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Alessandra Guariglia
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All opinions expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland.

Alessandra Guariglia - Byung-Yeon Kim*

The Dynamics of Moonlighting: What is happening in the Russian informal economy?

ABSTRACT

This paper uses rounds 5 to 8 of the Russian Longitudinal Monitoring Survey (RLMS) to analyse the dynamics of moonlighting of working-age population. We find that moonlighting is transitory, and is generally associated with career shifts. Those respondents who expressed a desire to switch jobs in the past are in fact more likely to moonlight in the present, and to effectively switch jobs in the future. The career shifts tend to be towards self-employed activities. These results imply that the Russian secondary labour market, as part of the informal economy, can provide long-term benefits for the economy as an effective incubator for setting up new self-employed businesses.

Keywords: Moonlighting, Informal economy, Labour supply.
JEL Classification: J22, J24, O17, P20.

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1 Introduction

Informal sectors in transition countries have attracted large attention from researchers as well as policy makers, mainly for their substantial size and for the negative effects that they are likely to have on the economy. Most of the existing studies, based on aggregate data, suggest that the informal economy is large in most transition countries, and has been growing at an alarming speed, particularly in Russia. For example, Johnson et al. (1997) argue that the informal economy in Russia increased from 12.0% of GDP in 1989 to 41.6% in 1995. Although it provides much lower estimates of the size of the informal economy, the Russian State Committee on Statistics (Goskomstat) admits that the Russian informal economy has been growing fast. According to its estimates, the share of the informal economy in GDP increased from 13% in 1993 to 23% in 1996 (Goskomstat, 1999).

Existing studies suggest that this rapidly expanding informal economy has several negative effects on the overall economy. First of all, being untaxed by nature, it prevents overall tax revenue from increasing as much as it would if the activities conducted in the informal economy were conducted in the formal sector (Johnson et al., 1997). This is a significant limitation in transition economies, where the government needs to generate revenue to improve the social security system and the quality of public services. Second, because of its low productivity and high transaction costs, the informal economy is likely to deter economic growth (Loyaza, 1996). Third, as argued by Lacko (2000), it is harmful for private sector growth, which is regarded as an engine of economic growth in transition countries (Blanchard, 1997). Fourth, increases in income inequality in transition economies are found to be positively associated with informal economy activities (Rosser et al., 2000). All the above arguments suggest that the Russian economy has been badly hit by its soaring informal economy activities: staggering economic growth, a persistent public budget deficit, and rising income inequality can all be seen as direct consequences of these activities. Thus, policies aiming at shrinking the size of the informal economy are particularly desirable.

An important disadvantage of the use of aggregate data for the study of the informal economy is well acknowledged. These data can only show the overall picture without proper differentiation of the various types of informal economy activities (Thomas, 1992; Schneider and Enste, 2000; Levenson and Maloney, 1998). Given that the motivations for informal economy activities,

as well as their effects are extremely different depending upon the various types of such activities, not allowing for heterogeneity across different kinds of informal economy activities could lead to gross and possibly inadequate simplifications about their motives and effects.

Research using micro level data such as household budget surveys, enterprise surveys and labour force surveys has been attempted to analyse particular sectors of the informal economy in transition countries[1]. Most micro data-based studies of the Russian informal economy have used household budget surveys (Braithwaite, 1994; Foley, 1997; Kolev, 1998; Clarke, 1999). Assuming that households' secondary job holding in Russia is strongly correlated with informal economy activities[2], they have generally found that the informal economy in Russia is likely to aggravate income inequality. Russian households who are not necessarily poor in terms of their income from legal sources tend in fact to participate in the informal economy to further increase their income. On the basis of surveys of households conducted in four Russian cities, Clarke (1999) claims that there is no correlation between economic hardship and moonlighting. Similarly, using the Russian Longitudinal Monitoring Survey, Braithwaite (1994), Foley (1997) and Kolev (1998) find that wage rates at secondary jobs in Russia are significantly higher compared to those at primary jobs[3].

One limitation of the above research is that it neglects an important dimension of the Russian informal economy: dynamics. Existing studies only show snap-shot pictures of moonlighting, without looking at its changing nature. Although Klopov (1996) put forward the idea that moonlighting has a positive role in smoothing labour market transitions, the hypothesis has never been tested empirically. The understanding of the dynamics of informal economy activities is extremely important for the implications it has on the economy as a whole. As Asea (1996) and Foley (1997) suggest, what matters more for the economy as a whole is whether informal economy activities can evolve into formal activities, after having allowed participants in the informal economy to sufficiently develop their human capital. The informal economy might provide a dynamic outlet for entrepreneurial talent, which should then lead to a better formal economy as part of a natural evolution (Asea, 1996; Levenson and Maloney, 1998).

Interesting questions that one could ask are therefore the following. Are informal economy activities transitory or persistent? For what purposes do people use informal jobs? Are such purposes associated with human capital-

enhancing? Is there any evidence that previous participants in the informal economy subsequently become registered self-employed workers or entrepreneurs? By focusing on moonlighting, which, according to the VCIOM data[4], represents about 70% of Russian households' money income from the informal economy, we attempt to analyse issues related to the above questions[5]. We use a nationally representative longitudinal survey of Russian citizens, the Russian Longitudinal Monitoring Survey (RLMS) for the years 1994 to 1998 and exploit its panel dimension.

The structure of the paper is as follows. In section 2, our data set is presented, and some descriptive statistics are provided. Section 3 analyses the dynamics of moonlighting of the Russian working-age population. We focus on the following four issues: whether moonlighting is persistent or transitory; whether a desire for a career shift has an impact on moonlighting; whether effective job changes follow spells of moonlighting and the declared intention to switch jobs; and what types of primary jobs are chosen by people who have held additional jobs in the past. Section 4 concludes the paper.

Our findings suggest that moonlighting is transitory: previous moonlighting reduces the probability of present moonlighting. Moreover, an intention for a career shift has a positive impact on moonlighting. This indicates that for people who want to switch jobs, moonlighting can be used as an experiment, before a full commitment to another job is made. We also find that previous moonlighting and an intention to switch jobs are positively associated with an actual job change. Finally, self-employment is a popular choice as a main activity for previous moonlighters, while moonlighting reduces the probability of holding a paid job in the future.

2 Data and Descriptive Statistics

The data used in this paper consist of rounds 5 to 8 of the Russian Longitudinal Monitoring Survey (RLMS), corresponding to household and individual interviews held in October/November of 1994, 1995, 1996, and 1998, respectively[6]. The survey is based on a nationally representative sample of several thousands of households across the Russian Federation. In round 5, a total of 3,973 households and 8,490 adult individuals were interviewed[7]. The corre-

sponding numbers in 1995, 1996, and 1998 were 3,781 and 8,059; 3,750 and 7,946; and 3,831 and 8,179. The RLMS contains detailed information on households' income and expenditure, as well as on individuals' demographic characteristics, education, and labour force activities, including those related to secondary jobs. We restrict our sample to individuals who have a main job[8], and who are aged between 18 and 60 for men, and between 18 and 55 for women, given the different retirement ages for the two groups.

We classify an individual as holding multiple jobs if he/she answered "yes" to either of the following questions:

"Tell me please, do you have some other kind of work?"[9] and *"Tell me please, in the last 30 days did you engage in some additional kind of work for which you got paid? Maybe you sewed someone a dress, gave someone a ride in a car, assisted someone with apartment or car repairs, purchased and delivered food, looked after a sick person, or did something else that you were paid for?"*[10]

In order to be classified as holding multiple jobs, an individual also needs to state that he/she worked a positive number of hours in the last 30 days on his additional job, and that he/she earned a positive wage on that job.

As in other transition countries, multiple job holding is widespread in Russia. According to our data set, around 11% of all working-age people held more than one job over the period 1994 to 1998[11]. In terms of gender, men are more likely than women to hold secondary jobs: in the period 1994-98, 13% of working-aged men moonlighted, while only 8% of women did. In comparison with other transition economies, the rate of multiple job holding in Russia is lower than in Romania, where in 1996, 32.6% of married men and 22.3% of married women moonlighted. It is higher than in Poland, where 9.1% of full-time hired workers held multiple jobs in the same year (Kim, 1999; Bedi, 1998). In comparison with a non-transition economy, moonlighting in Russia is higher than in West Germany, where 9.4% of the individuals aged 14 and over held a secondary job in 1984 (Wenig, 1990).

Table 1 reports variable means over the pooled sample for working age population. Compared to non-moonlighters, multiple-job holders are slightly younger, more educated and have a somewhat shorter primary job tenure. Monthly working hours of moonlighters in their main job are not particularly different from those of non-moonlighters. Similarly, real wage rates of moonlighters in their primary jobs are very similar to those of non-moonlighters.

However, the moonlighters' real wage rates in the additional jobs are more than four times as high as the wage rates in their primary jobs[12]. Regional difference is also noticeable: moonlighting is particularly high in metropolitan cities. As for main occupations, professionals, as well as crafts and trade people are highly active in holding multiple jobs.

3 Dynamics of Moonlighting

3.1 Is moonlighting persistent or transitory?

Given that moonlighting is highly associated with informal economy activities, an important question that arises is whether it is persistent or transitory. Persistent moonlighting suggests a limited rate of conversion of secondary jobs into primary ones. Although their secondary job might provide a higher wage rate, people might be reluctant to transform it into their primary occupation, because of the risk attached to it. Only if they become sufficiently confident about their secondary job, will they transform it into their main occupation. Moreover, fringe benefits and wage arrears associated with their main job may deter workers from leaving it. In such a case, individuals will continue to moonlight, and thus moonlighting could be persistent. Finally, moonlighters might be reluctant to convert their secondary job into their main job in order to continue to avoid taxes on the income from their secondary job.

According to the RLMS, the secondary labour market in Russia is not a growing sector. The share of multiple job holders as a proportion of the working age adult population was 12.1% in 1994. It decreased to 10.2% in 1995 and stabilised at around 10% in 1996-1998.[13] This stable share can be caused either by a frequent bi-directional movement between single job holding and multiple job holding, or by persistent moonlighting activities by certain group of individuals.

Our primary concern is to investigate whether previous moonlighting experience deters or encourages present moonlighting. For this purpose, we restrict our sample to respondents who moonlighted at least once during our sample period. In order to examine the effect of previous moonlighting on present moonlighting, we construct a variable indicating whether individuals

have engaged in moonlighting in the previous year. This variable, together with demographic, educational, occupational, and regional dummies, as well as main job characteristics and the predicted secondary job wage rate[14], are included as independent variables in a random-effects Probit regression for the probability of moonlighting in the present period.

The results, reported in column 1 of Table 2, show that the coefficient on the estimated secondary job wage rate is positive and highly significant, suggesting that higher wages increase participation in the secondary labour market. On the other hand, primary job wages appear to be lower for those individuals who currently moonlight. Demographic variables such as age, age square, and gender are precisely determined. Individuals who are most likely to moonlight are men aged 33. Many of the regional and occupational variables are also statistically significant.

The coefficient on the variable indicating whether the individual experienced moonlighting in the previous period is precisely determined and its coefficient is negative. This implies that previous moonlighting actually reduces the probability of holding multiple jobs in the present period, suggesting that moonlighting is transitory rather than persistent[15].

One problem with these estimates is that they are likely to be affected by biases due to the possible endogeneity of the previous moonlighting variable. In column 2 of Table 2, we use an Instrumental Variable (IV) approach, which allows us to control for this endogeneity problem. We instrument the previous moonlighting variable using as instruments the first lags of all the variables included as regressors in the specification in column 1. The coefficient on previous moonlighting is once more negative and precisely determined[16].

Given this transitory nature of moonlighting, three further interesting questions arise. Is moonlighting used as an experiment for a different job by people interested in a career shift? Do job changes effectively occur after moonlighting and a declared intention to switch jobs? What primary occupation do previous moonlighters choose? We analyse these issues in turn.

3.2 Is moonlighting used as an experiment for a different job by people interested in a career shift?

We initially test whether an individual's intention of a job switch has an impact on his/her probability to hold an additional job. The intention of a job switch is inferred from the answer given to the following question:

"Would you like to find different work?"

The responses are coded as 1 if the respondent answers "yes", and 0 if the respondent answers "no". We use the first lag of the variable quantifying the intention for a job switch, along with all other variables used in the regressions reported in the first two columns of Table 2 as independent variables in a random-effects Probit model for the probability of moonlighting in the present. The use of the first lag ensures the exogeneity of the variable. In addition, it is reasonable to assume that the intention of a career shift affects labour supply decisions with a lag.

The results are presented in column 3 of Table 2. The variable indicating the intention of a job switch proves to be positive and statistically significant at the 10% level[17]. This result suggests that moonlighting in Russia is considered as a mechanism that enables workers to experiment with a different job, instead of immediately shifting to it. Moonlighting reduces the risk attached to a job change in two ways. First, it makes a reversal less costly when the prospects of the job tried turn out not to be bright. In such a way, moonlighting helps those individuals, for whom changing jobs at once would be too costly and risky, to start a new job or business more smoothly. Second, it provides a period for obtaining the necessary skills and information. Thus moonlighting can be viewed as a "human capital enhancing activity".

3.3 Does a job change effectively follow an intention to switch jobs and/or previous moonlighting?

One may ask whether a declared intention to change jobs effectively ends in a job switch, and whether previous moonlighting contributes to the switch. We thus run a regression to test whether the prior intention to switch jobs and

previous moonlighting have a statistically significant effect on actual job changes. Problematically, rounds 5 to 7 of the RLMS do not provide direct information on whether the respondent changed jobs. Sabirianova (2000) attempted to trace occupational mobility using the differences reported between rounds in the four digit International Standard Classification of Occupations (ISCO) codes, which are available in the RLMS. Because of miscoding, however, she concluded that the result was hardly convincing. For example, she found that 50.3% of employed respondents changed their occupation between 1994 and 1995. We use an alternative method, which can provide a more reliable estimate of actual job changes. Our method is based on the answers given by respondents to the following question:

"Tell me, please, since what year and month have you been working at this place?"

We assume that a job change has occurred if the starting date of the current job is posterior to that reported in the previous year survey[18]. According to this methodology, 20.7% of the respondents switched jobs between 1994 and 1995, 20.4%, between 1995 and 1996, and 31.7%, between 1996 and 1998. This last figure is fairly consistent with the subjective evaluation of a job change provided in Round 8, according to which 26% of respondents declared to have changed their place of work since December 1996.

We now use the whole sample of working age population because we deal with actual job changes, which are not restricted to moonlighters. We first estimate the wage rates of the new and old jobs using demographic, human capital, regional and occupational dummies as explanatory variables[19]. The differences between estimated wage rates at new and old jobs are incorporated as an independent variable in the regression for actual job changes, the results of which are presented in Table 3.

The results suggest that men are more likely than women to have changed jobs. Regions that have relatively strong economies such as Moscow, St. Petersburg, Eastern Siberian and Far Eastern regions also provide better opportunities for individuals' job changes. People who switched jobs are likely to have ended up in occupations like clerks, service and market workers, or unskilled occupations. It might be the case that ending up with unskilled occupations was not voluntary: in this case, the job switch might have been due to the loss of the employee's main job, leaving the employee with no choice, but

taking an unskilled job. This might justify why the coefficient on the wage gap variable is positive but not statistically significant: voluntary movers exploiting higher wages on new jobs were in fact likely to be mixed with non-voluntary movers who had to end up with jobs requiring only elementary skills.

Focusing on the variables of our prime interest, we find that an intention for a job change in the previous period is indeed positively associated with an actual job change. In addition, the estimation results show that moonlighting in the previous period is also positively associated with the probability of job changes at the 5% significance level, suggesting that former moonlighters were more active in changing their jobs compared to non-moonlighters[20]. These findings indicate that individuals who desired to switch jobs used moonlighting as an experimental mechanism, and actually changed their main job if the experiment was successful.

3.4 Which primary occupation do previous moonlighters choose?

So far, we found that moonlighting is transitory, and is positively associated with the desire of a career shift. It also tends to lead to a main job switch in the next period. In addition, actual job changes are positively related with a desire for a career shift expressed in the previous period. We now discuss which types of primary jobs people who have moonlighted in the past and desired a career shift tend to choose. In particular, we want to test whether these people will hold positions as paid employees, entrepreneurs or self-employed. Some previous moonlighters may prefer jobs as paid employees in enterprises or public organisations because they found moonlighting too risky. Others might want to hold jobs as entrepreneurs after having acquired some experience and possibly some capital. Alternatively previous moonlighters may decide to work as self-employed on a full-time basis. To find which is the correct scenario, we estimate random-effects Probit regressions for the probability that previous moonlighters now hold each of the three types of main occupations (paid employees, entrepreneurs, and self-employed).

Following Manser and Picot (1999), we distinguish the self-employed into incorporated and unincorporated. The unincorporated self-employed are defined as the currently working people who answered "no" to the following question:

"Tell me please do you work for an enterprise, organisation, institution, collective farm, state farm, firm?"

Incorporated self-employed, on the other hand, are defined as those who answered "yes" to the above question, work at their own enterprise, hold more than 50% of shares, and employ less than ten workers[21].

The classification as entrepreneur is based on the answer given by respondents not already classified as self-employed to the following question:

"What do you think, are you doing entrepreneurial activities at this job?"

Those respondents who answered "yes" to this question were classified as entrepreneurs. Finally, paid employees are defined as currently working people who are neither self-employed, nor entrepreneurs[22].

The regression results are presented in Table 4[23]. Column 2 shows that there is no association between previous moonlighting and a main job as an entrepreneur. According to column 3, there is some evidence that previous moonlighting decreases the probability of holding a paid job (the t-value on the relevant variable is –1.851, and is significant at the 10% level). In contrast, the positive association between self-employment and moonlighting is statistically significant: the coefficient and the t-value are respectively 0.297 and 2.172 (column 1). As for the marginal effect, having been a moonlighter in the previous period increases the odds of being self-employed in the present by around 35%. In other words, the most popular choice of previous moonlighters seems to be self-employment.

Self-employment activities were forbidden until the late 1980s in the Soviet Union. Although those activities began to emerge in a new environment at the later stage of *perestroika*, the share of self-employment out of total employment was quite negligible. The transition towards a market economy in Russia provided households with the sudden opening of opportunities. Workers contemplating self-employment would experiment it as a secondary form of employment, before leaving their main job and becoming full-time self-employed[24]. Thus secondary jobs serve as the entry point of self-employment, which may evolve into entrepreneurships in the future[25]. In this regard, moonlighting in Russia can be viewed as a low cost seedbed for setting up new self-employed businesses. Our evidence suggests that moonlighting significantly contributed to the emergence of new self-employed businesses and to their continued increase during the transition period.

4 Conclusions

Using the RLMS data, this paper has analysed the dynamics of moonlighting in Russia. We can summarise our findings as follows. First, previous moonlighting decreases the probability of present moonlighting, suggesting that moonlighting in Russia is transitory. Most working-aged Russians return to a single job holding after a period of moonlighting.

Second, an intention for a career shift increases the probability of moonlighting and previous moonlighting is positively associated with present job changes. This suggests that Russians use moonlighting as a mechanism to smooth the process of changing jobs. Moonlighting can in fact allow individuals to transform their secondary job into the primary one without exposing them to the risk arising from an immediate shift from one job to the other. Moonlighting can also be used as a human capital enhancing activity for a job mover, which enables him/her to accumulate the necessary skills and information about the new job. According to our results, an intention to change jobs tends to end up with an actual job change, suggesting that there is a significant association between the intention and the implementation. We can therefore conclude that there is a considerable interaction between the three key variables in our analysis: moonlighting, an intention for a job change, and an actual job change.

Third, previous experience as a moonlighter is positively correlated with becoming a self-employed as a main activity. Thus moonlighting in Russia can be viewed as an effective incubator for setting up new self-employed businesses. In this sense, moonlighting might provide long-term benefits to the economy in spite of its possible short-term negative effects.

Appendix I: Share of Moonlighting in the Informal Economy

The extent to which multiple job holding can legitimately be associated with informal economy activities in Russia depends on the size of the Russian informal economy. There are large discrepancies between different estimates of this variable. For example, Goskomstat (1999) uses different approaches, and concludes that the informal economy amounted to around 23% of GDP in 1997. Ponomarenko and Dashevskaya (1997) explain in detail the methodology used by the Goskomstat. Some of these estimates focus on the production side, in which case the size of the informal economy is calculated as the sum of the value of all value-added activities in the informal economy (such as informal trade, home production, paid but not tax-paying private services to individuals, construction by private constructors etc.). Other estimates focus on the income side, in which case the size of the informal economy is calculated as the gap between households' official income and households' expenditure including saving. In contrast, the estimates by Johnson et al. (1997), which make use of aggregate electricity consumption, are much higher than the Goskomstat's estimates. Johnson et al. (1997) conclude that around 40% of value added activities took place in the informal economy in 1996. Using data on households' consumption of electricity, Lacko (2000) provides estimates similar to those in Johnson et al. (1997).

Goskomstat (1999, p.90) estimates that households' income excluding transfers and social insurance contributions, i.e. net income from jobs, represented around 50% of GDP in 1996 and 1997. Considering that, according to the RLMS, income from secondary jobs represents 13% of the sum of income from main and secondary jobs, we can estimate that the share of income from secondary jobs amounts to around 6.5% of GDP. Moreover, according to the VCIOM data, informal moonlighting represents about 70% of households' income from secondary jobs, corresponding to 4.55% of GDP. On the basis of this information, one can conclude that using respectively the Goskomstat's and Johnson et al.'s (1997) estimates of the size of the informal economy, informal moonlighting amounts to circa 20% and 11% of the total output produced in the informal economy.

Appendix II: Estimation of wages

The estimated wage rates for secondary jobs included in Table 2 are the fitted value obtained from the estimation of a wage equation, using the standard Heckman procedure (1976), which corrects for selection bias. The dependent variable in the wage equation is the logarithm of real hourly wages earned last month in the informal economy. The independent variables are standard: human capital variables such as education and main job tenure, demographic characteristics, location, main job occupational dummies captured by ISCO codes, and secondary job characteristics. Note that wage arrears in secondary jobs are not common: only 9% of moonlighters in our sample face unpaid wages. The identification variables in the participation equation include wage rates and working hours from the main job, income from non-job related sources, marital status, and family characteristics. These variables are assumed to affect the participation decision through their effects on the individual's preference and his/her time constraints.

We estimate the wage and participation equations separately for each round for two reasons. First, this helps to avoid possible instability of equations across rounds. Second, the Heckman-type regression is not yet developed to take into account the panel nature of the data. The estimation results for wage equations are presented in Table A1 and A2.

References

Asea P., 1996, "The informal sector: baby or bath water? A comment", *Carnegie-Rochester Conference Series on Public Policy*, 45, December, 163-171.

Bedi A., 1998, "Sector choice, multiple job holding and wage differentials: evidence from Poland", *Journal of Development Studies*, 35 (1), 162-179.

Blanchard O., 1997, *The economics of post-communist transition*, Oxford University Press, Oxford.

Brainerd E., 1998, "Winners and losers in Russia's economic transition", *The American Economic Review*, 88(5), 1094-1116

Braithwaite J., 1994, "From second economy to informal sector: The Russian labor market in transition", mimeo, The World Bank.

Clarke S., 1999, "Making ends meet in a non-monetary market economy", mimeo, University of Warwick.

Desai P. and T. Idson, 1998, "Wage arrears, poverty, and family survival strategies in Russia", mimeo, Columbia University.

Earle E. and Z. Sakova, 1999, " Entrepreneurship from scratch: lessons on the entry decision into self-employment from transition economies", Stockholm Institute of Transition Economics and East European Economies, Working Papers, No. 145.

Feige E. and K. Ott, eds., 1999, *Underground economies in transition: unrecorded activity, tax evasion, corruption and organized crime*, Ashgate, Aldershot.

Foley M., 1997, "Multiple job holding in Russia during the transition", mimeo, Yale University.

Friebel G., and S. Guriev, 1999, "Why Russian workers do not move: attachment of workers through in-kind payments", *Working Paper No. 283*, The William Davidson Institute.

Gosudarstvennyi Komitet Rossiiskoi Federatsii Po Statistike (Goskomstat), 1999, *Natsional-nye scheta Rossii v 1998 godu: statisticheskii sbornik*, Moscow.

Gregory P., M. Mokhtari, and W. Schrettl, 1999, "Do the Russians really save that much? Alternate estimates from the Russian Longitudinal Monitoring Survey", *Review of Economics and Statistics*, 81, 694-703.

Heckman J., 1976, "The common structure of statistical models of truncation, sample selection and dependent variables and a simple estimator for such models", *Annals of Economic and Social Measurement,* 5, 475-92.

Johnson S., Kaufmann D., and A. Shleifer, 1997, "The unofficial economy in transition", *Brookings Papers on Economic Activity*, 159-221.

Kim B-Y, 1999, "Poverty and informal economy participation in Romania", *Discussion Paper no. 497*, University of Essex.

Kim B-Y, 2000, "Russian households' participation in the informal economy: evidence from the VCIOM data", University of Essex, mimeo.

Klopov E., 1996, "Vtorichnaya zanyatost' kak forma sotsial'no-trudvoi mobil'nosti," in Gordon, L., eds., *Trudvye Peremeshcheniya i Adaptatsiya Rabotnikov*, Institut Mirovoi Ekonomiki i Mezhdunarodnyi Otnoshenii, Moscow.

Kolev A., 1998, "Labour supply in the informal economy in Russia during transition", Discussion Paper, No. 2024, CEPR, London.

Lacko M., 2000, "Hidden economy - an unknown quantity?" *Economics of Transition* 8(1), 117-149.

Levenson A. and W. Maloney, 1998, "The informal sector, firm dynamics and institutional participation", World Bank Policy Research Working Paper, No. 1988.

Loyaza N., 1996, "The economics of the informal sector: a simple model and some empirical evidence from Latin America", *Carnegie-Rochester Conference Series on Public Policy* 45, December, 129-162.

Manser M. and G. Picot, 1999, "The role of self-employment in U.S. and Canadian job growth", *Monthly Labor Review* 122 (4), Bureau of Labor Statistics, U.S.

Ponomarenko A. and I. Dashevskaya, 1997, "Neuchtennye dokhody i struktura vvp", *Voprosy Statistiki*, No. 4

Rosser B., Rosser M., and E. Ahmed., 2000, "Income Inequality and the Informal Economy in Transition Economies," *Journal of Comparative Economics* 28, 156-171.

Sabirianova K., 2000, "The great human capital reallocation: an empirical analysis of occupational mobility in transitional Russia," Centre for Economic Policy Research/ William Davidson Institute Annual International Conference on Transition Economies, Moscow

Thomas J., 1992, *Informal economic activity*, Harvester Wheatsheaf, Hemel Hempstead

Wenig, A. 1990, "The shadow economy in the Federal Republic of Germany", in *Underground Economy and Irregular Forms of Employment*, Commission of European Communities.

Notes

[1] Feige and Ott (1999) describe the results of this type of research for various transition countries.

[2] In Russia, a main job is usually seen as the place where a person keeps his/her labour book – a document that traces the "official" work history and salaries. Main jobs are also in many cases connected with benefits such as medical and pension rights. In this regard, it is reasonable to assume that secondary jobs (moonlighting activities) are generally "unofficial" or "unreported". Also see footnote 5.

[3] The RLMS is a panel household-based survey representative of the Russian Federation as a whole. See Section 2 for more details on this survey.

[4] The VCIOM data is a series of monthly cross-sectional household surveys conducted since 1991 by the All-Russian Centre for Public Opinion Research. For a detailed description of the VCIOM data, see Brainerd (1998).

[5] The conventional belief that the secondary labour market represents the main locus of Russian households' informal economy activities is also supported by Kim (2000). Using the VCIOM data, Kim (2000) finds in fact that in November 1998, 78% of all additional jobs took place in the informal economy. In Appendix I, we provide a discussion of different estimates of the size of the Russian informal economy, as well as estimates of the share of the total output produced in the informal economy, which is accounted for by informal moonlighting.

[6] The RLMS was actually started in 1992, shortly after the beginning of the transition. Due to changes in the sampling frame, the first four rounds (which were respectively conducted in December 1992, February 1993, May-June 1993, and October-November 1993) are not directly comparable with the last four. The RLMS is managed by the University of North Carolina at Chapel Hill Population Centre, in collaboration with five agencies which include Paragon Research and the Russian Institute of Sociology. It is financed by the World Bank and USAID. Detailed information on the structure of the survey, the questionnaires, and the data can be found at the site http://www.cpc.unc.edu/rlms, from which the data can be downloaded. Also see Gregory *et al.* (1999, pp. 702-3) for a comprehensive description of the data set.

[7] By adult individuals, we mean individuals aged 18 and over.

[8] Individuals who have a main job are those who did not answered "I do not work" to the question: "Tell me please, do you now work, are you on paid or unpaid leave, or do you not work?"

[9] This first question was only asked to those respondents who, earlier in the questionnaire, reported having a main job. It was followed by other questions about the type of this sec-

ondary occupation and the characteristics of the enterprise/organisation at which it was held, in terms of number of employees, ownership structure etc. These additional questions indicate that the secondary jobs referred to are more formal compared to the Individual Economic Activities to which the next question refers. Also note that, in our sample, these secondary jobs represent about 37% of the additional jobs held by Russian employees, whereas the Individual Economic Activities represent the remaining 63%.

[10] Note that although this second question seems to refer to unskilled types of occupations, the Russian secondary job market is not dominated by low skilled and less educated workers. According to the VCIOM data, in fact, between 1997 and 1999, 43% of Russian males aged between 18 and 58 had a secondary job providing consumer services such as car, housing and electronics repairs; and 17% participated in professional activities such as computer programming and translations. Moreover, 16% of the moonlighters declared that the qualifications required for their additional job were higher than those required in their main job, while 32% declared that they were lower.

[11] One can distinguish moonlighting from multiple job holding: the former refers to holding a secondary job while working on a full-time basis in one's main job. The latter includes holding multiple part-time jobs at the same time. According to our data set, 78% of secondary job holders work more than 40 hours per week in their main job. This indicates that participants in the Russian secondary job market are, in general, moonlighters, in other words, full-time workers rather than part-timers in their main job. In the remaining part of this paper, we therefore use the terms moonlighting and multiple job holding interchangeably.

[12] This comparison is based on money wages. Income in kind such as free or subsidised housing, health care and nursery are widely available for main jobs. If those fringe benefits were included, the difference between income from main jobs and secondary jobs would obviously become smaller. Friebel and Guriev (1999) analyse the negative effect of in-kind payments from enterprises on job mobility. Higher risk attached to secondary jobs and opportunities for using equipment available on main jobs can also explain why workers hold main jobs in spite of their far lower wage rates.

[13] The VCIOM data also suggests that there is little evidence of a significant increase in the number of multiple job holders in the period 1994-1999. According to the data, from its highest point in July 1995, at 18% of the adult population, the percentage of multiple job holders declined to about 11% in January 1999.

[14] The predicted secondary job wage rate is obtained using the Heckman (1976) procedure, which corrects for self-selection bias. See Appendix II for details on the calculation of this predicted wage.

[15] In order to further check the robustness of our results, we estimated the model using the whole sample. We controlled for those respondents who have never moonlighted over the four available rounds of the RLMS using a dummy variable. We obtained results similar to

those reported in column 1 of Table 2: the coefficient and t-value on the variable relative to previous moonlighting were –0.244 and –3.275, respectively.

[16] We also tried using moonlighting lagged twice as an alternative proxy for moonlighting experience. Once again, the results suggested that previous moonlighting reduces the probability of present moonlighting.

[17] We checked the robustness of this result using the whole sample as explained in footnote 15. The coefficient and t-value on the variable relative to the intention for a job shift in the previous period were 0.142 and 2.552, respectively. In addition, we checked for the possible correlation between moonlighting and an intention for a job change in the same period. The correlation coefficient was 0.066, suggesting the absence of problems arising from multicollinearity between the two variables.

[18] In this case, the job switch obviously occurred between the date of the previous survey and that of the present survey. We examined possible irregularities in the data and treated them as missing. One limitation with this methodology is that it can only capture inter-firm occupational mobility, but not changes in a respondent's occupation within the place of work. However, the number of respondents who switched jobs within the place of work is not large: according to Round 8 of the RLMS, which specifically asks about job changes, only 3.4% of respondents declared to have changed jobs, remaining within their place of work.

[19] For the sake of brevity, the results from the wage regressions, estimated using the Heckman (1976) procedure, are omitted, but are available from the authors upon request.

[20] We obtained similar results using the information on actual job changes derived from the direct question asked in Round 8. In this case, the coefficient and t-value on the dummy indicating the intention for a job switch were respectively equal to 0.457 and 9.770, and those on the previous moonlighting dummy were respectively 0.120 and 1.736.

[21] In more detail, the incorporated self-employed also answered "yes" to the question: "What do you think, do you work at your own enterprise?"; and answered "from 51-100%" to the question: "Tell me, please, what part of this enterprise do you own, what percent?"; and "less than 10" to the question: "How many people work in your enterprise?". Given that self-employment is not clearly defined in the questionnaire, we used several definitions of self-employed, for instance including only the unincorporated, or only the incorporated. In all cases, we obtained results similar to those reported, which are available upon request.

[22] According to our definitions, 4.7% of working individuals are self-employed, whereas 89.8% and 5.5% of Russian adults participate in the labour market as paid-employees or entrepreneurs, respectively.

[23] The results in Table 4 were obtained using a two-step estimation procedure as before. In the first step, we estimated selectivity-bias-corrected earning functions for self-employed, paid employees, and entrepreneurs using a Heckman (1976) procedure, and fitted values for wage rates were obtained. In the second step, the estimated wage rates were used as explanatory variables in the estimation of the equation for the participation in each of the three main occupations. Note that for the self-employed, we intend wages as the profits or revenues that they obtain from their business.

[24] About 63% of the additional jobs held by Russian employees come from Individual Economic Activities (which can be associated with self-employment). Moreover, previous moonlighting has a positive effect on the probability of individuals becoming self-employment as a main occupation. These two considerations can be seen as further evidence in favour of the fact that after a period of moonlighting, Russian adults intend to make a self-employed business their main occupation.

[25] Earle and Sakova (1999) suggested that the considerable rise in self-employment after the transition can be seen as a "quasi-experiment" for understanding the sources of entrepreneurship in transition economies. Due to the lack of capital and of a banking system to finance small businesses, the start-ups would nearly always have begun as self-employed activities.

Table 1: Means of variables

Whether the individual holds an additional job	No (1)	Yes (2)
Number of observations	13866	1648
Demographic characteristics		
Gender (women=0, men=1)	0.49	0.62
Age	37.75	36.89
Marital status (single=0; married=1)	0.72	0.68
Children aged 0-6	0.34	0.36
Number of working age males	1.13	1.09
Education		
Up to high school	0.82	0.83
Vocational training	0.26	0.26
Technical & medical school	0.28	0.28
University education	0.19	0.25
Postgraduate education	0.01	0.03
Main jobs		
Monthly real wages (>0)	3481.76	3561.78
Working hours per month (>0)	149.56	145.43
Wage rate (>0)	24.62	25.79
Job tenure (>0)	6.94	6.44
Additional jobs		
Monthly real wage (>0)	-	2139.99
Working hours per month (>0)	-	44.80
Wage rate (>0)	-	119.74
Other income (real) (>0)	1938.71	1615.08
Regions		
Town	0.71	0.80
Rural non-agricultural	0.07	0.05
Rural agricultural	0.23	0.15
Moscow, St. Petersburg	0.08	0.15
Northern and North Western	0.08	0.08
Central and Central Black-Earth	0.18	0.16
Volga-Vyatski and Volga Basin	0.18	0.14
North Caucasian	0.12	0.12
Ural	0.16	0.12
Western Siberian	0.10	0.09
Eastern Siberian and Far-Eastern	0.10	0.13
Main job occupations		
Legislators, senior managers, officials	0.04	0.03
Professionals	0.16	0.23
Technicians and assoc. professionals	0.16	0.14
Clerks	0.07	0.04
Service workers, market workers	0.08	0.06
Skilled agriculture & fishery workers	0.01	0.06
Craft and related trades	0.17	0.22
Plant & machine operators assemblers	0.19	0.17
Unskilled occupations	0.12	0.09

Note: The educational, occupational, and regional variables are dummy variables coded as 0 or 1. For instance the variable "up to high school" is coded as 1 if the individual's highest educational qualification is high school or anything lower, and as 0, otherwise.
Source: RLMS: rounds 5 to 8.

Table 2: Effects of previous moonlighting and a desire of a job switch on present moonlighting

	Participation Equation (1)		Participation Equation (2)		Participation Equation (3)	
	Coeff.	*t-value*	Coeff.	*t-value*	Coeff.	*t-value*
Demographic characteristics						
Gender (women=0, men=1)	-1.768	*-10.117*	-1.604	*-10.528*	-1.554	*-9.901*
Age	-0.406	*-7.836*	-0.388	*-7.836*	-0.356	*-6.909*
Age squared	0.006	*7.378*	0.005	*8.163*	0.005	*7.315*
Marital status (single=0; married=1)	-0.077	*-0.611*	-0.074	*-0.693*	-0.083	*-0.755*
Household characteristics						
Number of children aged 0-6	-0.099	*-1.165*	-0.061	*-0.874*	-0.083	*-1.131*
Number of working age males	0.020	*0.218*	0.020	*0.218*	-0.007	*-0.080*
Education						
High school	Omitted category		Omitted category		Omitted category	
Vocational training	0.076	*0.595*	0.089	*0.838*	0.087	*0.803*
Technical & medical school	-0.339	*-2.792*	-0.296	*-2.904*	-0.299	*-2.862*
University education	-0.111	*-0.732*	-0.082	*-0643*	-0.084	*-0.629*
Postgraduate education	-0.197	*-0.527*	-0.208	*-0.638*	-0.286	*-0.859*
Settlement type						
Town	-0.795	*-5.123*	-0.714	*-5.376*	-0.711	*-5.220*
Non-agricultural rural	-0.276	*-1.054*	-0.346	*-1.572*	-0.369	*-1.653*
Agricultural rural	Omitted category		Omitted category		Omitted category	
Regions						
Moscow, St. Petersburg	-1.421	*-0.850*	-1.223	*-6.048*	-0.524	*-1.866*
Northern and North Western	Omitted category		Omitted category		Omitted category	
Central and Central Black-Earth	-0.074	*-0.342*	-0.016	*-.0.088*	0.040	*0.217*
Volga-Vyatski and Volga Basin	0.430	*1.963*	0.419	*2.273*	0.455	*2.407*
North Caucasian	-0.575	*-2.444*	-0.491	*-2.507*	-0.460	*-2.280*
Ural	0.157	*0.685*	0.213	*1.116*	0.269	*1.371*
Western Siberian	-0.078	*-0.326*	-0.043	*-0.220*	0.051	*0.251*
Eastern Siberian and Far-Eastern	-0.380	*-1.663*	-0.302	*-1.588*	-0.248	*-1.269*
Main job occupations						
Legislators, senior managers, officials	-0.549	*-1.752*	-0.405	*-1.497*	-0.524	*-1.866*
Professionals	-0.931	*-3.810*	-0.823	*-3.926*	-0.791	*-3.662*
Technicians and assoc. professionals	-0.207	*-0.929*	-0.195	*-1.008*	-0.222	*-1.120*
Clerks	Omitted category		Omitted category		Omitted category	
Service workers, market workers	-0.826	*-3.028*	-0.776	*-3.343*	-0.833	*-3.466*
Skilled agriculture & fishery workers	2.979	*4.780*	2.867	*5.122*	2.934	*5.014*
Craft and related trades	-0.844	*-3.556*	-0.725	*-3.546*	-0.766	*-3.655*
Plant & machine operators assemblers	-0.587	*-2.493*	-0.483	*-2.392*	-0.513	*-2.488*
Unskilled occupations	-0.068	*-0.272*	0.050	*0.237*	-0.069	*-0.310*
Failed to respond	-0.198	*-0.205*	-0.157	*-0.205*	0.288	*0.324*
Main job characteristics						
Wage/100	-0.025	*-1.993*	-0.022	*--1.977*	-0.022	*-1.922*
Working hours/100	-0.125	*-2.237*	-0.130	*-2.657*	-0.115	*-2.291*
Tenure	0.027	*3.936*	0.024	*4.023*	0.025	*4.154*
Other income	-0.008	*-0.528*	-0.007	*-0.532*	-0.014	*-0.933*
Estimated secondary job wage rate	1.796	*14.34*	1.670	*15.32*	1.641	*14.57*
Previous moonlighting	-0.482	*-4.504*	-0.259	*-3.424*	-0.117	*-2.365*
Intention for a job shift in the previous period	-	-	-	-	0.155	*1.848*
Wald test $\chi^2(36)$	241.67	$P>\chi^2=0.0$	288.21	$P>\chi^2=0.0$	262.62	$P>\chi^2=0.0$
Number of observations	1462		1512		1397	

Notes: Estimation results were obtained using a random-effects Probit procedure with time dummies in columns 1 and 3, and with an Instrumental Variable (IV) approach on the pooled sample in column 2.

Source: RLMS: rounds 6 to 8.

Table 3: Effects of previous moonlighting and of the intension of a job switch on actual job changes

Dependent variable: = 1 if a job change occurred since last period's interview; = 0 otherwise	Coefficient	*t-value*
Demographic characteristics		
Gender (women=0, men=1)	0.393	*5.177*
Age	-0.021	*-0.794*
Age squared/1000	0.162	*0.432*
Marital status (single=0; married=1)	-0.142	*-2.117*
Household characteristics		
Number of children aged 0-6	0.015	*0.314*
Number of working age males	0.083	*1.717*
Education		
High school	Omitted category	
Vocational training	0.053	*0.787*
Technical & medical school	-0.128	*-1.614*
University/post graduate education	0.047	*0.511*
Settlement type	0.022	*0.477*
Regions		
Moscow, St. Petersburg	0.341	*2.599*
Northern and North Western	Omitted category	
Central and Central Black-Earth	0.163	*1.423*
Volga-Vyatski and Volga Basin	0.033	*0.257*
North Caucasian	0.122	*0.979*
Ural	0.422	*1.682*
Western Siberian	0.252	*1.664*
Eastern Siberian and Far-Eastern	0.323	*2.259*
Main job occupations		
Legislators, senior managers, officials	Omitted category	
Professionals, technicians, and associated professionals	-0.009	*-0.059*
Clerks, service workers, and market workers	0.371	*1.960*
Skilled agriculture & fishery workers, craft and related trades, plant & machine operators assemblers	0.087	*0.427*
Unskilled occupations	0.598	*2.565*
Other income	0.002	*0.202*
Differences in estimated wage rates in new jobs and old jobs	0.935	*1.534*
Intention for a job shift in previous period	0.484	*9.141*
Previous moonlighting	0.153	*1.976*
Wald test $\chi^2(27)$	267.58	*Prob*>χ^2=0.000
Number of Observations	4754	

Notes: Due to the relatively small number of observations in this sample, we had to re-code some variables into broader categories. The 'settlement type' variable is coded as follows: 1, for urban areas; 2, for villages where the majority of people are not engaged in agricultural activities; and 3, for villages where the majority of people are engaged in agricultural activities. Occupational variables were also re-coded as noted in the table. Estimation results were obtained using a random-effects Probit procedure with timedum mies.
Source: RLMS: rounds 6 to 8.

Table 4: Effects of previous moonlighting on main job occupational choices

Dependent variable	Self-employed (1)	Entrepreneur (2)	Paid-employee (3)
Demographic characteristics			
Gender (women=0, men=1)	0.738 (3.259)	-0.217 (-1.057)	0.291 (2.297)
Age	0.044 (0.625)	0.164 (3.412)	0.118 (5.526)
Age squared/1000	-1.007 (-1.052)	-2.051 (-3.404)	-1.495 (-5.477)
Marital status (single=0; married=1)	0.208 (1.554)	0.163 (1.223)	-0.057 (-0.893)
Household characteristics			
Number of children aged 0-6	0.012 (0.141)	-0.066 (-0.776)	-0.263 (-6.550)
Number of working age males	-0.086 (-0.901)	-0.055 (-0.634)	-0.012 (-0.277)
Education			
High school		Omitted category	
Vocational training	-0.317 (-1.505)	0.091 (0.734)	-0.000 (-0.007)
Technical & medical school	0.070 (0.547)	-0.290 (-1.749)	0.098 (1.586)
University/post graduate education	0.341 (1.289)	-0.148 (-0.522)	0.156 (1.275)
Settlement type (town=1; others=0)	0.763 (1.503)	-1.157 (-3.137)	0.240 (1.148)
Job tenure	-0.039 (-4.441)	-0.002 (-0.336)	0.080 (15.11)
Regions			
Moscow, St. Petersburg	0.067 (0.189)	0.418 (1.913)	-0.006 (-0.046)
Northern and North Western		Omitted category	
Central and Central Black-Earth	0.053 (0.224)	1.097 (2.762)	-0.159 (-0.842)
Volga-Vyatski and Volga Basin	-0.230 (-0.765)	1.757 (2.739)	-0.247 (-0.948)
North Caucasian	0.201 (0.807)	1.654 (3.077)	-0.441 (-2.483)
Ural	0.127 (0.541)	1.298 (2.535)	-0.109 (-0.667)
Western Siberian	0.409 (1.321)	0.293 (0.992)	0.001 (0.008)
Eastern Siberian and Far-Eastern	0.277 (0.863)	1.401 (3.424)	-0.067 (-0.551)
Estimated wage rate	-0.794 (-1.261)	2.731 (3.651)	-0.592 (-1.442)
Previous moonlighting	0.297 (2.172)	0.168 (1.435)	-0.130 (-1.851)
Wald test $\chi^2(22)$ (p-values in parenthesis)	87.26 (0.000)	109.81 (0.000)	519.54 (0.000)
Number of Observations	8650	8650	8650

Notes: Estimation was conducted using a random-effects Probit procedure with time dummies. T-statistics are reported in parenthesis.
Source: RLMS: rounds 6 to 8.

Table A1: Self-selection corrected secondary job wage equations: rounds 5 and 6

	Round 5				Round 6			
	Wage		Participation		Wage		Participation	
	Coeff.	*t-val.*	Coeff.	*t-val.*	Coeff.	*t-val.*	Coeff.	*t-val.*
Demographic characteristics								
Gender (women=0, men=1)	0.972	*6.195*	0.484	*8.261*	0.820	*5.411*	0.358	*5.810*
Age	0.112	*3.144*	0.060	*3.411*	0.202	*3.997*	0.102	*5.353*
Age squared/1000	-1.696	*-3.457*	-0.874	*-3.728*	-2.600	*-3.995*	-1.274	*-5.049*
Education								
High school				Omitted category				
Vocational training	-0.072	*-0.525*	0.130	*2.065*	-0.204	*-1.296*	-0.008	*-0.123*
Technical & medical school	-0.249	*-1.802*	0.060	*0.928*	-0.055	*-0.372*	0.024	*0.352*
University education	0.020	*0.117*	0.031	*0.385*	0.264	*1.493*	0.074	*0.891*
Postgraduate education	-0.106	*-0.318*	0.025	*0.105*	0.380	*0.794*	0.232	*0.835*
Settlement type								
Town	0.480	*2.891*	0.202	*2.896*	0.641	*4.050*	0.128	*1.847*
Non-agricultural rural	0.751	*2.792*	0.195	*1.629*	0.697	*2.555*	0.186	*1.486*
Agricultural rural				Omitted category				
Regions								
Moscow, St. Petersburg	0.052	*0.215*	0.300	*2.638*	0.290	*1.051*	0.439	*3.411*
Northern and North Western				Omitted category				
Central and Central Black-Earth	-0.841	*-3.651*	-0.052	*-0.469*	0.015	*0.062*	0.072	*0.588*
Volga-Vyatski and Volga Basin	-1.163	*-4.921*	-0.074	*-0.668*	-0.377	*-1.571*	-0.029	*-0.239*
North Caucasian	-0.666	*-2.761*	0.152	*1.344*	0.112	*0.460*	0.355	*2.968*
Ural	-0.711	*-3.113*	0.019	*0.171*	-0.444	*-1.746*	0.030	*0.240*
Western Siberian	-0.637	*-2.231*	-0.124	*-0.994*	-0.277	*-0.956*	0.130	*0.986*
Eastern Siberian and Far-Eastern	-0.220	*-0.926*	0.248	*2.155*	0.163	*0.596*	0.386	*3.035*
Main job tenure	-0.013	*-1.448*	-0.004	*-1.005*	-0.006	*-0.639*	0.004	*0.816*
Main job occupations								
Legislators, senior managers, officials	-0.833	*-1.371*	-0.546	*-2.041*	0.343	*0.884*	0.060	*0.291*
Professionals	0.254	*0.511*	0.275	*1.709*	0.351	*1.040*	0.229	*1.345*
Technicians and assoc. professionals	-0.057	*-0.118*	0.212	*1.322*	0.176	*0.560*	0.189	*1.144*
Clerks				Omitted category				
Service workers, market workers	-0.419	*-0.754*	-0.102	*-0.554*	0.344	*0.893*	0.051	*0.272*
Skilled agriculture & fishery workers	0.199	*0.293*	0.443	*1.341*	-1.449	*-2.341*	0.320	*0.740*
Craft and related trades	-0.233	*-0.495*	0.098	*0.607*	0.421	*1.344*	0.327	*2.003*
Plant & machine operators Assemblers	0.013	*0.027*	0.070	*0.431*	0.032	*0.103*	0.147	*0.888*
Unskilled occupations	-0.623	*-1.197*	-0.027	*-0.153*	0.059	*0.174*	0.206	*1.199*
Failed to respond	-0.438	*-0.907*	0.258	*1.597*	-0.125	*-0.379*	0.584	*3.582*
Individual economic activities as secondary job	0.611	*3.987*			0.986	*6.223*		
ρ			0.633				0.748	
Wald test of independent equations. (ρ=0)			9.70				12.53	
p-value			0.00				0.00	
Number of Observations	5103				4743			

Note: The dependent variable for the wage equations is the log of the real hourly wage earned last month in secondary jobs. Estimation results were obtained using the Heckman (1976) estimation procedure with time dummies. Variables used to correct for the selection bias are marital status, number of children aged 0-6, and number of working-age males present in the household, real monthly primary job wage, monthly primary job working hours, and monthly income from non-job-related sources. r represents the correlation coefficient between the error terms in the wage equation and in the participation (selection) equation. When r differs from 0, standard regression techniques applied to the wage equation yield biased results.
Source: RLMS: rounds 5 and 6.

Table A2: Self-selection corrected secondary job wage equations: rounds 7 and 8

	Round 7				Round 8			
	Wage		Participation		Wage		Participation	
	Coeff.	*t-val.*	Coeff.	*t-val.*	Coeff.	*t-val.*	Coeff.	*t-val.*
Demographic characteristics								
Gender (women=0, men=1)	1.190	*7.162*	0.393	*6.307*	0.913	*5.642*	0.327	*5.361*
Age	0.285	*4.586*	0.120	*5.901*	0.222	*4.721*	0.077	*4.296*
Age squared/1000	-3.919	*-4.632*	-1.688	*-6.122*	-3.186	*-5.074*	-0.998	*-4.148*
Education								
High school	Omitted category							
Vocational training	-0.086	*-0.511*	0.098	*1.508*	0.034	*0.197*	0.094	*1.490*
Technical & medical school	0.199	*1.096*	0.043	*0.597*	0.308	*1.798*	0.170	*2.463*
University education	0.064	*0.286*	-0.093	*-1.017*	-0.141	*-0.632*	-0.080	*-0.874*
Postgraduate education	0.636	*1.051*	0.382	*1.369*	0.342	*0.627*	0.549	*2.124*
Settlement type								
Town	0.535	*2.526*	0.331	*4.544*	0.508	*2.222*	0.293	*4.219*
Non-agricultural rural	0.118	*0.315*	0.092	*0.703*	0.099	*0.269*	0.031	*0.258*
Agricultural rural	Omitted category							
Regions								
Moscow, St. Petersburg	0.793	*2.349*	0.362	*2.793*	0.815	*2.308*	0.161	*1.171*
Northern and North Western	Omitted category							
Central and Central Black-Earth	-0.441	*-1.369*	-0.130	*-1.066*	-0.045	*-0.143*	-0.085	*-0.711*
Volga-Vyatski and Volga Basin	-0.681	*-1.981*	-0.105	*-0.861*	-0.117	*-0.402*	-0.002	*-0.019*
North Caucasian	0.221	*0.680*	0.159	*1.282*	0.502	*1.721*	0.269	*2.228*
Ural	-0.601	*-1.770*	-0.191	*-1.542*	0.110	*0.362*	-0.007	*-0.060*
Western Siberian	0.023	*0.066*	0.024	*0.181*	0.140	*0.413*	-0.114	*-0.876*
Eastern Siberian and Far-Eastern	-0.355	*-1.052*	-0.014	*-0.109*	0.646	*2.088*	0.207	*1.654*
Main job tenure	-0.018	*-1.396*	-0.001	*-0.104*	0.002	*0.197*	-0.007	*-1.461*
Main job occupations								
Legislators, senior managers, Officials	-0.753	*-0.930*	-0.531	*-1.850*	0.076	*0.156*	-0.081	*-0.350*
Professionals	0.880	*1.902*	0.230	*1.396*	0.557	*1.447*	0.328	*1.894*
Technicians and assoc. Professionals	0.373	*0.807*	-0.012	*-0.069*	-0.494	*-1.214*	-0.084	*-0.484*
Clerks	Omitted category							
Service workers, market workers	0.953	*1.712*	-0.026	*-0.135*	0.346	*0.662*	-0.008	*-0.039*
Skilled agriculture & fishery workers	-1.404	*-1.536*	-0.234	*-0.498*	-1.476	*-1.683*	0.006	*0.011*
Craft and related trades	1.007	*2.228*	0.111	*0.674*	0.073	*0.185*	0.184	*1.060*
Plant & machine operators Assemblers	0.513	*1.092*	-0.120	*-0.713*	0.018	*0.045*	-0.051	*-0.287*
Unskilled occupations	0.377	*0.792*	0.009	*0.051*	-0.334	*-0.850*	0.069	*0.387*
Failed to respond	0.590	*1.343*	0.228	*1.428*	0.013	*0.037*	0.271	*1.620*
Individual economic activities as secondary job	0.420	*2.800*			0.616	*4.032*		
ρ			0.914				0.892	
Wald test of independent equations. (ρ=0)			41.79				67.51	
p-value			0.00				0.00	
Number of observations	4909				4712			

Note: See Note to Table A.1.
Source: RLMS: rounds 7 and 8

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