0.009)	(0.047)	(0.011)	(0.097)
City	0.592***	0.636***	0.373***	0.588***	0.292***	0.067
	(0.038)	(0.158)	(0.031)	(0.130)	(0.036)	(0.229)
Constant	5.089***	5.108***	5.473***	5.401***	5.537***	5.117***
	(0.047)	(0.245)	(0.038)	(0.179)	(0.043)	(0.369)
Observations	1864	161	2523	179	2787	170
Adj.R^2	0.159	0.138	0.113	0.181	0.047	0.018
F	88.9	7.4	81.4	10.9	35.2	1.8

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 13. Earnings functions for women, OLS estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.331***	0.071	0.350***	0.401*	0.359***	0.336*
	(0.044)	(0.254)	(0.037)	(0.212)	(0.040)	(0.171)
Experience (years)	-0.005	-0.039	0.020***	-0.030	0.021***	0.025
	(0.005)	(0.043)	(0.005)	(0.035)	(0.005)	(0.025)
Experience^2/100	-0.004	0.055	-0.055***	0.036	-0.052***	-0.109*
	(0.013)	(0.139)	(0.012)	(0.090)	(0.013)	(0.064)
City	0.468***	0.371	0.425***	-0.134	0.448***	0.192
	(0.045)	(0.308)	(0.039)	(0.267)	(0.040)	(0.192)
Constant	4.466***	5.414***	3.938***	5.422***	4.042***	5.008***
	(0.051)	(0.302)	(0.049)	(0.360)	(0.050)	(0.241)
Observations	1938	71	1804	74	1880	90
Adj.R^2	0.092	0.035	0.120	0.055	0.116	0.112
F	50.0	1.6	62.6	2.1	62.9	3.8
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.398***	0.067	0.397***	0.328**	0.351***	-0.122
	(0.031)	(0.162)	(0.026)	(0.163)	(0.029)	(0.246)
Experience (years)	0.016***	0.056**	0.014***	0.049*	0.022***	0.014
	(0.004)	(0.023)	(0.004)	(0.026)	(0.004)	(0.037)
Experience^2/100	-0.038***	-0.145***	-0.042***	-0.097	-0.052***	-0.030
	(0.010)	(0.055)	(0.009)	(0.062)	(0.009)	(0.086)
City	0.421***	0.212	0.336***	0.391**	0.215***	-0.055
	(0.033)	(0.164)	(0.029)	(0.180)	(0.031)	(0.294)
Constant	4.552***	5.155***	5.025***	4.934***	5.179***	5.532***
	(0.042)	(0.219)	(0.037)	(0.276)	(0.039)	(0.418)
Observations	2416	122	3104	123	3395	115
Adj.R^2	0.135	0.045	0.125	0.076	0.071	-0.032
F	95.0	2.4	111.8	3.5	66.1	0.1

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 14. Earnings functions for men, GMM-Heckit estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.[25]	0.378***	0.383	0.348***	0.312	0.398***	0.877**
	(0.132)	(0.295)	(0.101)	(0.240)	(0.126)	(0.395)
Experience (years)	-0.013**	0.074	-0.008	0.059	-0.007	-0.051*
	(0.006)	(0.056)	(0.006)	(0.048)	(0.006)	(0.029)
Experience^2/100	0.033**	-0.190	0.018	-0.264**	0.020	0.083
	(0.017)	(0.159)	(0.016)	(0.128)	(0.016)	(0.086)
City	0.669***	1.255***	0.606***	0.274	0.532***	0.251
	(0.066)	(0.166)	(0.056)	(0.309)	(0.063)	(0.261)
Nonselection hazard	-0.528***	-4.256*	-0.472***	1.684	-0.518***	0.123
	(0.157)	(2.513)	(0.157)	(1.876)	(0.168)	(0.610)
Constant	4.861***	5.249***	4.634***	4.773***	4.845***	5.438***
	(0.080)	(0.316)	(0.080)	(0.435)	(0.088)	(0.332)
Observations	1363	31	1138	32	1206	61
χ^2	250	86	245	16	224	22
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.[25]	0.333***	0.790*	0.466***	0.281	0.200*	-0.098
	(0.096)	(0.429)	(0.087)	(0.223)	(0.103)	(0.503)
Experience (years)	-0.012**	0.060**	0.005	0.034*	0.012**	0.071*
	(0.006)	(0.029)	(0.004)	(0.020)	(0.005)	(0.041)
Experience^2/100	0.027*	-0.161**	-0.015	-0.054	-0.022*	-0.109
	(0.014)	(0.080)	(0.011)	(0.054)	(0.013)	(0.101)
City	0.501***	0.488*	0.291***	0.359*	0.220***	-0.313
	(0.051)	(0.263)	(0.042)	(0.193)	(0.044)	(0.228)
Nonselection hazard	-0.506***	-0.845*	-0.588***	-1.330**	-0.607***	-1.829**
	(0.109)	(0.461)	(0.089)	(0.534)	(0.135)	(0.853)
Constant	5.371***	5.100***	5.747***	5.831***	5.823***	5.901***
	(0.076)	(0.458)	(0.063)	(0.281)	(0.074)	(0.500)
Observations	1355	81	1902	97	2134	102
χ^2	248	211	281	38	118	16

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 15. Earnings functions for women, GMM-Heckit estimates on the RLMS-HSE data.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.[26]	0.468***	-0.043	0.522***	0.572*	0.470***	-0.095
	(0.133)	(0.199)	(0.105)	(0.318)	(0.117)	(0.313)
Experience (years)	-0.017**	0.037	-0.008	-0.092*	-0.012	0.069*
	(0.007)	(0.046)	(0.008)	(0.051)	(0.009)	(0.040)
Experience^2/100	0.079***	-0.178	0.055**	0.303	0.066**	-0.305*
	(0.021)	(0.147)	(0.025)	(0.218)	(0.028)	(0.156)
City	0.438***	0.950***	0.380***	-1.023**	0.368***	0.039
	(0.056)	(0.270)	(0.047)	(0.441)	(0.052)	(0.211)
Nonselection hazard	-0.728***	0.578	-0.812***	-3.178	-0.739***	1.028
	(0.144)	(0.760)	(0.116)	(2.021)	(0.144)	(0.778)
Constant	4.559***	4.816***	4.218***	6.875***	4.378***	4.839***
	(0.078)	(0.476)	(0.090)	(0.634)	(0.105)	(0.360)

Table 15. (*continued on next page*)

[25] Level of education is instrumented by nonselection hazard, explanatory variables of the labour force participation equation (Table 16) and spouse's years of schooling.

[26] Level of education is instrumented by nonselection hazard, explanatory variables of the labour force participation equation (Table 17) and spouse's years of schooling.

Table 15. (*continued*)

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Observations	1239	18	1105	22	1089	31
χ^2	163	148	205	52	169	10

	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.[26]	0.809***	-0.031	0.555***	-0.007	0.449***	-0.583
	(0.103)	(0.492)	(0.085)	(0.349)	(0.096)	(0.549)
Experience (years)	-0.017**	-0.044	-0.005	0.084***	0.014**	0.018
	(0.008)	(0.040)	(0.005)	(0.029)	(0.006)	(0.046)
Experience^2/100	0.072***	0.223*	0.025*	-0.167**	-0.018	-0.167
	(0.022)	(0.118)	(0.014)	(0.073)	(0.015)	(0.125)
City	0.286***	-0.076	0.315***	0.067	0.163***	0.353
	(0.048)	(0.193)	(0.039)	(0.258)	(0.043)	(0.298)
Nonselection hazard	-0.754***	-2.538***	-0.448***	-0.923	-0.515***	2.071**
	(0.132)	(0.678)	(0.073)	(0.643)	(0.091)	(0.886)
Constant	4.854***	6.346***	5.189***	5.060***	5.367***	5.206***
	(0.093)	(0.469)	(0.070)	(0.467)	(0.075)	(0.562)
Observations	1305	45	1720	53	1972	55
χ^2	244	23	254	32	160	18

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 16. Earnings functions for men, Heckit estimates on the RLMS-HSE data. Labour Force Participation equations from here are used to construct nonselection hazards for Tables 14 nad 20.

	1996	1998	2000	2003	2006	2009
Higher and postgrad. ed.	0.275***	0.291***	0.259***	0.314***	0.298***	0.206***
	(0.057)	(0.049)	(0.051)	(0.042)	(0.034)	(0.040)
Experience (years)	-0.017***	-0.006	-0.006	-0.006	0.010**	0.011**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.004)	(0.005)
Experience^2/100	0.047***	0.006	0.010	0.008	-0.031***	-0.012
	(0.015)	(0.015)	(0.015)	(0.014)	(0.010)	(0.013)
City	0.675***	0.631***	0.577***	0.521***	0.379***	0.140***
	(0.057)	(0.052)	(0.052)	(0.046)	(0.037)	(0.043)
Constant	4.950***	4.616***	4.826***	5.307***	5.668***	5.861***
	(0.066)	(0.071)	(0.068)	(0.068)	(0.052)	(0.057)
Labour Force Participation						
Spouse's secondary education	0.141	0.596**	0.609***	0.565***	0.070	0.125
	(0.199)	(0.243)	(0.227)	(0.208)	(0.170)	(0.140)
Spouse's primary vocational ed.	0.011	0.308*	0.124	0.522***	0.129	0.180
	(0.137)	(0.178)	(0.183)	(0.181)	(0.150)	(0.122)
Spouse's secondary vocational ed.	0.095	0.488**	0.278	0.541***	0.119	0.263*
	(0.155)	(0.194)	(0.201)	(0.194)	(0.161)	(0.135)
Spouse's higher education	-0.020	0.563**	0.332	0.818***	0.193	0.494***
	(0.211)	(0.245)	(0.253)	(0.237)	(0.200)	(0.171)
Spouse's postgraduate higher ed.	-0.251	0.317	0.504	0.518	0.026	0.653**
	(0.388)	(0.457)	(0.495)	(0.418)	(0.388)	(0.331)
Spouse's schooling (years)	0.047**	0.015	0.040*	0.037*	0.061***	0.013
	(0.020)	(0.023)	(0.023)	(0.021)	(0.018)	(0.016)
Experience (years)	-0.091***	-0.071***	-0.073***	-0.022*	-0.032***	-0.043***
	(0.014)	(0.016)	(0.015)	(0.012)	(0.011)	(0.010)
Experience^2/100	0.112***	0.088***	0.099***	0.041	0.086***	0.085***
	(0.026)	(0.031)	(0.031)	(0.028)	(0.024)	(0.022)
City	0.151*	0.306***	0.441***	0.405***	0.462***	0.354***
	(0.083)	(0.089)	(0.084)	(0.079)	(0.069)	(0.064)
Age	0.268***	0.256***	0.218***	0.228***	0.194***	0.156***
	(0.029)	(0.031)	(0.031)	(0.026)	(0.022)	(0.018)

Table 16. (*continued on next page*)

Table 16. (*continued*)

	1996	1998	2000	2003	2006	2009
Age^2/100	-0.308***	-0.307***	-0.274***	-0.301***	-0.273***	-0.207***
	(0.030)	(0.034)	(0.034)	(0.030)	(0.025)	(0.020)
Number of children 0-2 years	0.156	0.005	-0.028	0.102	0.237*	0.020
	(0.156)	(0.150)	(0.143)	(0.139)	(0.126)	(0.095)
Number of children 3-6 years	-0.055	-0.059	0.000	-0.131	-0.005	0.126
	(0.103)	(0.116)	(0.118)	(0.102)	(0.099)	(0.092)
Number of children 7-17 years	0.003	-0.088	-0.043	-0.163***	-0.159***	-0.160***
	(0.055)	(0.058)	(0.057)	(0.052)	(0.050)	(0.043)
Log of spouse's monthly earnings	0.021	0.011	0.000	0.039**	0.032*	0.013
	(0.017)	(0.020)	(0.022)	(0.020)	(0.017)	(0.014)
Constant	-3.996***	-3.845***	-3.121***	-4.079***	-3.057***	-1.851***
	(0.583)	(0.609)	(0.617)	(0.559)	(0.482)	(0.399)
atanh ρ	-0.875***	-0.464***	-0.436***	-0.503***	-0.631***	-1.449***
	(0.115)	(0.158)	(0.131)	(0.121)	(0.096)	(0.079)
ln σ	-0.011	-0.247***	-0.203***	-0.293***	-0.331***	-0.023
	(0.024)	(0.028)	(0.025)	(0.024)	(0.020)	(0.017)
Observations	1936	1622	1763	2000	2665	2788
Censored observations	482	402	455	512	612	480
χ^2	201.2	211.6	176.7	224.0	206.4	57.4
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 17. Earnings functions for women, Heckit estimates on the RLMS-HSE data. Labour Force Participation equations from here are used to construct nonselection hazards for Tables 15 and 21.

	1996	1998	2000	2003	2006	2009
Higher and postgrad. ed.	0.322***	0.379***	0.334***	0.394***	0.363***	0.334***
	(0.055)	(0.048)	(0.051)	(0.044)	(0.036)	(0.037)
Experience (years)	-0.020***	0.000	-0.004	-0.007	0.004	0.002
	(0.007)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)
Experience^2/100	0.077***	0.020	0.036	0.036*	0.009	0.017
	(0.019)	(0.020)	(0.023)	(0.019)	(0.015)	(0.015)
City	0.444***	0.391***	0.369***	0.375***	0.342***	0.086**
	(0.056)	(0.051)	(0.051)	(0.048)	(0.040)	(0.043)
Constant	4.607***	4.162***	4.339***	4.802***	5.135***	5.534***
	(0.069)	(0.074)	(0.075)	(0.076)	(0.062)	(0.059)
Labour Force Participation						
Spouse's secondary education	0.425	0.439	-0.155	0.227	0.196	0.236
	(0.261)	(0.315)	(0.313)	(0.331)	(0.206)	(0.207)
Spouse's primary vocational ed.	0.350**	0.480*	0.202	0.048	0.114	0.143
	(0.177)	(0.250)	(0.261)	(0.270)	(0.159)	(0.162)
Spouse's secondary vocational ed.	0.269	0.385	0.187	0.105	0.221	0.231
	(0.206)	(0.268)	(0.279)	(0.284)	(0.177)	(0.179)
Spouse's higher education	0.344	0.402	0.311	0.156	0.375*	0.417**
	(0.241)	(0.288)	(0.299)	(0.302)	(0.199)	(0.200)
Spouse's postgraduate higher ed.	0.394	0.577	0.753	0.287	0.604**	0.577*
	(0.414)	(0.404)	(0.468)	(0.400)	(0.302)	(0.308)
Spouse's schooling (years)	0.034*	0.021	0.006	0.010	-0.010	0.005
	(0.018)	(0.019)	(0.020)	(0.018)	(0.016)	(0.014)
Experience (years)	-0.077***	-0.019	0.028**	0.024*	0.026**	0.008
	(0.015)	(0.014)	(0.013)	(0.012)	(0.010)	(0.010)
Experience^2/100	0.108***	0.001	-0.105***	-0.058**	-0.027	0.003
	(0.031)	(0.034)	(0.033)	(0.029)	(0.024)	(0.023)
City	0.158*	0.168*	0.143*	0.327***	0.303***	0.408***
	(0.086)	(0.089)	(0.085)	(0.077)	(0.064)	(0.062)
Age	0.274***	0.253***	0.251***	0.190***	0.184***	0.147***

Table 17. (*continued on next page*)

Table 17. (*continued*)

	1996	1998	2000	2003	2006	2009
	(0.029)	(0.027)	(0.027)	(0.022)	(0.019)	(0.016)
$\text{Age}^2/100$	-0.352***	-0.329***	-0.341***	-0.272***	-0.273***	-0.216***
	(0.032)	(0.032)	(0.032)	(0.025)	(0.022)	(0.019)
Number of children 0-2 years	-0.560***	-0.423***	-0.655***	-0.434***	-0.472***	-0.541***
	(0.146)	(0.119)	(0.139)	(0.134)	(0.097)	(0.082)
Number of children 3-6 years	-0.178*	-0.174*	-0.224**	-0.357***	-0.070	0.116
	(0.104)	(0.103)	(0.107)	(0.098)	(0.086)	(0.091)
Number of children 7-17 years	-0.114**	-0.037	-0.227***	-0.112**	-0.133***	-0.100**
	(0.052)	(0.056)	(0.057)	(0.053)	(0.047)	(0.046)
Log of spouse's monthly earnings	0.037**	0.049**	0.080***	0.035	0.053***	0.055***
	(0.017)	(0.020)	(0.021)	(0.022)	(0.018)	(0.016)
Constant	-3.882***	-4.177***	-3.864***	-2.639***	-2.545***	-2.075***
	(0.595)	(0.563)	(0.556)	(0.497)	(0.400)	(0.360)
atanh ρ	-0.847***	-0.788***	-0.667***	-0.684***	-0.816***	-1.269***
	(0.119)	(0.123)	(0.112)	(0.121)	(0.097)	(0.080)
ln σ	-0.080***	-0.233***	-0.194***	-0.225***	-0.252***	-0.088***
	(0.025)	(0.028)	(0.028)	(0.027)	(0.023)	(0.018)
Observations	1876	1575	1617	1928	2580	2692
Censored observations	573	416	470	542	759	624
χ^2	144.8	153.2	129.5	192.8	238.5	115.5
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 18. OLS estimates of earnings functions on the NOBUS data.

	Men		Women	
	Employee	Self-employed	Employee	Self-employed
Secondary education	0.243***	-0.357	0.194***	0.421
	(0.018)	(0.327)	(0.020)	(0.368)
Primary vocational education	0.311***	0.305	0.280***	0.696*
	(0.020)	(0.391)	(0.022)	(0.378)
Secondary vocational education	0.431***	0.030	0.378***	0.879**
	(0.018)	(0.307)	(0.018)	(0.345)
Incomplete higher education	0.530***	-0.016	0.589***	0.800
	(0.031)	(0.491)	(0.027)	(0.519)
Higher education	0.666***	0.065	0.702***	0.826**
	(0.019)	(0.344)	(0.019)	(0.369)
Postgraduate higher education	0.709***	.	0.774***	-0.094
	(0.090)	.	(0.102)	(1.021)
$1 \leq$ Experience < 3	0.284***	0.051	0.117***	1.056*
	(0.033)	(0.713)	(0.029)	(0.560)
$3 \leq$ Experience < 5	0.401***	-0.013	0.185***	0.864
	(0.032)	(0.667)	(0.029)	(0.526)
$5 \leq$ Experience < 10	0.482***	0.003	0.272***	0.952
	(0.030)	(0.645)	(0.027)	(0.593)
$10 \leq$ Experience	0.454***	0.103	0.310***	0.840*
	(0.027)	(0.605)	(0.024)	(0.491)
City	0.615***	0.950***	0.402***	0.987***
	(0.011)	(0.207)	(0.010)	(0.200)
Constant	6.792***	6.846***	6.738***	5.175***
	(0.031)	(0.651)	(0.029)	(0.598)
Observations	22166	175	24560	115
Adj.R^2	0.213	0.131	0.170	0.199
F	545.433	3.627	457.278	3.571

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 19. Heckit estimates of earnings functions on the NOBUS data.

	Men		Women	
	Employee	Self-employed	Employee	Self-employed
Secondary education	0.152***	-0.381	0.109***	0.260
	(0.027)	(0.434)	(0.030)	(0.526)
Primary vocational education	0.243***	0.166	0.177***	0.337
	(0.028)	(0.536)	(0.032)	(0.606)
Secondary vocational education	0.333***	0.018	0.277***	0.532
	(0.026)	(0.443)	(0.028)	(0.511)
Incomplete higher education	0.437***	0.206	0.546***	-0.391
	(0.047)	(0.634)	(0.042)	(0.879)
Higher education	0.565***	0.369	0.599***	0.737
	(0.028)	(0.467)	(0.029)	(0.555)
Postgraduate higher education	0.639***	.	1.055***	.
	(0.121)	.	(0.158)	.
$1 \leq$ Experience < 3	0.280***	1.108**	0.068	0.280
	(0.100)	(0.532)	(0.056)	(0.560)
$3 \leq$ Experience < 5	0.369***	0.183	0.054	-0.426
	(0.095)	(0.558)	(0.055)	(0.776)
$5 \leq$ Experience < 10	0.459***	0.389	0.136***	0.060
	(0.090)	(0.367)	(0.052)	(0.484)
$10 \leq$ Experience	0.486***	.	0.176***	.
	(0.088)	.	(0.050)	.
City	0.571***	0.721***	0.408***	1.095***
	(0.016)	(0.236)	(0.015)	(0.329)
Constant	7.029***	7.469***	7.170***	6.040***
	(0.091)	(1.104)	(0.057)	(2.221)
Labour Force Participation				
Spouse's secondary education	0.084	-0.006	0.231***	0.111
	(0.058)	(0.270)	(0.039)	(0.301)
Spouse's primary vocational education	0.113*	0.221	0.243***	0.601**
	(0.066)	(0.298)	(0.043)	(0.275)
Spouse's secondary vocational education	0.085	0.106	0.218***	0.412
	(0.055)	(0.252)	(0.038)	(0.266)
Spouse's incomplete higher education	0.159	0.016	0.269***	0.694*
	(0.105)	(0.494)	(0.074)	(0.408)
Spouse's higher education	0.091	0.411	0.193***	0.376
	(0.060)	(0.272)	(0.042)	(0.291)
Spouse's postgraduate higher education	0.448	1.843**	-0.071	-4.140
	(0.448)	(0.893)	(0.174)	(1.4e+04)
City	0.052	0.079	-0.102***	-0.158
	(0.033)	(0.127)	(0.029)	(0.155)
Age	0.078***	0.057	0.176***	0.129***
	(0.010)	(0.048)	(0.007)	(0.048)
$\text{Age}^2/100$	-0.130***	-0.109**	-0.226***	-0.164***
	(0.011)	(0.055)	(0.009)	(0.058)
Number of children 0–2 years	0.057	0.022	-0.658***	-0.144
	(0.074)	(0.263)	(0.035)	(0.237)
Number of children 3–6 years	-0.036	-0.882***	-0.125***	-0.205
	(0.050)	(0.324)	(0.030)	(0.223)
Number of children 7–17 years	-0.028	0.023	-0.107***	-0.022
	(0.020)	(0.080)	(0.016)	(0.089)
Log of spouse's earnings	0.442***	-0.100	0.316***	-0.029
	(0.018)	(0.090)	(0.015)	(0.102)
Constant	-3.076***	-1.256	-4.931***	-4.534***
	(0.271)	(1.173)	(0.176)	(1.256)
atanh ρ	-1.095***	-0.299	-1.080***	0.187
	(0.032)	(0.522)	(0.033)	(1.139)
ln σ	-0.274***	-0.096	-0.293***	-0.283
	(0.008)	(0.138)	(0.009)	(0.206)
Observations	13577	1714	15442	3548
Censored observations	1633	1633	3505	3505
χ^2	2351.8	26.7	2008.5	30.2
Significance of χ^2	0.000	0.002	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 20. Earnings functions for men, GMM-Heckit estimates on the RLMS-HSE data; small random sample for the employees. Instruments for the level of education are the same as in Table 14.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.075	0.383	-0.559	0.312	0.059	0.877**
	(0.454)	(0.295)	(1.079)	(0.240)	(0.141)	(0.395)
Experience (years)	0.012	0.074	-0.062***	0.059	0.008	-0.051*
	(0.039)	(0.056)	(0.017)	(0.048)	(0.031)	(0.029)
Experience^2/100	0.017	-0.190	0.170***	-0.264**	0.052	0.083
	(0.104)	(0.159)	(0.065)	(0.128)	(0.053)	(0.086)
City	-0.147	1.255***	1.634**	0.274	0.446***	0.251
	(0.219)	(0.166)	(0.670)	(0.309)	(0.139)	(0.261)
Nonselection hazard	-2.735***	-4.256*	-0.789	1.684	0.031	0.123
	(0.891)	(2.513)	(2.651)	(1.876)	(0.641)	(0.610)
Constant	5.487***	5.249***	4.563***	4.773***	4.510***	5.438***
	(0.492)	(0.316)	(0.463)	(0.435)	(0.217)	(0.332)
Observations	13	31	10	32	14	61
χ^2	73	86	578	16	195	22
	2003		2006		2009	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	2.530***	0.790*	0.243**	0.281	0.509***	-0.098
	(0.109)	(0.429)	(0.116)	(0.223)	(0.171)	(0.503)
Experience (years)	0.043***	0.060**	-0.100***	0.034*	-0.068***	0.071*
	(0.015)	(0.029)	(0.033)	(0.020)	(0.019)	(0.041)
Experience^2/100	-0.177***	-0.161**	0.316**	-0.054	0.246***	-0.109
	(0.037)	(0.080)	(0.126)	(0.054)	(0.041)	(0.101)
City	0.833***	0.488*	0.107	0.359*	0.220	-0.313
	(0.138)	(0.263)	(0.109)	(0.193)	(0.773)	(0.228)
Nonselection hazard	0.056	-0.845*	-1.453**	-1.330**	-1.932	-1.829**
	(0.060)	(0.461)	(0.647)	(0.534)	(3.567)	(0.853)
Constant	4.313***	5.100***	6.451***	5.831***	6.088***	5.901***
	(0.085)	(0.458)	(0.355)	(0.281)	(0.939)	(0.500)
Observations	10	81	19	97	14	102
χ^2	522412	211	390	38	68	16

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 21. Earnings functions for women, GMM-Heckit estimates on the RLMS-HSE data; small random sample for the employees. Instruments for the level of education are the same as in Table 15.

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.492	-0.043	0.522***	0.572*	-0.980**	-0.095
	(0.340)	(0.199)	(0.105)	(0.318)	(0.461)	(0.313)
Experience (years)	0.241**	0.037	-0.008	-0.092*	0.434***	0.069*
	(0.120)	(0.046)	(0.008)	(0.051)	(0.023)	(0.040)
Experience^2/100	-0.462	-0.178	0.055**	0.303	-1.162***	-0.305*
	(0.499)	(0.147)	(0.025)	(0.218)	(0.068)	(0.156)
City	0.965***	0.950***	0.380***	-1.023**	1.039***	0.039
	(0.236)	(0.270)	(0.047)	(0.441)	(0.090)	(0.211)
Nonselection hazard	-4.386*	0.578	-0.812***	-3.178	1.306***	1.028
	(2.457)	(0.760)	(0.116)	(2.021)	(0.429)	(0.778)
Constant	3.629***	4.816***	4.218***	6.875***	0.000	4.839***
	(0.282)	(0.476)	(0.090)	(0.634)	(0.000)	(0.360)

Table 21. (*continued on next page*)

Table 21. (*continued*)

	1996		1998		2000	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Observations	8	18	1105	22	7	31
χ^2	2600	148	205	52	3471	10
	2003		**2006**		**2009**	
	Employee	Self-empl.	Employee	Self-empl.	Employee	Self-empl.
Higher and postgrad. ed.	0.053	-0.031	1.568***	-0.007	0.699***	-0.583
	(0.083)	(0.492)	(0.120)	(0.349)	(0.070)	(0.549)
Experience (years)	0.116***	-0.044	-0.014	0.084***	0.023	0.018
	(0.024)	(0.040)	(0.035)	(0.029)	(0.016)	(0.046)
Experience^2/100	-0.611***	0.223*	0.008	-0.167**	-0.056	-0.167
	(0.079)	(0.118)	(0.104)	(0.073)	(0.062)	(0.125)
City	0.444***	-0.076	0.431	0.067	-0.184**	0.353
	(0.111)	(0.193)	(0.340)	(0.258)	(0.094)	(0.298)
Nonselection hazard	-0.505	-2.538***	0.529	-0.923	-0.249	2.071**
	(0.411)	(0.678)	(0.721)	(0.643)	(0.629)	(0.886)
Constant	4.831***	6.346***	4.924***	5.060***	5.771***	5.206***
	(0.220)	(0.469)	(0.539)	(0.467)	(0.235)	(0.562)
Observations	12	45	9	53	14	55
χ^2	1099	23	8201	32	577	18

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 22. Earnings functions for male employees, estimated on the RLMS-HSE data. Interactions of years of schooling and tenure were included as explanatory variables. In the GMM estimates instruments for schooling and the interaction term are spouse's years of schooling, spouse's education levels (binaries), nonselection hazard (calculated with the use of estimates of the labour force participation equation from the Heckit model, Table 24) and explanatory variables of the labour force participation equation, Table 24.

	1996		1998		2000	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Schooling (years)	0.051***	0.075***	0.044***	0.082***	0.043***	0.072***
	(0.008)	(0.028)	(0.007)	(0.022)	(0.007)	(0.027)
Tenure×Schooling/100	0.009	-0.072	-0.011	-0.189**	0.011	0.020
	(0.022)	(0.103)	(0.019)	(0.095)	(0.018)	(0.097)
Experience (years)	-0.011*	-0.006	0.001	0.018	0.007	-0.008
	(0.006)	(0.012)	(0.006)	(0.013)	(0.005)	(0.009)
Experience^2/100	0.011	0.021	-0.017	-0.024	-0.030***	0.015
	(0.013)	(0.023)	(0.012)	(0.021)	(0.011)	(0.019)
City	0.675***	0.652***	0.688***	0.656***	0.631***	0.544***
	(0.055)	(0.067)	(0.049)	(0.059)	(0.047)	(0.061)
Nonselection hazard		-0.375**		-0.376**		-0.378*
		(0.183)		(0.150)		(0.221)
Constant	4.192***	4.001***	3.953***	3.614***	4.063***	3.972***
	(0.111)	(0.354)	(0.106)	(0.291)	(0.104)	(0.365)
Observations	1703	1365	1284	1031	1788	1344
χ^2		242		279		246
	2003		**2006**		**2009**	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Schooling (years)	0.040***	0.055**	0.049***	0.091***	0.028***	0.063**
	(0.006)	(0.023)	(0.005)	(0.020)	(0.006)	(0.026)
Tenure×Schooling/100	0.015	-0.075	0.003	-0.148	0.031*	-0.198
	(0.014)	(0.087)	(0.013)	(0.098)	(0.017)	(0.133)
Experience (years)	0.005	-0.003	0.018***	0.017*	0.020***	0.027**
	(0.004)	(0.009)	(0.004)	(0.009)	(0.005)	(0.012)
Experience^2/100	-0.028***	0.007	-0.055***	-0.032**	-0.054***	-0.042**

Table 22. (*continued on next page*)

Table 22. (*continued*)

	2003		2006		2009	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
	(0.009)	(0.018)	(0.008)	(0.016)	(0.011)	(0.019)
City	0.549***	0.506***	0.344***	0.267***	0.286***	0.223***
	(0.039)	(0.051)	(0.033)	(0.045)	(0.036)	(0.048)
Nonselection hazard		-0.329*		-0.433***		-0.398*
		(0.170)		(0.138)		(0.210)
Constant	4.635***	4.681***	4.920***	4.648***	5.217***	5.021***
	(0.084)	(0.334)	(0.073)	(0.273)	(0.093)	(0.376)
Observations	2160	1503	2717	1991	2777	2125
χ^2		257		269		111

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 23. Earnings functions for female employees, estimated on the RLMS-HSE data. Interactions of years of schooling and tenure were included as explanatory variables. In the GMM estimates instruments for schooling and the interaction term are spouse's years of schooling, spouse's education levels (binaries), nonselection hazard (calculated with the use of estimates of the labour force participation equation from the Heckit model, Table 25) and explanatory variables of the labour force participation equation, Table 25.

	1996		1998		2000	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Schooling (years)	0.056***	0.045	0.057***	0.038	0.053***	0.060**
	(0.008)	(0.030)	(0.007)	(0.027)	(0.007)	(0.027)
Tenure×Schooling/100	0.026	0.238*	0.051***	0.380***	0.054***	0.142
	(0.018)	(0.137)	(0.018)	(0.121)	(0.016)	(0.098)
Experience (years)	-0.010*	-0.045***	0.007	-0.055***	0.016***	-0.030**
	(0.005)	(0.017)	(0.005)	(0.016)	(0.005)	(0.015)
Experience^2/100	0.012	0.118***	-0.029**	0.104***	-0.048***	0.090***
	(0.012)	(0.030)	(0.012)	(0.030)	(0.012)	(0.032)
City	0.440***	0.434***	0.417***	0.393***	0.421***	0.352***
	(0.045)	(0.058)	(0.040)	(0.055)	(0.039)	(0.054)
Nonselection hazard		-0.619***		-0.745***		-0.872***
		(0.153)		(0.133)		(0.155)
Constant	3.843***	4.083***	3.350***	3.881***	3.459***	3.784***
	(0.105)	(0.396)	(0.104)	(0.361)	(0.105)	(0.372)
Observations	1927	1236	1585	978	2023	1136
χ^2		161		157		174
	2003		**2006**		**2009**	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Schooling (years)	0.068***	0.118***	0.063***	0.082***	0.057***	0.075***
	(0.005)	(0.023)	(0.005)	(0.019)	(0.005)	(0.023)
Tenure×Schooling/100	0.031**	0.174**	0.026**	0.060	0.036***	0.011
	(0.012)	(0.074)	(0.010)	(0.092)	(0.012)	(0.119)
Experience (years)	0.013***	-0.039***	0.012***	-0.009	0.019***	0.011
	(0.004)	(0.013)	(0.003)	(0.011)	(0.004)	(0.014)
Experience^2/100	-0.032***	0.102***	-0.040***	0.027	-0.049***	-0.013
	(0.009)	(0.028)	(0.008)	(0.017)	(0.009)	(0.022)
City	0.394***	0.257***	0.322***	0.295***	0.208***	0.151***
	(0.032)	(0.051)	(0.029)	(0.040)	(0.030)	(0.044)
Nonselection hazard		-0.841***		-0.541***		-0.532***
		(0.156)		(0.108)		(0.142)
Constant	3.768***	3.592***	4.285***	4.272***	4.487***	4.487***
	(0.083)	(0.334)	(0.076)	(0.283)	(0.080)	(0.359)
Observations	2628	1355	3254	1769	3389	1968
χ^2		237		250		161

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 24. Earnings functions for male employees, Heckit estimates on the RLMS-HSE data. Interactions of years of schooling and tenure were included as explanatory variables. Labour Force Participation equations from here are used to construct nonselection hazards for Table 22.

	1996	1998	2000	2003	2006	2009
Schooling (years)	0.034***	0.039***	0.030***	0.030***	0.043***	0.033***
	(0.009)	(0.008)	(0.008)	(0.007)	(0.006)	(0.007)
Tenure × Schooling / 100	0.018	-0.007	0.014	0.024	-0.003	0.033**
	(0.023)	(0.022)	(0.021)	(0.017)	(0.014)	(0.015)
Experience (years)	-0.016**	-0.003	-0.007	-0.010*	0.006	0.007
	(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.005)
Experience^2/100	0.049***	0.000	0.007	0.014	-0.022**	-0.008
	(0.016)	(0.014)	(0.014)	(0.014)	(0.010)	(0.012)
City	0.655***	0.694***	0.609***	0.528***	0.320***	0.126***
	(0.059)	(0.054)	(0.052)	(0.046)	(0.037)	(0.043)
Constant	4.549***	4.135***	4.453***	4.993***	5.224***	5.522***
	(0.127)	(0.124)	(0.122)	(0.112)	(0.089)	(0.099)
Labour Force Participation						
Spouse's secondary education	0.122	0.552**	0.606***	0.505**	0.105	0.165
	(0.200)	(0.249)	(0.221)	(0.203)	(0.172)	(0.146)
Spouse's primary vocational ed.	0.012	0.309*	0.169	0.503***	0.192	0.209*
	(0.137)	(0.176)	(0.176)	(0.174)	(0.150)	(0.126)
Spouse's secondary vocational ed.	0.079	0.473**	0.300	0.503***	0.176	0.301**
	(0.155)	(0.196)	(0.194)	(0.188)	(0.161)	(0.139)
Spouse's higher education	-0.051	0.539**	0.341	0.791***	0.266	0.538***
	(0.212)	(0.249)	(0.246)	(0.230)	(0.201)	(0.177)
Spouse's postgraduate higher ed.	-0.548	0.374	0.619	0.358	0.219	0.706**
	(0.398)	(0.463)	(0.484)	(0.406)	(0.379)	(0.335)
Spouse's schooling (years)	0.046**	-0.004	0.026	0.031	0.051***	0.006
	(0.020)	(0.023)	(0.023)	(0.020)	(0.018)	(0.016)
Experience (years)	-0.090***	-0.096***	-0.078***	-0.028**	-0.034***	-0.046***
	(0.014)	(0.016)	(0.015)	(0.012)	(0.011)	(0.010)
Experience^2/100	0.108***	0.132***	0.113***	0.054**	0.087***	0.095***
	(0.026)	(0.030)	(0.030)	(0.027)	(0.024)	(0.023)
City	0.139*	0.310***	0.481***	0.389***	0.465***	0.364***
	(0.084)	(0.091)	(0.083)	(0.079)	(0.069)	(0.065)
Age	0.261***	0.292***	0.209***	0.221***	0.188***	0.158***
	(0.029)	(0.032)	(0.030)	(0.026)	(0.022)	(0.019)
Age^2/100	-0.299***	-0.335***	-0.265***	-0.295***	-0.265***	-0.212***
	(0.031)	(0.035)	(0.033)	(0.029)	(0.025)	(0.020)
Number of children 0-2 years	0.164	-0.051	-0.007	0.094	0.228*	0.026
	(0.158)	(0.161)	(0.143)	(0.138)	(0.126)	(0.098)
Number of children 3-6 years	-0.070	-0.026	-0.031	-0.187*	-0.037	0.117
	(0.104)	(0.123)	(0.119)	(0.105)	(0.100)	(0.096)
Number of children 7-17 years	-0.011	-0.088	-0.052	-0.200***	-0.185***	-0.175***
	(0.055)	(0.060)	(0.057)	(0.052)	(0.052)	(0.045)
Log of spouse's monthly earnings	0.024	0.028	0.007	0.041**	0.043**	0.024*
	(0.017)	(0.021)	(0.022)	(0.020)	(0.017)	(0.015)
Constant	-3.858***	-4.489***	-2.766***	-3.722***	-2.911***	-1.870***
	(0.592)	(0.636)	(0.595)	(0.546)	(0.485)	(0.414)
atanh ρ	-0.883***	-0.434***	-0.380***	-0.529***	-0.585***	-1.388***
	(0.121)	(0.149)	(0.136)	(0.131)	(0.100)	(0.080)
ln σ	-0.014	-0.290***	-0.216***	-0.311***	-0.356***	-0.077***
	(0.025)	(0.029)	(0.024)	(0.025)	(0.021)	(0.017)
Observations	1847	1433	1799	2015	2603	2605
Censored observations	482	402	455	512	612	480
χ^2	179.4	220.0	181.6	204.5	158.6	65.1
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 25. Earnings functions for female employees, Heckit estimates on the RLMS-HSE data. Interactions of years of schooling and tenure were included as explanatory variables. Labour Force Participation equations from here are used to construct nonselection hazards for Table 23.

	1996	1998	2000	2003	2006	2009
Schooling (years)	0.051***	0.063***	0.064***	0.071***	0.056***	0.054***
	(0.010)	(0.010)	(0.010)	(0.008)	(0.007)	(0.007)
Tenure × Schooling / 100	0.028	0.054**	0.034	0.036**	0.040***	0.030*
	(0.024)	(0.025)	(0.023)	(0.018)	(0.015)	(0.016)
Experience (years)	-0.022***	-0.006	-0.008	-0.014*	-0.005	-0.003
	(0.007)	(0.008)	(0.008)	(0.007)	(0.006)	(0.006)
Experience^2/100	0.087***	0.022	0.037	0.047**	0.021	0.025*
	(0.019)	(0.022)	(0.023)	(0.018)	(0.014)	(0.015)
City	0.419***	0.394***	0.369***	0.355***	0.291***	0.095**
	(0.057)	(0.052)	(0.051)	(0.047)	(0.040)	(0.043)
Constant	4.024***	3.427***	3.577***	4.006***	4.576***	4.898***
	(0.139)	(0.144)	(0.146)	(0.126)	(0.106)	(0.106)
Labour Force Participation						
Spouse's secondary education	0.390	0.281	-0.005	0.312	0.166	0.203
	(0.262)	(0.337)	(0.318)	(0.328)	(0.207)	(0.211)
Spouse's primary vocational ed.	0.327*	0.461*	0.325	0.038	0.119	0.083
	(0.175)	(0.264)	(0.268)	(0.267)	(0.160)	(0.166)
Spouse's secondary vocational ed.	0.230	0.336	0.282	0.105	0.256	0.192
	(0.205)	(0.283)	(0.286)	(0.281)	(0.178)	(0.184)
Spouse's higher education	0.329	0.380	0.414	0.139	0.407**	0.386*
	(0.239)	(0.304)	(0.306)	(0.298)	(0.200)	(0.206)
Spouse's postgraduate higher ed.	0.398	0.440	0.798*	0.223	0.604**	0.577*
	(0.414)	(0.428)	(0.474)	(0.393)	(0.304)	(0.314)
Spouse's schooling (years)	0.031*	0.015	0.008	0.011	-0.016	0.001
	(0.018)	(0.021)	(0.020)	(0.018)	(0.016)	(0.015)
Experience (years)	-0.079***	-0.026*	0.028**	0.025**	0.027**	0.011
	(0.015)	(0.015)	(0.013)	(0.012)	(0.011)	(0.010)
Experience^2/100	0.110***	0.011	-0.106***	-0.066**	-0.031	-0.001
	(0.031)	(0.035)	(0.033)	(0.029)	(0.024)	(0.024)
City	0.168*	0.180*	0.134	0.331***	0.340***	0.414***
	(0.087)	(0.092)	(0.085)	(0.077)	(0.065)	(0.064)
Age	0.276***	0.288***	0.247***	0.172***	0.182***	0.149***
	(0.029)	(0.030)	(0.027)	(0.021)	(0.019)	(0.017)
Age^2/100	-0.351***	-0.361***	-0.336***	-0.251***	-0.270***	-0.220***
	(0.032)	(0.035)	(0.032)	(0.025)	(0.022)	(0.019)
Number of children 0-2 years	-0.527***	-0.387***	-0.604***	-0.516***	-0.485***	-0.593***
	(0.147)	(0.131)	(0.138)	(0.132)	(0.098)	(0.085)
Number of children 3-6 years	-0.163	-0.133	-0.199*	-0.370***	-0.065	0.114
	(0.104)	(0.111)	(0.108)	(0.097)	(0.087)	(0.092)
Number of children 7-17 years	-0.096*	-0.013	-0.222***	-0.119**	-0.137***	-0.114**
	(0.052)	(0.059)	(0.057)	(0.053)	(0.047)	(0.047)
Log of spouse's monthly earnings	0.032*	0.030	0.085***	0.043*	0.056***	0.054***
	(0.017)	(0.021)	(0.022)	(0.022)	(0.018)	(0.017)
Constant	-3.919***	-4.879***	-3.965***	-2.317***	-2.504***	-2.008***
	(0.590)	(0.611)	(0.561)	(0.478)	(0.401)	(0.373)
atanh ρ	-0.876***	-0.653***	-0.644***	-0.765***	-0.808***	-1.213***
	(0.121)	(0.137)	(0.112)	(0.120)	(0.090)	(0.080)
ln σ	-0.095***	-0.284***	-0.205***	-0.254***	-0.281***	-0.131***
	(0.026)	(0.031)	(0.028)	(0.028)	(0.023)	(0.019)
Observations	1809	1394	1606	1897	2528	2592
Censored observations	573	416	470	542	759	624
χ^2	148.9	157.2	144.9	225.1	201.8	120.5
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 26. Earnings functions for male employees, estimated on the RLMS-HSE data. Interactions of education level and tenure were included as explanatory variables. In the GMM estimates instruments for the level of education and the interaction term are spouse's years of schooling, spouse's education levels (binaries), nonselection hazard (calculated with the use of estimates of the labour force participation equation from the Heckit model, Table 28) and explanatory variables of the labour force participation equation, Table 28.

	1996		1998		2000	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Higher & Postgr. ed.	0.319***	1.078***	0.309***	0.751**	0.246***	0.249
	(0.066)	(0.395)	(0.064)	(0.318)	(0.059)	(0.310)
Tenure×Higher & Post.	-0.003	-0.063*	-0.003	-0.040	-0.002	0.017
	(0.005)	(0.034)	(0.005)	(0.025)	(0.005)	(0.032)
Experience (years)	-0.009	0.005	0.001	0.009	0.005	-0.010
	(0.006)	(0.011)	(0.006)	(0.010)	(0.006)	(0.008)
Experience^2/100	0.004	0.001	-0.021	-0.014	-0.027**	0.029
	(0.013)	(0.027)	(0.014)	(0.022)	(0.012)	(0.022)
City	0.697***	0.631***	0.684***	0.656***	0.644***	0.528***
	(0.056)	(0.071)	(0.052)	(0.062)	(0.050)	(0.063)
Nonselection hazard		-0.450**		-0.373**		-0.633***
		(0.200)		(0.173)		(0.238)
Constant	4.751***	4.689***	4.455***	4.462***	4.592***	4.902***
	(0.064)	(0.129)	(0.066)	(0.131)	(0.066)	(0.131)
Observations	1694	1360	1137	931	1549	1206
Adj.R^2	0.137	0.063	0.188	0.153	0.136	0.148
F	51.8		49.4		45.5	
χ^2		233		231		224
	2003		2006		2009	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Higher & Postgr. ed.	0.251***	0.761***	0.297***	0.576**	0.169***	0.334
	(0.044)	(0.285)	(0.039)	(0.228)	(0.050)	(0.238)
Tenure×Higher & Post.	0.001	-0.043	0.001	-0.013	0.005	-0.013
	(0.003)	(0.027)	(0.003)	(0.025)	(0.004)	(0.025)
Experience (years)	0.004	-0.006	0.019***	0.007	0.022***	0.013**
	(0.004)	(0.007)	(0.004)	(0.006)	(0.004)	(0.006)
Experience^2/100	-0.022**	0.019	-0.058***	-0.019	-0.057***	-0.023*
	(0.010)	(0.016)	(0.009)	(0.013)	(0.011)	(0.013)
City	0.592***	0.528***	0.373***	0.297***	0.294***	0.221***
	(0.042)	(0.057)	(0.034)	(0.045)	(0.036)	(0.045)
Nonselection hazard		-0.255		-0.539***		-0.564***
		(0.199)		(0.128)		(0.149)
Constant	5.093***	5.190***	5.475***	5.709***	5.546***	5.788***
	(0.051)	(0.142)	(0.043)	(0.103)	(0.046)	(0.098)
Observations	1860	1354	2519	1899	2774	2123
Adj.R^2	0.158	0.107	0.112	0.132	0.047	0.046
F	57.7		55.4		25.5	
χ^2		237		280		118

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 27. Earnings functions for female employees, estimated on the RLMS-HSE data. Interactions of education level and tenure were included as explanatory variables. In the GMM estimates instruments for the level of education and the interaction term are spouse's years of schooling, spouse's education levels (binaries), nonselection hazard (calculated with the use of estimates of the labour force participation equation from the Heckit model, Table 29) and explanatory variables of the labour force participation equation, Table 29.

	1996		1998		2000	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Higher & Postgr. ed.	0.341***	0.385	0.349***	0.244	0.325***	0.027
	(0.059)	(0.263)	(0.058)	(0.379)	(0.053)	(0.263)
Tenure×Higher & Post.	-0.001	0.008	0.000	0.028	0.003	0.046*

Table 27. (*continued on next page*)

Table 27. (*continued*)

	1996		1998		2000	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
	(0.004)	(0.026)	(0.003)	(0.034)	(0.003)	(0.023)
Experience (years)	-0.004	-0.019**	0.015***	-0.010	0.020***	-0.032***
	(0.005)	(0.009)	(0.006)	(0.011)	(0.005)	(0.012)
Experience^2/100	-0.003	0.082***	-0.045***	0.040	-0.053***	0.109***
	(0.012)	(0.023)	(0.014)	(0.028)	(0.013)	(0.033)
City	0.462***	0.444***	0.439***	0.397***	0.446***	0.370***
	(0.045)	(0.056)	(0.042)	(0.051)	(0.040)	(0.053)
Nonselection hazard		-0.736***		-0.733***		-0.950***
		(0.146)		(0.154)		(0.166)
Constant	4.469***	4.582***	3.977***	4.269***	4.052***	4.614***
	(0.052)	(0.097)	(0.057)	(0.149)	(0.052)	(0.141)
Observations	1924	1233	1504	949	1878	1089
Adj.R^2	0.089	0.111	0.124	0.132	0.115	0.088
F	39.2		43.8		48.3	
χ^2		160		159		169

	2003		2006		2009	
	OLS	GMM-Hec.	OLS	GMM-Hec.	OLS	GMM-Hec.
Higher & Postgr. ed.	0.371***	0.411*	0.370***	-0.092	0.292***	0.440
	(0.041)	(0.212)	(0.037)	(0.315)	(0.041)	(0.270)
Tenure×Higher & Post.	0.003	0.038**	0.003	0.066**	0.006**	0.001
	(0.002)	(0.018)	(0.002)	(0.033)	(0.003)	(0.025)
Experience (years)	0.015***	-0.038***	0.013***	-0.029**	0.021***	0.013
	(0.004)	(0.011)	(0.003)	(0.013)	(0.004)	(0.010)
Experience^2/100	-0.037***	0.121***	-0.042***	0.063***	-0.050***	-0.018
	(0.010)	(0.028)	(0.008)	(0.024)	(0.009)	(0.019)
City	0.423***	0.259***	0.338***	0.296***	0.218***	0.159***
	(0.034)	(0.050)	(0.029)	(0.043)	(0.030)	(0.043)
Nonselection hazard		-1.071***		-0.948***		-0.522***
		(0.181)		(0.196)		(0.132)
Constant	4.562***	5.167***	5.033***	5.632***	5.199***	5.379***
	(0.043)	(0.145)	(0.038)	(0.191)	(0.040)	(0.141)
Observations	2413	1302	3099	1719	3388	1967
Adj.R^2	0.135	0.094	0.125	0.004	0.073	0.078
F	74.9		90.1		53.0	
χ^2		236		218		161

Robust standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 28. Earnings functions for male employees, Heckit estimates on the RLMS-HSE data. Interactions of education level and tenure were included as the explanatory variables. Labour Force Participation equations from here are used to construct nonselection hazards for Table 26.

	1996	1998	2000	2003	2006	2009
Higher and Postgraduate education	0.250***	0.256***	0.204***	0.261***	0.264***	0.140***
	(0.076)	(0.075)	(0.067)	(0.054)	(0.045)	(0.050)
Tenure × Higher & Postgr. ed.	-0.001	-0.001	0.001	0.001	0.003	0.009**
	(0.005)	(0.005)	(0.006)	(0.004)	(0.003)	(0.004)
Experience (years)	-0.013**	-0.003	-0.006	-0.009	0.006	0.009*
	(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.005)
Experience^2/100	0.042***	0.000	0.009	0.017	-0.023**	-0.011
	(0.016)	(0.016)	(0.015)	(0.014)	(0.011)	(0.012)
City	0.667***	0.685***	0.605***	0.532***	0.337***	0.141***
	(0.059)	(0.056)	(0.053)	(0.047)	(0.038)	(0.043)
Constant	4.914***	4.578***	4.803***	5.321***	5.721***	5.911***
	(0.070)	(0.076)	(0.070)	(0.071)	(0.053)	(0.056)
Labour Force Participation						
Spouse's secondary education	0.130	0.599**	0.612***	0.563***	0.098	0.171
	(0.200)	(0.258)	(0.230)	(0.212)	(0.173)	(0.146)
Spouse's primary vocational ed.	0.008	0.306	0.120	0.523***	0.170	0.209*
	(0.137)	(0.187)	(0.186)	(0.184)	(0.152)	(0.126)
Spouse's secondary vocational ed.	0.073	0.509**	0.276	0.544***	0.165	0.297**

Table 28. (*continued on next page*)

Table 28. (*continued*)

	1996	1998	2000	2003	2006	2009
	(0.156)	(0.205)	(0.203)	(0.197)	(0.163)	(0.140)
Spouse's higher education	-0.059	0.562**	0.299	0.817***	0.232	0.513***
	(0.213)	(0.262)	(0.256)	(0.241)	(0.203)	(0.177)
Spouse's postgraduate higher ed.	-0.553	0.342	0.555	0.332	0.124	0.653*
	(0.399)	(0.484)	(0.499)	(0.428)	(0.390)	(0.338)
Spouse's schooling (years)	0.051**	0.007	0.038	0.034	0.057***	0.010
	(0.020)	(0.024)	(0.024)	(0.021)	(0.018)	(0.016)
Experience (years)	-0.090***	-0.089***	-0.073***	-0.025**	-0.033***	-0.047***
	(0.014)	(0.016)	(0.015)	(0.012)	(0.011)	(0.011)
Experience^2/100	0.109***	0.114***	0.099***	0.044	0.089***	0.096***
	(0.026)	(0.032)	(0.031)	(0.028)	(0.024)	(0.023)
City	0.136	0.283***	0.429***	0.392***	0.460***	0.356***
	(0.084)	(0.093)	(0.085)	(0.080)	(0.070)	(0.066)
Age	0.260***	0.294***	0.215***	0.228***	0.190***	0.160***
	(0.029)	(0.033)	(0.031)	(0.026)	(0.022)	(0.019)
Age^2/100	-0.299***	-0.337***	-0.270***	-0.300***	-0.269***	-0.214***
	(0.031)	(0.037)	(0.035)	(0.030)	(0.025)	(0.021)
Number of children 0-2 years	0.159	-0.038	-0.012	0.099	0.225*	0.023
	(0.158)	(0.167)	(0.145)	(0.141)	(0.127)	(0.098)
Number of children 3-6 years	-0.073	-0.039	-0.026	-0.156	-0.043	0.113
	(0.103)	(0.125)	(0.121)	(0.107)	(0.101)	(0.096)
Number of children 7-17 years	-0.012	-0.095	-0.049	-0.194***	-0.184***	-0.180***
	(0.055)	(0.062)	(0.059)	(0.053)	(0.052)	(0.045)
Log of spouse's monthly earnings	0.024	0.018	0.003	0.044**	0.041**	0.024
	(0.017)	(0.021)	(0.023)	(0.020)	(0.017)	(0.015)
Constant	-3.894***	-4.740***	-3.041***	-4.064***	-3.018***	-1.929***
	(0.590)	(0.664)	(0.626)	(0.570)	(0.490)	(0.416)
atanh ρ	-0.887***	-0.443***	-0.406***	-0.528***	-0.632***	-1.382***
	(0.118)	(0.153)	(0.135)	(0.130)	(0.097)	(0.080)
ln σ	-0.012	-0.282***	-0.212***	-0.314***	-0.352***	-0.077***
	(0.025)	(0.031)	(0.026)	(0.026)	(0.021)	(0.017)
Observations	1842	1333	1661	1866	2511	2603
Censored observations	482	402	455	512	612	480
χ^2	178	191	169	209	168	63
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

Table 29. Earnings functions for female employees, Heckit estimates on the RLMS-HSE data. Interactions of education level and tenure were included as the explanatory variables. Labour Force Participation equations from here are used to construct nonselection hazards for Table 27.

	1996	1998	2000	2003	2006	2009
Higher and Postgraduate education	0.304***	0.328***	0.299***	0.379***	0.277***	0.255***
	(0.073)	(0.076)	(0.069)	(0.057)	(0.047)	(0.049)
Tenure × Higher & Postgr. ed.	0.001	0.005	0.005	0.003	0.009***	0.008**
	(0.005)	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)
Experience (years)	-0.018**	0.001	-0.008	-0.012*	-0.006	-0.002
	(0.007)	(0.008)	(0.008)	(0.007)	(0.006)	(0.006)
Experience^2/100	0.075***	0.010	0.044*	0.051***	0.026*	0.023
	(0.019)	(0.023)	(0.023)	(0.019)	(0.015)	(0.015)
City	0.440***	0.416***	0.390***	0.377***	0.298***	0.101**
	(0.056)	(0.053)	(0.052)	(0.048)	(0.040)	(0.043)
Constant	4.591***	4.143***	4.334***	4.845***	5.282***	5.581***
	(0.070)	(0.083)	(0.076)	(0.073)	(0.062)	(0.059)
Labour Force Participation						
Spouse's secondary education	0.402	0.175	-0.016	0.207	0.154	0.233
	(0.261)	(0.338)	(0.322)	(0.327)	(0.208)	(0.210)

Table 29. (*continued on next page*)

Table 29. (*continued*)

	1996	1998	2000	2003	2006	2009
Spouse's primary vocational ed.	0.328*	0.438*	0.320	0.028	0.112	0.119
	(0.175)	(0.263)	(0.271)	(0.267)	(0.160)	(0.165)
Spouse's secondary vocational ed.	0.226	0.315	0.255	0.082	0.232	0.213
	(0.204)	(0.283)	(0.290)	(0.281)	(0.178)	(0.182)
Spouse's higher education	0.307	0.363	0.386	0.107	0.366*	0.389*
	(0.239)	(0.304)	(0.310)	(0.297)	(0.200)	(0.203)
Spouse's postgraduate higher ed.	0.384	0.511	0.835*	0.215	0.552*	0.565*
	(0.411)	(0.428)	(0.476)	(0.391)	(0.303)	(0.310)
Spouse's schooling (years)	0.034*	0.016	0.009	0.016	-0.012	0.005
	(0.018)	(0.021)	(0.020)	(0.017)	(0.016)	(0.014)
Experience (years)	-0.079***	-0.023	0.028**	0.024**	0.028***	0.010
	(0.015)	(0.015)	(0.013)	(0.012)	(0.011)	(0.010)
Experience^2/100	0.111***	0.001	-0.107***	-0.069**	-0.034	-0.001
	(0.031)	(0.036)	(0.034)	(0.029)	(0.024)	(0.024)
City	0.158*	0.178*	0.130	0.349***	0.331***	0.407***
	(0.087)	(0.093)	(0.086)	(0.077)	(0.065)	(0.063)
Age	0.276***	0.288***	0.249***	0.181***	0.182***	0.146***
	(0.029)	(0.030)	(0.027)	(0.022)	(0.019)	(0.017)
Age^2/100	-0.352***	-0.361***	-0.338***	-0.258***	-0.269***	-0.216***
	(0.032)	(0.035)	(0.032)	(0.025)	(0.022)	(0.019)
Number of children 0-2 years	-0.521***	-0.366***	-0.626***	-0.491***	-0.463***	-0.557***
	(0.146)	(0.132)	(0.140)	(0.132)	(0.098)	(0.084)
Number of children 3-6 years	-0.171*	-0.138	-0.207*	-0.341***	-0.070	0.115
	(0.103)	(0.111)	(0.109)	(0.097)	(0.087)	(0.092)
Number of children 7-17 years	-0.101*	-0.021	-0.226***	-0.117**	-0.139***	-0.107**
	(0.052)	(0.060)	(0.058)	(0.053)	(0.047)	(0.047)
Log of spouse's monthly earnings	0.035**	0.029	0.084***	0.045**	0.055***	0.056***
	(0.017)	(0.021)	(0.022)	(0.022)	(0.018)	(0.017)
Constant	-3.957***	-4.916***	-4.029***	-2.654***	-2.564***	-2.067***
	(0.588)	(0.615)	(0.567)	(0.487)	(0.402)	(0.367)
atanh ρ	-0.897***	-0.664***	-0.653***	-0.819***	-0.846***	-1.250***
	(0.118)	(0.142)	(0.112)	(0.114)	(0.088)	(0.080)
ln σ	-0.089***	-0.275***	-0.204***	-0.245***	-0.277***	-0.129***
	(0.026)	(0.032)	(0.028)	(0.028)	(0.023)	(0.019)
Observations	1806	1365	1559	1844	2478	2591
Censored observations	573	416	470	542	759	624
χ^2	144	138	136	209	214	128
Significance of χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors are in parentheses.
* $p < .1$, ** $p < .05$, *** $p < .01$

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