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Conference Paper

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Proceedings of the German Development Economics Conference, Hannover 2010, No. 55

**Provided in cooperation with:**

Verein für Socialpolitik

Suggested citation: Kim, Byung-Yeon (2010) : Informal Economy Activities and Entrepreneurship in Russia, Proceedings of the German Development Economics Conference, Hannover 2010, No. 55, <http://hdl.handle.net/10419/39972>

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# Informal Economy Activities and Entrepreneurship in Russia<sup>1</sup>

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## ABSTRACT

This paper uses the Russian Longitudinal Monitoring Survey (RLMS) from 1998 to 2004 to analyze the effect of previous informal economy activities on the creation of official entrepreneurship. We find that previous participation in the informal economy is positively associated with the probability to become registered entrepreneurs in the present. We also find that that self-employment is used as a transition mechanism to entrepreneurship and moonlighters in the past are more active in actual job changes. Furthermore, a survival function analysis suggests that previous experience as self-employed moonlighters enhances the probability of success as official entrepreneur. Workers who moonlighted as self-employed in the past represent 16-22% of the new entrepreneurs.

*Keywords:* Informal economy, entrepreneurs, Russia.

*JEL Classification:* J22, J24, O17, P20.

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<sup>1</sup> The author would like to thank Jong-Myun Moon for his helpful assistance. An earlier version of this paper was presented at Higher School of Economics in Moscow, Bank of Finland, and Seoul National University. I would thank for valuable comments from the participants. This research was supported by National Research Foundation of Korea Grant funded by the Korean Government (KRF-2006-003-00046) and WCU(World Class University) program through the National Research Foundation of Korea funded by the Ministry of Education, Science and Technology (R32-2008-000-20055).

## **I. Introduction**

The Schumpeterian approach to growth suggests that entrepreneurial dynamism is the key to growth and innovation. Entrepreneurship is argued as one of the driving engines of economic growth (Schumpeter, 1934; Baumol, 1990; Murphy et al., 1991; Aghion and Howitt, 1997). Indeed, several studies suggest evidence that entrepreneurship is a key determinant of economic growth not only in advanced market economies but also economies in transition toward a market economy (McMillan and Woodruff, 2002; Berkowitz and Dejong, 2005). McMillan and Woodruff (2002) document that the development of entrepreneurship in China and Poland accounts for robust growth in these countries but economic decline experienced by Russia in the early part of transition was caused by slow development of entrepreneurial development. Berkowitz and Dejong (2005) present intra-national evidence for the relationship between entrepreneurship and growth. They use Russian regional data to estimate the effect of entrepreneurial development on growth, and find that the former facilitates the latter.

Economists have long been interested in understanding the determinants of entrepreneurship. A group of economists claim that credit constraints are a major obstacle to become an entrepreneur. For example, Blanchflower and Oswald (1998) suggest that the receipt of an inheritance or gifts increased a typical individual's probability of being self-employed. This finding is corroborated with earlier work by Evans and Jovanovic (1989) and Holtz-Eakin et al (1994) in that they showed that large amounts of asset help increases the probability of transition into self-employment. In contrast, Hurst and Lusardi (2004) recently find that there exists a highly non-linear relationship between initial household wealth and the propensity to start a business. Only for households in the top 5% of the wealth distribution is there a positive association between these two.

Some economists argue that the extent of risk aversion differs significantly between entrepreneurs and non-entrepreneurs. Kihlstrom and Laffont (1979) indicate that less risk-averse individuals are more likely to be entrepreneurs. Some empirical results are consistent with this conjecture (Pattillo, 1998; Djankov, et al, 2006). Using data from special surveys on entrepreneurship in China and Russia, Djankov et al (2006) find that entrepreneurs have lower risk aversion than non-entrepreneurs.<sup>2</sup> In addition, according to their work, one crucial difference between entrepreneurs and non-entrepreneurs is that the former compared to the latter is more likely to have entrepreneurs in their family and friends from their childhood and adolescence, implying the importance of information and network in determining entrepreneurship. This finding is in line with the results on the relational determinants of entrepreneurship. For example, Stuart et al (1999) indicate that social capital defined as entrepreneur's referral network determines their chances of receiving venture capital.

An empirical testing of the determinants of entrepreneurship requires a good measure of such a term. However, a good measure of entrepreneurship is difficult to come by. Frequently used proxies for entrepreneurship are either self-employment or business ownership. For instance, both Evans and Jovanovic (1989) and Blanchflower and Oswald (1998) employ self-employed workers as a proxy for entrepreneurship in their studies using the United States National Longitudinal Survey of Young Men and the United Kingdom National Child Development Survey, respectively. In contrast, Hurst and Lusardi (2004) use business ownership as a proxy for entrepreneurship that is identified in the Panel Study of Income Dynamics in the United States.

According to Baumol (1993), entrepreneurs are those who transform inventions and ideas into economically viable entities, whether or not, in the course of doing so they create

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<sup>2</sup> The surveys include questions on family and background, attitude toward work and leisure, and education. They find that Chinese entrepreneurs are more risk-taking and greedy than Russian entrepreneurs who tend to have a better educational background.

or operate a firm. In the view of this definition, self-employment is a very rough measure of entrepreneurship. A good part of self-employment is survival-oriented, without exploiting business opportunities by inventions and ideas. For example, the 2007 Global Entrepreneurship Monitor shows that a 41% and 38% of early-stage entrepreneurial activity in the United Kingdom and the United States, respectively, is conducted because of no other option for work (Bosma, et al., 2008). A problem with using business ownership is that such a measure fails to distinguish ownership from management. In other words, one can become an owner of business but does not operate or manage the firm. Targeted surveys on entrepreneurs were conducted in Russia, China, India and Brazil, and some results were published in Djankov et al (2006). Although these surveys provide differences between entrepreneurs and non-entrepreneurs in terms of various characteristics including attitude toward a risk, it is difficult to identify causality because tracing the determinants of an individual's transition into entrepreneurship is not feasible with the surveys conducted only once.

A transition country such as Russia provides a good laboratory condition for an empirical experiment on a relationship between risk and entrepreneurship. The transition process from socialism to a market economy involves a substantial increase in risk but at the same time an excellent opportunity for entrepreneurship that was virtually non-existent during the socialist period. Such a combination of heightened risk and opportunity may encourage an attempt to become entrepreneurship while reducing risk attached to it, if possible. Guariglia and Kim (2006) argue that individuals facing high uncertainty in the transition period used moonlighting as a risk-reduction mechanism. More specifically, they provide some evidence for the role of informal economy involving moonlighting in reducing

risk associated with a job change, especially toward self-employment.<sup>3</sup>

This paper also seeks to contribute to the literature on the role of the informal economy in economic development. Recently, La Porta and Shleifer (2008) present three broad views on the role of the informal economy in economic growth: the Romantic view, the parasite one, and the dual economy one. According to the Romantic view, informal workers or firms fail to register because of institutional and policy failure in spite of the fact that they are basically the same as formal ones in terms of characteristics. They will evolve into officialdom if improvements are made regarding institutions and policy. The parasite view suggests that by undercutting prices informal firms take away market share from official ones. In this process, economic growth is undermined because informal firms are less efficient than formal ones due to their small scale. Lastly, the dual economy view is based on observations that the formal and the informal economy coexist in a separate way because the characteristics of firms and workers in each economy are so different. Following the presentation of the above contrasting views, La Porta and Shleifer use the data on micro surveys of both formal and informal firms from mostly poor African, some Asian, and a few Latin American countries to analyze their characteristics, and find that empirical evidence supports the dual economy view as “virtually none of the formal firms have ever been informal”. However, the above paper does not look at countries in transition from socialism to a market economy. In addition, the sample countries they analyze are mostly very poor countries. Hence, it is difficult to draw general implications from the study on the role of the informal economy in economic development.

In this paper, we look at a relationship between informal economy activity as a risk-

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<sup>3</sup> A primary (main) job in Russia is regarded as the place where a person keeps his/her labor book – a document that traces the “official” work history and salaries. In most cases, primary jobs are also connected with benefits such as medical care and pension rights. This implies that secondary jobs (moonlighting activities) are unlikely to be reported and thus form a part of the informal economy. This is consistent with Kim (2002)’s finding that about 70% of secondary jobs can be classified as informal jobs in Russia.

reduction mechanism and entrepreneurship using the Russian Longitudinal Monitoring Survey (RLMS) from 1998 to 2004 excluding the year of 1999. The RLMS helps us to identify entrepreneurial activity more directly using replies from the respondents. It provides information on whether the respondents conducted entrepreneurial activity and their occupation. Furthermore, the RLMS represents a longer panel dataset on entrepreneurship compared to Evans and Jovanovic (1989), Blanchflower and Oswald (1998), and Hurst and Lusardi (2004), which use panel data of two years, those of two years, and pooled sample from 1989 to 1994, respectively. These longer panel data together with a more frequent inflow and outflow from the pool of entrepreneurs, which is a typical characteristic in a transition economy, can improve the precision of estimates.

Using RLMS from 1998 to 2004, this paper sets out to investigate the question of whether informal economy activities in the form of moonlighting are associated with the official entrepreneurship. A possible hypothesis is that self-employment as a secondary job in Russia is used as a mechanism that enables workers to experiment with entrepreneurial activity, instead of immediately shifting to it. In addition, self-employment as a main job can be used as a transition to entrepreneurship. In other words, we can hypothesize that secondary self-employment was evolved into entrepreneurship after some spells of working as self-employed as a main job.

Research using micro level panel data such as RLMS has several significant advantages. First, it allows us to take a closer look at individual's decision and provides more reliable information compared to the case using aggregate data. Controlling individual characteristics would be arguably easier than controlling national or regional heterogeneity. Second, the panel nature of the data offers a unique advantage that enables us to analyze the dynamics of job changes. Surveys of entrepreneurs and non-entrepreneurs may present

contrasting characteristics between the two groups at one point of time but do not show directly how one becomes an entrepreneur.

This paper is organized into four sections. Section II reviews a literature on the informal economy in Russia. Section III introduces our dataset and provides descriptive statistics. Followed by a discussion of empirical methodology employed in this paper, Section IV presents estimation results and interprets them. Section V summarizes the main findings and presents the conclusion.

## **II. Informal Economy in Russia**

Russia experienced a sharp increase in informal economy activities during the transition period. The Russian State Committee on Statistics (Goskomstat) and Johnson et al. (1997) provide some evidence that the Russian informal economy has increased rapidly since the beginning of its transition. According to Goskomstat's estimates, the share of the informal economy in total GDP, defined as the sum of official GDP and GDP produced in the informal economy, increased from 13% in 1993 to 23% in 1996 (Goskomstat, 1999). Estimates by Johnson et al. (1997) are higher than the Goskomstat's ones but agree that the informal economy expanded substantially during the transition period: According to them, the share of the informal economy in total GDP increased from 23.5% in 1991 to 41.6% in 1995.

The existing studies on the informal economy focus mainly on its static effects on the economy (Loayza, 1996; Johnson et al., 1997; Lacko, 2000). However, the understanding of the changing nature of informal economy activities, in other words, their dynamic effects are extremely important for the implications it has on the economy. An important question that remains to be answered is whether informal economy activities can evolve into formal activities, following some period during which participants in the informal economy sufficiently accumulate their financial and human capital. As Asea (1996) and Levenson and



Maloney (1998) put forward, the informal economy might provide a dynamic outlet for entrepreneurial talent, leading to a better formal economy as part of a natural evolution. Kim and Kang (2009)'s work is in this direction. They investigate the dynamic association the size of the informal economy and economic growth using Russian regional data, and find that that the lagged share of the informal economy of regional GDP in Russia is positively correlated with small enterprise formation in the same region. Their result implies that the informal economy helped entrepreneurial activities to grow in the face of government failure but such informal activities tended to become official over time. Nevertheless, this hypothesis is not fully investigated using data from micro survey.<sup>4</sup>

In this paper, we will try to fill the gap in the existing literature relative to the dynamic nature of the informal economy. More specifically, we attempt to answer the following key question: Is there any evidence that previous participants in the informal economy particularly individual economic activities subsequently become registered entrepreneurs? The answer to this question can show which one among the three views on the informal economy suggested by La Porta and Shleifer (2008) is consistent with Russia's experience during its transition. The Romantic view suggests that the dynamic relationship between previous experience of self-employment moonlighting and official entrepreneurship in the present is positive while the parasite and the dual economy view imply that the two variables are negatively and insignificantly related each other, respectively. This paper also asks three further questions relative to the informal economy: Is self-employment used as a transition mechanism to entrepreneurship?; Did the actual job changes take place after the participation of informal economy activities?; Does the experience of moonlighter as self-employed reduce the probability of failure as an official entrepreneur?

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<sup>4</sup> Some effort was made to understand the relationship between self-employment and moonlighting experience. For example, Guariglia and Kim (2006) use the RLMS to investigate the association between moonlighting and self-employment in Russia, and find that previous moonlighting encourages job changes to self-employment.

### III. Data and descriptive statistics

The data used in this paper consist of round 8 to 13 of the Russian Longitudinal Monitoring Survey (RLMS), corresponding to interviews held each year from 1998 to 2004 except for 1999, namely the post-crisis period in Russia.<sup>5</sup> The survey is based on a nationally representative sample of several thousands of households across the Russian Federation.<sup>6</sup> The RLMS contains detailed information on households' income and expenditure, as well as on individuals' demographic characteristics, education, and labor force activities, including those related to secondary jobs. We restrict our sample to adult individuals who have a main job, received positive wage from the main job in the previous month of the interview, and those who are younger than the full retirement age (60 for man and 55 for woman).

We classify an individual as holding a secondary job relating to individual economic activities if one answered “yes” to the following questions:

*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?*

As the above question suggests, this secondary job can be viewed as self-employment activities. In order to be classified as holding a multiple job, an individual also needs to state

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<sup>5</sup> The reason for using the data from round 8 is that the question of whether main job is official began to be asked from round 8. Furthermore, a possible regime change between the pre- and the post-crisis period, namely before 1998 and after 1998, might plague estimation results. However, we found that our main results do not change when we use the data from round 5, namely, 1994.

<sup>6</sup> The RLMS is managed by the University of North Carolina at Chapel Hill Population Centre, in collaboration with three agencies which include Paragon Research, the Russian Institute of Sociology, and The Russian Institute of Nutrition. The surveys from round 8 to round 13 took place in the following periods: October 1998-January 1999 for round 8, September-December 2000 for round 9, September-December 2001 for round 10, September-December 2002 for round 11, September-December 2003 for round 12, and September—December 2004 for round 13.

that she worked a positive number of hours in the last 30 days on her additional job, and that she received a positive wage payment on that job.

Table 1 reports variable means over the pooled sample for working-age population, together with standard errors and the ranges of the variables. Compared to non-moonlighters, multiple-job holders are more educated in higher education; especially, 28% of moonlighters have university degree while only 26% of non-moonlighters have. Monthly working hours of moonlighters in their main job are slightly lower than those of non-moonlighters, and the real wage rates of moonlighters in their primary jobs are similar to those of non-moonlighters. However, the moonlighters' real wage rates in the secondary jobs are more than two times higher than the wage rates in their primary jobs.<sup>7</sup> Regional differences are also noticeable: moonlighting is particularly high in the metropolitan cities.

An important step is to identify entrepreneurs from the survey data.<sup>8</sup> We consider two definitions for which we refer to 'definition A' and 'definition B', respectively. Our first definition of an entrepreneur (definition A) is based on the question:

*In your opinion, are you doing entrepreneurial work at this job?*

Those who answered 'yes' to the question are coded as entrepreneurs. We classify an individual as an entrepreneur (definition B) if she chose 'an entrepreneur' to the following question:

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<sup>7</sup> This comparison is based on money wages. Income in kind such as free or subsidized housing, health care, and nursery facilities 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) analyze 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.

<sup>8</sup> According to Hebert and Link (1989), entrepreneur is defined as "someone who specializes in taking responsibility for and making judgmental decisions that affect the location, form and the use of goods, resources, and institutions". This definition appears not to differentiate self-employment from entrepreneurs at larger firms. In contrast, Baumol (1993) emphasizes entrepreneur's role as innovator: entrepreneur is one who transforms inventions and ideas into economically viable entities, whether or not, in the course of doing so they create or operate a firm. This definition is more likely to apply to entrepreneurs at larger firms. Given that the questions we use here to define entrepreneurship are perception-related, it is difficult to distinguish entrepreneurs defined by Baumol from self-employment clearly. However, using other related questions like size of firms and ISCO codes, we try to follow Baumol's definition as close as possible.

*Read it carefully and say which answer best describes your primary occupation at the present time. Choose only one answer*<sup>9</sup>

The first definition of entrepreneurship, definition A, focuses on activities while the second one, definition B is based on occupation. A 96 percent of those who select ‘an entrepreneur’ for their main job according to definition B said ‘yes’ to the question asking entrepreneurial activities (definition A), while only a 23 percent of entrepreneurs under definition A is also classified as entrepreneurs under definition B. This suggests that definition B is stricter than definition A. Yet, some people like paid managers in a company may engage in entrepreneurial activities although they are not entrepreneurs in terms of occupations. Hence, we use both of the two definitions for our estimations.

Table 2 summarizes the numbers of entrepreneurs of each definition and their respective shares as a percentage of respondents reported to have main jobs by round. For definition A, the number of entrepreneurs is stabilized to around 4-5 percent of the working population from 2000 to 2004, followed by 8 percent in 1998. It is unclear what factors caused the downward adjustment of the share of the number of respondents responded to doing entrepreneurial work; it may be due to a change in the economic structure between pre- and post-Russian crisis that took place in 1998. The number of entrepreneurs as a share of the working population according to definition B is more stable; it has been around 3 percent in all periods. The average of the shares of the numbers of entrepreneurs as a percentage of the respondents having main jobs from 1998 to 2004 is 4.2%. This figure appears reliable as it is similar to the survey result by Global Entrepreneurship Report in 2007, which presents the

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<sup>9</sup> An interviewee can choose one of the following 14 answers in addition to ‘An entrepreneur’: ‘A high school or vocational school student,’ ‘A university or technical school student,’ ‘Unable to work for health reasons, disabled,’ ‘Retired and not working,’ ‘On maternity leave,’ ‘On official leave for looking after a child under 3 years old, not interrupting employment,’ ‘A housewife, caring for other family members, raising children,’ ‘Temporarily not employed for other reasons and looking for a job,’ ‘Temporarily not employed for other reasons and not looking for a job,’ ‘A farmer,’ ‘Working at an enterprise, organization, collective farm, state farm, or cooperative,’ ‘Working at other than an enterprise, organization, collective farm, state farm, or cooperative,’ and ‘Other.’

sum of the shares of early stage entrepreneurs and established ones of the workers was 4.3% (Bosma et al., 2008). In addition, this report suggests that Russia's entrepreneurial activity measured by such shares is the lowest among 42 countries included in the survey. For example, among transition countries, the sum of the shares of early stage entrepreneurs and established ones is 11.7%, 7.7%, and 6.5% in Hungary, Latvia, and Romania, respectively.

Table 3 shows occupational distributions of entrepreneurs according to ISCO (International Standard Classification of Occupations) codes. There exist systematic differences in occupational distribution between entrepreneurs and the whole population. Notably, entrepreneurs are concentrated in the group of 'legislators, senior managers, and officials', which is consistent with expectation. A 29 and 58 percent of working population belong to this group according to definition A and B, respectively, while only 6.8 percent of the working population are reported to belong to the same category.

Table 4 displays the conditional probability of becoming entrepreneurs following the spell of secondary self-employment activities compared with that without the experience of secondary self-employment activities. According to definition A, a conditional probability to become entrepreneur after engaging in secondary self-employment activities in the previous period is 7.15% while that without involving in such activities in the previous period is 4.94%. A similar difference is found when we apply definition B: a conditional probability to become entrepreneur post secondary self-employment activities is 3.63% while that without working in such activities in the previous period is 2.59%.

## **IV. Entrepreneurship, Moonlighting and Job Changes**

### ***Empirical Methodology***

In this section, we first investigate the question of whether one who had worked as

self-employed as a secondary occupation in the past will hold a sole job in the future as entrepreneur. To formally test the effect of moonlighting on the creation of entrepreneurship, we estimate random-effects probit regressions for the probability that previous moonlighters now become entrepreneurs. Given our interest in understanding the determinants of officially registered entrepreneurship, we use the sample of entrepreneurs officially registered.<sup>10</sup> Given the possibility of long-time interval to become an entrepreneur after participation in informal economy activities, we allow three lags of moonlighting. Using lagged moonlighting,

$$ENT_{it} = \alpha + \beta_1 M_{it-1} + \beta_2 M_{it-2} + \beta_3 M_{it-3} + X_{it} \theta + v_i + v_t + \varepsilon_{it} \quad (1)$$

where  $i$  indexes individuals and  $t$  indexes time.<sup>11</sup>  $ENT_{it}$  indicates that the individual  $i$  at time  $t$  choose an entrepreneur as one's main job.  $M_{it}$  is a dummy variable denoting an individual  $i$  moonlighted as self-employed in  $t$  period.  $X_{it}$  is the vector of control variables.<sup>12</sup>

In order to understand the effect of previous experience of self-employment as main job on the probability of becoming entrepreneurs, we estimate the following equation:

$$ENT_{it} = \alpha' + \beta'_1 SELFEMP_{it-1} + \beta'_2 SELFEMP_{it-2} + X_{it} \theta' + v'_i + v'_t + \varepsilon'_{it} \quad (2)$$

where  $SELFEMP_{it}$  indicates that the individual  $i$  at time  $t$  has a main job as self-employed.

We use two lags compared to three lags in the e previous equation because we are interested in interim situations between self-employment as secondary activities and registered entrepreneurs.

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<sup>10</sup> The question asking the respondents is as follows: "Are you employed in this job officially, in other words, by labor book, labor agreement, or contract?" This question was not asked to unincooperated self-employment. Before this question was asked, the following question was asked: "Tell me please, do you work at an enterprise or organization?" If the respondent replied "no", he/she is required to skip several questions including the question on whether the job is official. But entrepreneurs working at an enterprise were required to reply to this question. A 89.2% and 89.3% of respondents of total number of entrepreneurs according to definition A and B, respectively, replied that their job is official. Furthermore, owners of enterprises were requested to reply to this question.

<sup>11</sup>  $t$  refers to the rounds of the RLMS used in estimation. The available rounds are 8 to 13. Time dummies are included in all regressions. As regards lagged variables, we use data before round 8.

<sup>12</sup> We used a Heckman procedure to estimate above equation but including predicted entrepreneurial profits. The estimated profits turned out to be not significant. However, main results remain the same as the case without the variable.

Finally, we estimate the following equation for a job change:

$$JOBCHANGE_{it} = \alpha + \beta_1 M_{it-1} + \beta_2 M_{it-2} + X_{it} \theta + v_i + v_t + \varepsilon_{it} \quad (3)$$

where  $JOBCHANGE_{it}$  indicates that the individual  $i$  at time  $t$  changed his job. Our interest is to look at whether or not the current or previous moonlighting as self-employed is positively associated with job changes. The inclusion of two lags is consistent with Guariglia and Kim (2006) that finds the evolution from moonlighting into self-employment as a main activity is relatively fast as the first lag of moonlighting enters in the equation for self-employment with a positive sign.

### ***Empirical Results***

The regression results are presented in Table 5, which reports estimation results using definition A and B of entrepreneur. The highest probability of becoming entrepreneurs in Russia is found with those who are 45.4 and 47.9 years old depending upon which definition of entrepreneurship between definition A and B is used. It is noteworthy that becoming entrepreneurs following the spell of moonlighting is not driven by survival in Russia. As Table 5 shows, the two variables relative to satisfaction with life and concern about getting necessities are precisely determined. The negative correlation between satisfaction with life and the probability of becoming entrepreneurs suggests that those who feel satisfied with their life is more likely to involve in entrepreneurial activities after moonlighting.<sup>13</sup> In a similar way, as the positive association between the concern of job loss and the probability of becoming entrepreneurs indicates, the less concerned about job loss would be, the more likely

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<sup>13</sup> The variable of (1) satisfaction with life is coded as follows: (1) fully satisfied, (2) rather satisfied, (3) both yes and no, (4) less than satisfied, (5) not at all satisfied. The variable of concern about job loss is coded as follows: (1) very concerned, (2) a little concerned, (3) both yes and no, (4) not very concerned, (5) not concerned at all.

to become entrepreneurs.<sup>14</sup>

The positive relation between previous moonlighting and entrepreneurship is borne out on the coefficient on moonlighting in third lagged regardless of whether we use definition A and B. Among the key variables relative to moonlighting, neither of moonlighting in once nor twice lagged is significant, suggesting that it takes some time to become an officially registered entrepreneur after moonlighting experience. The positive association between moonlighting and entrepreneurship together with the above result on opportunity-driven motive for entrepreneurship implies that the former moonlighters tend to become registered entrepreneurs with a view to pursuing opportunities to improve their welfare actively. A positive impact of university education on entrepreneurship can be understood from this perspective.

The above findings indicate that moonlighting or multiple job holding is used as a risk-reduction mechanism for job changers in Russia. More specifically, moonlighting can help those who consider changing a job to entrepreneurs in the following ways. First, it can make a reversal to holding the previous one job less costly when the prospects of the secondary job tried turn out not to be bright. In such a way, secondary jobs can help those individuals, for whom changing jobs immediately would be too costly and risky, to start a new job or business more easily. Second, it provides sufficient time to obtain the necessary skills and information, and to accumulate human capital needed for entrepreneurship. Third, main jobs may provide network for future entrepreneurial activities, suggesting that keeping the main job for the time being is beneficial for individuals contemplating a job switch.

We check the robustness of the above results. Possible measurement errors in

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<sup>14</sup> In order to mitigate problems arising from endogeneity, we use once-lagged variables related to satisfaction with life and concern about job loss instead of the contemporary variables. Nevertheless, the two variables are still significant with expected signs: the coefficients (the associated t-values) of the variables of satisfaction with life and concern about job loss in the equation of entrepreneurship using definition A are -0.127 (-3.65) and 0.087 (2.94), respectively; those in the equation of entrepreneurship using definition B are -0.089 (-1.70) and 0.132 (3.12), respectively.



entrepreneurship are taken into account in three ways. First, we use our samples of entrepreneurs whose ISCO codes are up to 3999, namely, senior managers, professionals, technicians and associate professionals. The ISCO codes are unlikely to suffer from significant measurement errors because they were reported and verified on the basis of the replies of respondents about their position, profession, specialty, and responsibility in their main workplace. This restriction of our samples of entrepreneurs is expected to deal with a possible misreporting by some respondents who replied she is an entrepreneur but her answer is not consistent with occupational codes. Second, as in some earlier work Hurst and Lusardi (2004), we use business ownership as a proxy for entrepreneurship. More specifically, we use the replies of respondents to the question, “Are you personally an owner or co-owner of the enterprise where you work?”. The use of this reply can help to deal with problems in our using perception-related replies by further restricting entrepreneurs to owners of enterprises. Yet, an important consideration should be made not to include cases where employees participated in Russia’s mass privatization and bought some shares of their own enterprises. Hence, we classified entrepreneurs as owners or co-owners of enterprises which were simultaneously owned by neither the government nor other Russian private entities such as employees, Russian firms, and Russian individuals. In addition, we applied the same ISCO code restriction as above to the regression. Third, we use the data from the question asking “have you ever tried to organize your own enterprise or begin your own business?” The respondents were asked to choose from the following answers: never tried; tried, but nothing came of it; tried and succeeded. We classified the two latter answers as a proxy for attempt at entrepreneurship. In this way, the binary choice of an attempt to create business is used as a proxy for entrepreneurship.

Table 6 confirms that the previous experience of secondary self-employment activities is positively correlated with the probability of becoming entrepreneurs. Using the

data confining ISCO code to 3999 does not change the main result in that the coefficient on secondary self-employment activities lagged three times is still positive and significant. Such a result is reinforced by the results of both estimations using the data on business ownership or those using an attempt to organize your own enterprise or begin your own business.<sup>15</sup> Particularly, it is noteworthy that the main results remain the same as in Table 5 when entrepreneurship is defined on the basis of business ownership instead of entrepreneurial activities or occupations.

One can ask a question of why it takes significant time for moonlighting experience to affect officially registered entrepreneurship. One possibility is that moonlighting helps to create self-employment as a main job initially and the former self-employed evolve into entrepreneurs subsequently. This corroborates with Guariglia and Kim (2006)'s finding of the positive lagged impact of moonlighting on self-employment. Another conjecture is that moonlighting leads to unofficial entrepreneurial activities that transform themselves to registered ones in the future.<sup>16</sup>

Following the first conjecture, we estimate the effect of previous self-employment as main job on the probability of becoming entrepreneurs. In RLMS, there is no specific question of whether the respondent is self-employed. However, there are some questions from which job as self-employment is derived. First, there is a question in the context of main

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<sup>15</sup> In the estimations using the data on an attempt to open businesses, the previous experience of secondary self-employment activities in all lags is significant with the expected sign. The question does not specifically ask whether such an attempt is related to main job or secondary job, which may have caused very high  $t$ -value on all three coefficients relative to secondary self-employment.

<sup>16</sup> This conjecture is, however, difficult to test directly because of small sample size of entrepreneurs. A 10.8 and 10.7% of total entrepreneurs according to definition A and B, respectively, replied that their job is not official. An indirect test was made using the whole sample of entrepreneurs regardless of whether or not their job is official. In this estimation, the coefficient on secondary self-employment twice lagged instead of third lagged reported in Table 5 in the equation of entrepreneurship is significant and positive (the coefficient and the associated  $t$ -value are 0.290 and 3.58 according to definition A of entrepreneurship and these are 0.231 and 2.35 according to definition B). This implies that using the whole sample including unofficial entrepreneurs, the transition from secondary self-employment to entrepreneurs is faster than that using the sample of respondents replied their entrepreneurial activity is official. In other words, there is some indirect evidence that unregistered entrepreneurs become registered ones over time.

job as follows: *Tell me, please: At this job (main job) do you work at an enterprise or organization? I mean any organization or enterprise where more than one person works, no matter if it is private or state-owned. For example, any establishment, factory, firm, collective farm, state farm, farming industry, store, army, government services, or other organization.*

The respondents can answer: work at an enterprise or organization; (work) not at an enterprise, nor at an organization. We classify the respondents who chose the latter as unincooperated self-employment but not classified as entrepreneurs according to our two definitions of entrepreneurs (definition A of self-employment). Another question we use is one perceived by the respondents. A respondent was asked what activity he/she performs in the main job: one answer is entrepreneurship or individual labor activity (self-employed). We define respondents who chose this answer but were not classified as entrepreneurs according to our two definitions of entrepreneurs as self-employed (definition B of self-employment).

Table 7 shows that self-employment both once and twice lagged is precisely determined with positive sign. Previous experience of self-employment is highly significant in determining official entrepreneurship in both models using different definitions of self-employment. We further checked whether the positive association between previous experience of self-employment as a main job and entrepreneurship sustains when we use only the samples of enterprises where the number of workers exceeds ten. In other words, we made an additional distinction to self-reported ones to make these two occupations classified more clearly. The results are found to be substantially similar to those reported in Table 7.<sup>17</sup>

It suggests that self-employment as main job is used as a transition to entrepreneurship in Russia. In other words, previous moonlighters participating in informal

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<sup>17</sup> The first lag of self-employment is significant with correct sign in regressions using definition A of entrepreneurship (the coefficient and the associated t-value are 0.780 and 2.48, respectively). It is also found that the second lag of self-employment is significant with correct sign in regressions using definition B of entrepreneurship (the coefficient and the associated t-value are 1.818 and 3.27, respectively). The full results are not reported for the sake of space but are available from the author upon the request.

self-employment changed their main jobs initially to self-employment and subsequently they tend to become official entrepreneurs. In combination with Guariglia and Kim (2006)'s finding that an intention for a job change expressed in the current period is positively associated with moonlighting, these results suggest that secondary self-employment was used as a job switch mechanism to self-employment as main job and further to entrepreneurs.<sup>18</sup>

One can ask a question of whether actual job changes occurred after secondary self-employment. As regards actual job change, we use two methods to identify job changes. First, we use 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. In this case, the job switch occurs between the date of the previous survey and that of the present survey. According to this methodology, the annual average of the number of the respondents who switched jobs from 1994 to 2004 is 19.2% of total respondents. Second, we use the answer to the following question:

*Please try to recall whether you have changed your place of work or profession since (since the last survey date), or has everything remained the same?*

The respondents can choose: Profession and the place of work remain the same; changed profession, but not the place of work; changed place of work but not the profession; changed both the place of work and profession. Since our interest is to look at the change of job to self-employment and entrepreneurs, it is likely to involve changes both in profession and the place of work. Hence, we recode the respondents chose the last answer as job changers and others as non-job changers.

Table 8 shows the results about the relationship between previous secondary self-

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<sup>18</sup> Guariglia and Kim (2006) find that an intention for a job change expressed in the current period is positively associated with moonlighting. However, the question of whether respondents prefer to change a job was no longer asked after round 7.

employment and actual job changes. In both models based on different ways to identify job changes as explained above, secondary self-employment in the previous period is positively and significantly associated with actual job changes. In addition, there is a positive correlation between the secondary self-employment in the two period before and the actual job changes. Concerns about getting necessities and satisfaction with life are not significant in determining the actual job changes. Furthermore, the positive coefficient on concern about job losses suggests that the less concerned about job losses one has, the higher probability of job changes one makes. This finding might be explained by the fact that individuals who desired to switch jobs used secondary self-employment as an experimental mechanism, and actually changed their main job if the experiment was successful. A possible explanation for this finding could be that secondary self-employment in Russia is used as a mechanism that enables workers to experiment with a different job, instead of immediately shifting to it.

Using a survival function analysis, we further test whether the experience of previous secondary self-employment is human capital-enhancing activities. If such experience benefits those who changed jobs to entrepreneurs, the probability of success of official entrepreneurs who had worked as formal moonlighters must be higher than that of entrepreneurs who have not engaged in secondary self-employment. In order to test the above hypothesis, we first construct a variable capturing the duration of entrepreneurship. We relied on definition A of entrepreneurship and each case of entrepreneur was checked further against the two following questions about job changes: *Tell me, please, since what year and month have you been working at this place?; Please try to recall whether you have changed your place of work or profession since (since the last survey date), or has everything remained the same?* For example, if someone became an entrepreneur in a certain year, say, 2001, she must have changed the place of work or profession in the same year before the survey date. In addition, it is likely that she started working at the enterprises in the same year as above unless she was

promoted to an entrepreneur. Following the construction of the key variable on the duration of entrepreneurs, we use the Cox model with the assumption of the proportional hazard function. The Cox model is a semi-parametric method which can mitigate possible misspecification problems in the model, because we do not need to make any assumptions about the shape of a baseline hazard rate.

The results of the survival function analysis are presented in Table 9. The coefficient on the experience of secondary self-employment,  $\beta$ , is -1.559 and significant at the 5% significance level. The size of the coefficient is converted to 0.21 in hazard ratio, which is interpreted that official entrepreneurs who have participated in informal economy activities before would have reduced hazard rate by 79% compared to those who have not. This result implies that the previous experience with informal economy activities has a positive impact on survival as entrepreneur by reducing the risk of failure of entrepreneurship, leading to an increased duration of entrepreneurship.

In order to put the marginal effects of secondary self-employment on official entrepreneurship in a better context, Table 10 shows workers' transition to entrepreneurship after a spell of moonlighting as self-employed. We only focus on those moonlighters who hold a self-employed secondary job because we are interested in understanding whether they convert their main job to self-employment following a moonlighting spell as self-employed. Several observations can be drawn from the Table. Column 5 of the Table reports ratios obtained by dividing the number of workers who were moonlighting as self-employed at time  $t$  and hold a main job as entrepreneurs in period  $t+1$ ,  $t+2$ , and  $t+3$ , (column 1) by the total number of workers who hold entrepreneurship as a main job (column 3). These ratios, which ranged between 9% and 15%, suggest that following a spell of moonlighting, a significant number of people hold an entrepreneurial primary job.

The ratios reported in column 5, however, do not consider the fact that former

moonlighters might have already held a main job as entrepreneurs in period  $t$ . In addition, we look at newly emerged entrepreneurs out of moonlighting activities as a percentage of total entrepreneurs who became entrepreneurs in the current period. In other words, Column (6) indicates the ratio between the number of workers who did not have a main job as entrepreneurs, but who were moonlighting as self-employed in period  $t$ , and switched to a main job as registered entrepreneur at time  $t+1$ ,  $t+2$ , and  $t+3$  and the number of inflows in entrepreneurial activities in period  $t+1$ ,  $t+2$ , and  $t+3$ , respectively. The shares reported in Column (6) show that self-employment moonlighting contributes to the expansion of entrepreneurship in Russia, as it represents 16-22% of the new entrepreneurs.

## **V. Conclusions**

Using the RLMS, this paper looks at the relationship between self-employment moonlighting and entrepreneurship in Russia. Our findings can be summarized as follows. First, previous moonlighting is positively correlated with the probability to become entrepreneurs in the present. Second, previous self-employed as main job tend to become registered entrepreneurs and previous moonlighting is positively associated with present job changes. Third, the probability of failure as official entrepreneurs reduces substantially for those who have experienced secondary self-employment compared to those who have not.

These findings suggest that Russians use secondary self-employment as a mechanism to smooth the process of changing jobs, especially to entrepreneurs. 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 another. Furthermore, it can contribute to the formation of official entrepreneurship by enhancing human capital with less risk and by increasing the duration of entrepreneurship. We can therefore conclude that there

is a considerable interaction among the key variables in our analysis: secondary self-employment (moonlighting) and job change to entrepreneurs after the experience of self-employment as main job. Our findings imply that Russia's informal economy in the form of self-employment moonlighting may contribute to economic growth. Having said that, the characteristics of the informal economy are so heterogeneous and thus its effect on growth may differ significantly depending upon the forms of informal activities and conditions of each country.

The quantitative significance of newly emerged entrepreneurs from previous moonlighting experience is noticeable: 16-22% of the new entrepreneurs is due to those people starting entrepreneurs as a main job after a period of self-employment moonlighting. However, our findings should not be interpreted in a way that informal economy activities benefit the economy in overall. Rather, they indicate that Russian households respond to circumstances involving high risk in the best way they can by creating a 'self-help' mechanism to substitute for the missing institutions. Our findings also imply that policy makers should develop policies to reduce risks associated with a job change to entrepreneurs. These policies may include the provision of appropriate training and information for future entrepreneurs as well as speeding up the reform process and establishing good quality institutions.



**Table 1. Means of variables**

Engage in some additional kind of work	No			Yes		
	Mean	Stan. dev.	Min/max	Mean	Stan. dev.	Min/max
Number of observations	16,966			961		
Demographic characteristics						
Gender (woman=0, man=1)	0.467	0.498	0/1	0.604	0.489	0/1
Age	37.76	10.30	18/60	36.05	9.78	18/60
Marital status (single=0, married=1)	0.753	0.431	0/1	0.736	0.440	0/1
Number of children aged 0-6	0.254	0.486	0/5	0.281	0.483	0/3
Number of working-age males	1.119	0.667	0/6	1.115	0.647	0/4
Education						
Up to high school	0.890	0.311	0/1	0.896	0.304	0/1
Professional courses	0.317	0.465	0/1	0.378	0.485	0/1
Vocational training without secondary education	0.113	0.317	0/1	0.114	0.318	0/1
Vocational training with secondary education	0.254	0.435	0/1	0.279	0.448	0/1
Technical & medical school	0.354	0.478	0/1	0.295	0.456	0/1
University education	0.255	0.435	0/1	0.279	0.449	0/1
Postgraduate education	0.009	0.097	0/1	0.010	0.103	0/1
Main jobs						
Monthly real wages	3,647	4,120	20/155,791	3,398	3,870	75/45,167
Working hours per month	171.5	52.9	24/600	168.7	57.1	24/450
Wage rate	23.03	29.67	0.13 /861	22.51	32.07	0.47/402
Job tenure	7.89	8.26	1/47	6.86	7.26	1/36
Wage arrears (0=no, 1=yes)	0.200	0.400	0/1	0.283	0.451	0/1
Additional jobs (IEAs)						
Monthly real wages				1,256	1,975	0/24,126
Working hours per month				28.4	44.1	0/360
Wage rate				111.4	288.3	0/5425
Settlement type						
Town	0.751	0.432	0/1	0.788	0.408	0/1
Rural non-agricultural	0.055	0.228	0/1	0.044	0.206	0/1
Rural agricultural	0.193	0.394	0/1	0.166	0.372	0/1
Regions						
Moscow, St. Petersburg	0.112	0.316	0/1	0.135	0.342	0/1
Northern and North Western	0.069	0.254	0/1	0.054	0.226	0/1
Central and Central Black-Earth	0.199	0.399	0/1	0.151	0.359	0/1

Engage in some additional kind of work	No			Yes		
	Mean	Stan. dev.	Min/max	Mean	Stan. dev.	Min/max
Volga-Vyatski and Volga Basin	0.180	0.384	0/1	0.216	0.412	0/1
North Caucasian	0.102	0.303	0/1	0.113	0.314	0/1
Ural	0.168	0.370	0/1	0.164	0.370	0/1
Western Siberian	0.076	0.265	0/1	0.086	0.281	0/1
Eastern Siberian and Far-Eastern	0.090	0.286	0/1	0.080	0.271	0/1
<b>Occupations</b>						
Legislators, senior managers, officials	0.067	0.251	0/1	0.068	0.253	0/1
Professionals	0.168	0.374	0/1	0.192	0.394	0/1
Technicians and associate professionals	0.159	0.365	0/1	0.131	0.337	0/1
Clerks	0.059	0.236	0/1	0.039	0.194	0/1
Service workers, market workers	0.114	0.318	0/1	0.077	0.266	0/1
Skilled agriculture & fishery workers	0.004	0.065	0/1	0.012	0.111	0/1
Craft and related trades	0.141	0.348	0/1	0.223	0.416	0/1
Plant & machine operators assemblers	0.176	0.381	0/1	0.159	0.366	0/1
Unskilled occupations	0.107	0.309	0/1	0.094	0.292	0/1

**Notes:** The educational, occupational, and regional variables are dummy variables coded as 0 or 1. For instance, the variable 'up to high school' is coded 1 if the individual's highest educational qualification is high school or anything lower, and as 0, otherwise.

**Source:** RLMS, round 8-13

**Table 2. Numbers and shares of entrepreneurs**

RLMS round	Definition A		Definition B	
	Number	Percentage	Number	Percentage
Round 8 (=1998)	193	8.65	69	3.07
Round 9 (=2000)	120	4.70	85	3.05
Round 10 (=2001)	153	5.12	97	3.00
Round 11 (=2002)	149	4.60	113	3.20
Round 12 (=2003)	133	4.70	113	3.64
Round 13 (=2004)	109	3.95	87	2.88

*Note:* The percentages are calculated as the proportion of entrepreneurs of total respondents having main jobs.

*Source:* RLMS round 8-13

**Table 3. Occupations of entrepreneurs**

	Entrepreneur (Definition A)		Entrepreneur (Definition B)		Whole population	
	Number	Percentage	Number	Percentage	Number	Percentage
Legislators, senior managers, officials	249	29.23	324	57.65	1,218	6.79
Professionals	110	12.91	21	3.74	3,049	17.01
Technicians and associate professionals	151	17.72	31	5.52	2,831	15.79
Clerks	41	4.81	0	0	1,045	5.83
Service workers, market workers	127	14.91	99	17.62	2,018	11.26
Skilled agriculture & fishery workers	18	2.11	6	1.07	84	0.47
Craft and related trades	71	8.33	38	6.76	2,613	14.58
Plant & machine operators assemblers	56	6.57	36	6.41	3,153	17.59
Unskilled occupations	29	3.4	7	1.25	1,915	10.68
Total	852	100.00	562	100.00	17,926	100.00

*Source:* RLMS round 8-13

**Table 4. Conditional probability of becoming entrepreneurs after self-employment secondary activities**

	Entrepreneurship (definition A)		Entrepreneurship (definition B)	
	Experience of self- employment secondary activities	No experience of self- employment secondary activities	Experience of self- employment secondary activities	No experience of self- employment secondary activities
Conditional probability	7.15%	4.94%	3.63%	2.59%

*Source:* RLMS round 8-13

**Table 5. Effects of previous moonlighting on entrepreneurship**

Dependent variable: Entrepreneurship	Definition A		Definition B	
	Coeff.	<i>t</i> -value	Coeff.	<i>t</i> -value
Secondary self-emp. in the previous round	-0.030	-0.23	-0.169	-0.76
Secondary self-emp. in the two rounds ago	0.130	1.06	-0.171	-0.81
Secondary self-emp. in the three rounds ago	0.366***	3.36	0.360**	2.33
Demographic characteristics				
Gender (woman=0, man=1)	0.062	0.79	0.262**	2.37
Age	0.010***	3.48	0.023***	4.39
Age squared/1,000	-0.011***	-3.61	-0.024***	-4.33
Marital status (single=0, married=1)	-0.001	-0.01	0.175	1.12
Household characteristics				
Number of children aged 0-6	0.139**	1.98	0.076	0.72
Number of working-age males	-0.029	-0.45	-0.088	-0.81
Education				
Up to secondary school	Omitted category		Omitted category	
Vocational training & Technical school	-0.102	-1.17	0.167	1.33
University education	0.334***	3.61	0.383***	3.01
Postgraduate education	-0.102	-1.15	-5.900	-0.00
Settlement type				
Urban	Omitted category		Omitted category	
Rural	-0.081	-0.90	0.007	0.06
Regions				
Moscow, St. Petersburg	0.115	0.62	-0.652	-1.55
Northern and North Western	-0.364**	-1.82	-0.379	-1.15
Central and Central Black-Earth	0.173	1.16	0.379*	1.75
Volga-Vyatski and Volga Basin	0.084	0.54	0.229	1.03
North Caucasian	0.011	0.07	0.258	1.06
Ural	-0.151	-0.92	-0.219	-0.83
Western Siberian	0.217	1.25	0.335	1.35
Eastern Siberian and Far-Eastern	Omitted category		Omitted category	
Tenure	-0.025***	-4.60	-0.036***	-3.76
Satisfaction with life	-0.125***	-3.60	-0.098*	-1.88
Concern about getting necessities	0.113***	3.94	0.118***	2.88
Wald test $\chi^2(27)$	164.70		98.88	
Number of observations	10, 503		10,553	

*Note:* Time dummies are included but the coefficients are not reported for the sake of brevity. Significant variables at 10%, 5%, and 1% significance level are marked with \*, \*\*, and \*\*\*, respectively.

**Table 6. Effects of previous moonlighting on entrepreneurship (robustness check)**

Dependent variable: Entrepreneurship	ISCO code restriction		Business ownership	Attempt to open business
	Definition A	Definition B		
Secondary self-emp. in the previous round	0.241 (1.18)	-0.080 (-0.29)	-0.816 (-1.33)	0.395*** (3.74)
Secondary self-emp. in the two rounds ago	0.123 (0.60)	-0.077 (-0.28)	-0.411 (-0.72)	0.343*** (3.33)
Secondary self-emp. in the three rounds ago	0.472*** (2.76)	0.418** (2.06)	0.798** (2.12)	0.411*** (4.27)
Demographic characteristics				
Gender (woman=0, man=1)	0.704*** (5.24)	0.697*** (4.68)	0.833** (2.28)	0.652*** (8.10)
Age	0.017*** (3.67)	0.032*** (4.32)	0.032** (2.13)	0.019*** (6.78)
Age squared/1,000	-0.018*** (-3.55)	-0.032*** (-4.24)	-0.029** (-2.00)	-0.021*** (-6.97)
Marital status (single=0, married=1)	0.017 (0.10)	0.061 (0.30)	0.692 (1.44)	0.291*** (2.92)
Household characteristics				
Number of children aged 0-6	0.051 (0.42)	0.106 (0.72)	0.062 (0.23)	0.082 (1.20)
Number of working-age males	-0.077 (-0.72)	-0.071 (-0.50)	-0.245 (-0.93)	-0.059 (-0.96)
Education				
Up to secondary school	Omitted category			
Vocational training & Technical school	-0.049 (-0.32)	0.331* (1.91)	0.741* (1.79)	0.061 (0.70)
University education	-0.253 (-1.65)	-0.052 (-0.31)	-0.262 (-0.76)	0.375*** (3.96)
Postgraduate education	-0.438 (-0.90)	-5.490 (-0.00)	-0.212 (-0.00)	0.427 (1.30)
Settlement type				
Urban	Omitted category			
Rural	-0.230 (-1.42)	0.130 (0.82)	1.023** (2.66)	-0.327*** (-3.58)
Regions				
Moscow, St. Petersburg	0.166 (0.56)	-0.661 (-1.39)	-1.819* (-1.73)	-0.393** (-1.99)
Northern and North Western	-0.440 (-1.27)	-0.266 (-0.67)	-0.186 (-0.32)	-0.181 (-0.97)
Central and Central Black-Earth	0.278 (1.09)	0.417 (1.52)	0.109 (0.24)	0.003 (0.02)
Volga-Vyatski and Volga Basin	0.115 (0.44)	0.213 (0.76)	-0.477 (-0.96)	-0.087 (-0.58)
North Caucasian	-0.180 (-0.59)	0.111 (0.34)	-1.136* (-1.71)	0.267 (1.62)
Ural	-0.038 (-0.13)	-0.251 (-0.73)	-1.469* (-1.89)	-0.012 (-0.08)
Western Siberian	0.148 (0.49)	0.147 (0.45)	-0.642 (-1.02)	0.075 (0.43)
Eastern Siberian and Far-Eastern	Omitted category			
Tenure	-0.049*** (-5.52)	-0.050*** (-3.87)	-0.007 (-0.40)	-0.030*** (-5.93)
Satisfaction with life	-0.128** (-2.31)	-0.092 (-1.36)	-0.152 (-1.34)	-0.052 (-1.62)
Concern about getting necessities	0.171*** (3.86)	0.120** (2.28)	0.225** (2.48)	0.039 (1.43)
Wald test $\chi^2(27)$	141.65	86.63	101.29	311.78
Number of observations	4,574	4,594	4,595	10,474

*Note:* Time dummies are included but the coefficients are not reported for the sake of brevity. Significant variables at 10%, 5%, and 1% significance level are marked with \*, \*\*, and \*\*\*, respectively.

**Table 7. Effects of previous self-employment as main job on entrepreneurship**

Dependent variable: Entrepreneurship	Definition A				Definition B			
	Coeff.	<i>t</i> -value	Coeff.	<i>t</i> -value	Coeff.	<i>t</i> -value	Coeff.	<i>t</i> -value
Self-employment (once lagged–def. A)	0.529***	2.58			0.261	0.85		
Self-employment (twice lagged–def. A)	0.538***	2.82			0.780***	3.48		
Self-employment (once lagged–def. B)			1.742***	3.83			0.490	0.78
Self-employment (twice lagged–def. B)			1.344***	3.34			1.245***	3.02
Demographic characteristics								
Gender (woman=0, man=1)	0.131	1.56	0.086**	1.14	0.259**	2.17	0.218**	2.05
Age	0.014***	4.38	0.011***	4.21	0.025***	4.42	0.022***	4.47
Age squared/1,000	-0.015***	-4.42	-0.012***	-4.32	-0.026***	-4.32	-0.022***	-4.38
Marital status (single=0, married=1)	0.043	0.40	0.026	0.28	0.031	0.19	0.138	1.15
Household characteristics								
Number of children aged 0-6	0.056	0.72	0.053	0.78	0.092	0.78	0.085	0.83
Number of working-age males	-0.091	-1.32	-0.073	-1.22	-0.030	-0.26	-0.103	-0.99
Education								
Up to secondary school					Omitted category			
Vocational training & Technical school	0.097	1.03	-0.031	-0.38	0.216	1.59	0.138	1.15
University education	0.414***	4.18	0.383***	4.32	0.384***	2.80	0.363***	2.95
Postgraduate education	-0.264	-0.65	-0.317	-0.89	-5.499	-0.00	-5.883	-0.00
Settlement type								
Urban					Omitted category			
Rural	-0.114	-1.17	-0.115	-1.32	-0.116	-0.87	-0.004	0.04
Regions								
Moscow, St. Petersburg	-0.088	-0.44	0.011	0.06	-0.790*	-1.93	-0.556	-1.63
Northern and North Western	-0.270	-1.26	-0.372*	-1.91	-0.339	-1.46	-0.368	-1.13
Central and Central Black-Earth	0.307*	1.89	0.230	1.61	0.336	1.46	0.374*	1.78
Volga-Vyatski and Volga Basin	0.094	0.57	0.099	0.68	0.238	1.02	0.243	1.14
North Caucasian	0.094	0.50	-0.008	-0.05	0.250	0.96	0.254	1.08
Ural	0.065	0.38	-0.065	-0.42	-0.220	-0.80	-0.242	-0.94
Western Siberian	0.207	1.08	0.278*	1.67	0.108	0.38	0.333	1.38
Eastern Siberian and Far-Eastern					Omitted category			
Tenure	-0.027***	-4.70	-0.026***	-5.01	-0.035***	-3.44	-0.033***	-3.64
Satisfaction with life	-0.158***	-4.27	-0.113***	-3.47	-0.115***	-2.04	-0.089*	-1.77
Concern about getting necessities	0.123***	4.09	0.112***	4.14	0.152***	3.56	0.136***	3.50
Wald test $\chi^2(26)$		170.56		188.40		102.58		105.36
Number of observations		10,082		11,785		10,122		11,842

**Note:** Time dummies are included but the coefficients are not reported for the sake of brevity. Significant variables at 10%, 5%, and 1% significance level are marked with \*, \*\*, and \*\*\*, respectively.

**Table 8. Effect of secondary self-employment on actual job change**

Dependent variable: Entrepreneurship	Classified by start of working date		Classified by respondents' answers	
	Coeff.	<i>t</i> -value	Coeff.	<i>t</i> -value
Secondary self-emp. in the previous round	0.079	1.46	0.058	0.98
Secondary self-emp. in the two rounds ago	0.273***	6.12	0.193***	3.92
Demographic characteristics				
Gender (woman=0, man=1)	0.176***	5.19	0.080**	2.53
Age	-0.005***	-4.94	-0.001	-0.77
Age squared/1,000	0.002**	2.48	-0.000	-0.23
Marital status (single=0, married=1)	-0.077**	-2.01	-0.118***	-3.07
Household characteristics				
Number of children aged 0-6	-0.069**	-2.42	-0.018	-0.62
Number of working-age males	-0.025	-1.03	-0.003	-0.14
Education				
Up to secondary school		Omitted category		
Vocational training & Technical school	-0.053	-0.49	0.061*	1.75
University education	-0.182	-1.24	-0.030	-0.74
Postgraduate education	-0.023	-1.04	0.152	0.97
Settlement type				
Urban		Omitted category		
Rural	-0.088**	-2.31	-0.057	-1.61
Regions				
Moscow, St. Petersburg	0.119	1.52	-0.190**	-2.44
Northern and North Western	0.225***	2.90	0.004	0.05
Central and Central Black-Earth	0.045	0.70	0.017	0.29
Volga-Vyatski and Volga Basin	0.015	0.23	-0.042	-0.69
North Caucasian	-0.056	-0.78	-0.087	-1.30
Ural	0.019	0.29	0.011	0.19
Western Siberian	0.006	0.09	-0.107	-1.50
Eastern Siberian and Far-Eastern		Omitted category		
Concern about job loss in the previous round	0.019**	1.99	0.028***	2.70
Satisfaction with life	-0.018	-1.33	-0.001	-0.05
Concern about getting necessities	0.021*	1.69	-0.022	-1.60
Wald test $\chi^2(26)$	506.16		2887.31	
Number of observations	19,946		19,946	

**Note:** Time dummies are included but the coefficients are not reported for the sake of brevity. Significant variables at 10%, 5%, and 1% significance level are marked with \*, \*\*, and \*\*\*, respectively. Tenure is not included as this variable is highly correlated with our definition of job change on the basis of starting date of work.



**Table 9. Effect of previous moonlighting on the duration of entrepreneurship**

Dependent variable: The duration of the entrepreneurship	Hazard Ratio (= $\exp(\gamma)$ )	Coeff. ( $\gamma = (\beta, \theta)'$ )	z-value
Secondary self-emp. between 2 and 3years ago before beginning official entrepreneurship	0.21**	-1.559**	-1.99
Demographic characteristics			
Gender (female=0, male=1)	1.33	0.285	0.7
Age <sup>1)</sup>	0.998	-0.002	-0.78
Marital Status (single=0, married=1) <sup>1)</sup>	1.555	0.442	0.87
Household characteristics			
Number of Children aged 0-6 <sup>1)</sup>	1.09	0.086	0.34
Number of working-age males <sup>1)</sup>	0.886	-0.121	-0.32
Education			
Vocation training and Technical school <sup>1)</sup>	1.144	0.134	0.3
University and Postgraduation <sup>1)</sup> education	0.641	-0.444	-1.03
Regions			
Moscow, St. Petersburg		Omitted category	
Northern and North Western	0.291*	-1.236*	-1.88
Central and Central Black-Earth	0.476	-0.743	-1.33
Volga-Vyatski and Volga Basin	0.438	-0.825	-1.22
North Caucasian	0.412	-0.888	-1.48
Ural	0.575	-0.553	-0.73
Western Siberian	0.402	-0.911	-1.17
Eastern Siberian and Far-Eastern	0.323	-1.13	-1.46
Number of observations		273	
Number of right-censored obs.		231	

*Notes:* The variables marked by 1) are time-covariant variables. The model is estimated using semi-parametric estimation based on Cox regression with robust standard errors. Time dummies and family dummies are included but the coefficients are not reported for the sake of brevity. Significant variables at 10%, 5%, and 1% significance level are marked with \*, \*\*, and \*\*\*, respectively.

**Table 10. Occupational transition following moonlighting**

Period	Terminal Occupation	Those who moonlighted in initial period $t$		Total number of individuals (3)	Inflow into jobs (4)	$\frac{(1)}{(3)}$	$\frac{(1)-(2)}{(4)}$
		Number of individuals (1)	Number of individuals who already had this occupation as main job (2)			(%) (5)	(%) (6)
$t+1$	Entrepreneur (Definition A)	91	22	1,003	397	9.0	17.4
	Entrepreneur (Definition B)	109	42	834	363	13.1	18.5
$t+2$	Entrepreneur (Definition A)	98	17	855	372	11.5	21.8
	Entrepreneur (Definition B)	111	37	739	390	15.0	19.0
$t+3$	Entrepreneur (Definition A)	94	20	705	342	13.3	21.6
	Entrepreneur (Definition B)	89	28	628	379	14.2	16.1

**Note:** In column 1, the number of individuals refers to those who were moonlighting as in period  $t$ , and who hold main jobs as entrepreneurs (definition A or definition B), in turn, in period  $(t+1)$ ,  $(t+2)$  or  $(t+3)$ . Column 2 gives the number of individuals who were moonlighting and held main jobs as entrepreneurs in period  $t$  and who are entrepreneurs in period  $(t+1)$ ,  $(t+2)$  or  $(t+3)$  respectively. In column 3, total number of individuals is defined as the number of individuals who are entrepreneurs in period  $(t+1)$ ,  $(t+2)$  or  $(t+3)$ , and who participated in RLMS survey in period  $t$ . In column 4, inflow into jobs is defined as the number of individuals who newly become entrepreneurs in period  $(t+1)$ ,  $(t+2)$  or  $(t+3)$  respectively, and who participated in RLMS survey in period  $t$ .

**Source:** RLMS, round 8-13

## References

- Aghion, P. and P. Howitt, 1997, *Endogenous Growth Theory*, MIT Press, Cambridge Massachusetts.
- Asea, P. K., 1996, "The Informal Sector: Baby or Bath Water? A Comment," *Carnegie-Rochester Conf. Ser. Pub. Pol.*, 163-171.
- Baumol, William J., 1990, "Entrepreneurship: Productive, Unproductive, and Destructive," *Journal of Political Economy*, Vol. 98, Issue 5: pp. 893-921.
- Baumol, William J., 1993, *Entrepreneurship, Management and the Structure of Payoffs*, Cambridge: MIT Press.
- Berkowitz, D. and D. N. Dejong, 2005, "Entrepreneurship and Post-socialist Growth" *Oxford Bulletin of Economics and Statistics*. Vol. 67, No. 1, 25-46.
- Blanchflower, David and Andrew J. Oswald, 1998, "What Makes an Entrepreneur?" *Journal of Labor Economics*, Vol. 16, Issue 1: pp. 26-60.
- Bosma, N., Jones, K., Autio, E., and Levie, J., 2008, *Global Entrepreneurship Monitor: 2007 Executive Report*, Babson College, London Business School and Global Entrepreneurship Research Consortium.
- Djankov, S., E. Miguel, Y. Qian, and G. Roland, E. Zhuravskaya, 2006, "Entrepreneurship in China and Russia Compared?" *Journal of the European Economic Association*, Papers and Proceedings, 4(2-3), 352-65.
- Earle, J. S. and Z. Sakova, 1999, "Entrepreneurship from Scratch: Lessons on the Entry Decision into Self-Employment from Transition Economics," IZA Discussion Paper, No. 79.
- Evans, David and Boyan Jovanovic, 1989, "An Estimated Model of Entrepreneurial Choice under Liquidity Constraints," *Journal of Political Economy*, Vol. 97: pp.808-827.
- Friebel, G., and S., Guriev, 1999, "Why Russian Workers Do Not Move: Attachment of Workers through In-kind Payments", Working Paper No. 283, William Davidson Institute at the University of Michigan Business School.
- Gosudarstvennyi Komitet Rossiiskoi Federatsii Po Statistike (Goskomstat), 1999, *Natsionalnye scheta Rossii v 1998 godu: statisticheskii sbornik* (National Accounts of Russia in 1998: Statistical Collection), Moscow.
- Guariglia, A. and B-Y Kim, 2006, "The Dynamics of Moonlighting: What is Happening in the Russian Informal Economy?" *Economics of Transition*, Vol. 14, No. 1, 1-45.
- Hebert, R. and A. Link, 1989, "In Search of the Meaning of Entrepreneurship," *Small*

- Business Economics*, Vol. 1, 39-49.
- Hurst, Erik and Annamaria Lusardi, 2004, "Liquidity Constraints, Household Wealth, and Entrepreneurship," *Journal of Political Economy*, Vol. 112, Issue 2, 319-347.
- Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen, 1994, "Entrepreneurial Decisions and Liquidity Constraints," *Rand Journal of Economics*, Vol. 25, 334-347.
- Johnson, S., D., Kaufmann, and A., Shleifer, 1997, "The Unofficial Economy in Transition", *Brookings Papers on Economic Activity*, 159-221.
- Kihlstrom, R. and J. Laffont, 1979, "A General Equilibrium Theory of Firm Formation based on Risk Aversion," *Journal of Political Economy*, 87, 719-748.
- Kim, B-Y, 2002, "Russian Households Participation in the Informal Economy: Evidence from VTsIOM Data," *Economics of Transition*, Vol. 10, No. 3, 2002, 685-713.
- Kim, B-Y and Kang, Y., 2009, "The Informal Economy and the Growth of Small Enterprises in Russia," *Economics of Transition*, 17, No. 2, 351-376.
- La Porta, Rafael, and Shleifer, Andrei, 2008, "The Unofficial Economy and Economic Development," *Brookings Papers on Economic Activity*.
- Lacko, M., 2000, "Hidden Economy - an Unknown Quantity?" *Economics of Transition*, 8, No. 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.
- Loayza, 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, 129-162.
- McMillan, J. and C. Woodruff, 2002, "The Central Role of Entrepreneurs in Transition Economies," *Journal of Economic Perspectives*, Vol. 16, 153-170.
- Murphy, Kevin, Andrei Shleifer and Robert Vishny, 1991, "The Allocation of Talent: Implications for Growth," *Quarterly Journal of Economics*, Vol. 106, 2: pp. 503-530.
- Pattillo, C., 1998, "Investment, Uncertainty, and Irreversibility in Ghana," *IMF Staff Papers*, 45, 522-553.
- Schumpeter, Joseph A., 1934, *The Theory of Economic Development*, Cambridge: Harvard University Press.
- Stuart, T., Hoang, H., and Hybels, R., 1999, "Inter-organizational Endorsements and the Performance of Entrepreneurial Ventures," *Administrative Science Quarterly*, 44, 2, 315-349.