Risk, Sex Differences and Self-Employment

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Abstract

In this paper, we examine the role of risk preferences and wealth on the decision of becoming an entrepreneur. In the first instance, we focus our analysis on Poland - a country which has undergone very large societal changes. The transition environment in this country provides an interesting setting for examining the changing level of self-employment (Masters and Meier (1988)). We compare differences among female and male entrepreneurs to identify the reasons for becoming self-employed. Past studies suggest that whilst for men the decision to enter self-employed is mostly income-driven (improvement of economic situation), a significant fraction of women decide to become self-employed trading off income for a more flexible work arrangement and other non-pecuniary benefits associated with self-employment.

First, we compare our measures of risk by gender and then model the decision to become an entrepreneur for women and men separately. To our knowledge this is the first paper to attempt this type of analysis on the propensity of becoming self-employed using data from a new EU member state. The preliminary results suggest a nonlinear relationship between household wealth (proxied by savings) and the propensity to self-employment. For men individual risk preferences play an important role where risk takers are more likely to work as self-employed. For women, family composition seems to have a greater effect. In addition, we find that highly educated women with young children are more likely to pursue the entrepreneurial career path. Possibly because it provides them with the opportunity to have flexible work arrangements and allows them to develop their entrepreneurial skills.

Keywords: Gender; Risk; Self-Employment; Poland;

JEL classification codes: D31; G11; J61

1 Introduction

In this paper, we bridge two types of literatures. The first, on the role of wealth and risk in the decision making process of becoming an entrepreneur and its differential effect on men and women. The second concerns the move into self-employment in a transition country in the early 2000s.

There is a common belief that women are more risk averse and hence are most conservative in their financial decisions than men (eg. Croson and Gneezy (2009)). More recent research has challenged this view pointing to other factors such as individual risk preferences, cultural background and socio-demographic characteristics that may play a role and not gender per se (Carroll et al. (1994), Finucane et al. (2000), Badunenko et al. (2009), Booth and Nolen (2009), Arano et al. (2010)). We examine the role of risk preferences on the decision of becoming an entrepreneur. In the first instance, we focus our analysis on Poland - a country which has undergone very large societal changes. The transition environment in this country provides an interesting setting for examining the changing level of self-employment (Masters and Meier (1988)). We compare differences among female and male entrepreneurs. Some studies suggest that whilst for men the decision to enter self-employed is mostly income-driven (improvement of economic situation), a significant fraction of women decide to become self-employed trading off income for a more flexible work arrangement and other non-pecuniary benefits associated with self-employment[1](Connelly (1992), Devine (1994), Williams (2000), Hurst and Lusardi (2004), Budig (2006)). Our study is a contribution to the literature on the propensity of becoming self-employed and risk preferences. We take advantage of a unique dataset on -hand in Poland- a transition country and new EU member state.

In the first section of the paper, we compare our measures of risk by gender. Our preliminary results for Poland indicate that women exhibit more risk averse behavior, although, the results vary whether it is a positive or negative lottery. Next, we model the decision to become an entrepreneur and try to identify differences among men and women and the above mentioned entrepreneurship types by looking at individual income, risk preferences, type of work performed (professional/nonprofessional), household wealth and household composition. To our knowledge this is the first paper to attempt this type of analysis on the propensity of becoming self-employed using data from a new EU member state. Our contribution to the literature also stems from the fact that we take into account possible differences that could exist among women and men with a special focus on risk preferences.

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[1]The underdeveloped social infrastructure in Poland makes it difficult to reconcile career with family life and could, for example, stimulate such career strategy

2 Background Information

2.1 Role of risk in becoming self-employed

The literature on the role of risk in the entrepreneur literature is rather rich and provides several strands. Here, our interest is on two of these (for a more exhaustive treatment consult Parker (2009)). The first, compares risk attitudes between entrepreneurs and non-entrepreneurs. Miner and Raju (2004) state that the literature on this issue remains inconclusive with entrepreneurs being slightly less risk-averse than managers in earlier literature particularly those whose main goal is venture growth rather than just income generation. The literature, which compares the risk attitudes of female and male entrepreneurs indicates that there are no significant differences among the two groups (Masters and Meier (1988)) of entrepreneurs. Also cite Verheul et al. (2006)

2.2 Gender differences in becoming self-employed

There exist differences in self-employment rates between men and women and women tend to be a minority of the self-employed workforce in all developed countries (see Parker (2009) for references) although the trend has been for women to enter self-employment at a faster pace. Self-employed females remain over- represented in some industries such as services (sales, financial, insurance and real-estate; professional services and business services, Bates 1995). Self-employed females are more likely to be married and have children and the argument that the costs of child-care may be one reason underlying these results, since self-employment creates more flexible work arrangements. Though, Lombard (2001) finds that although demand for non-standard work schedules is important, most of the rise in female self-employment is due to women's increased earnings potential in self-employment. Family variables on the other hand have little impact on male self-employment rates. Having a self-employed husband also seems to increase the probability that a women will be self-employed. Using and EU wide cross-sectional survey Cowling (2000) finds that in eight of the thirteen countries tested no significant gender effects on self-employed exist. In his probit specification he also controls for age, martial status and education, but not for risk or other personality traits. He finds that entrepreneurs are not a homogeneous group and constraints on entrepreneurship could be more binding in some countries. Georgellis and Wall (2005) examine gender differences in the determinants in self-employment in Germany and find that men are more responsive to wage differential between salaried and self-employment sectors and that liquidity constraints are more important for men than for women. Also see Parker (2009)

2.3 The case of Poland-why it could be different?

The case of the self-employed is particularly interesting for a country such as Poland-a transition country, where the self-employment rate in 1989 was quite low and then grew extremely rapidly (Earle and Sakova (2000)).[2] The rise could be explained by a sudden liberalization of prices and business entry and by drastic structural shocks and contraction of other economic activity. Since its peak in the mid 1990s, the self-employment rate declined steadily in both absolute and relative terms. The negative relationship between economic development and the share of self-employment is often explained as an effect of the rise of real wages (Wennekers et al. (2010)), which makes working as an employee (usually in much safer conditions) more attractive. In the light of rapid growth of real wages in Poland the relationship between risk preferences and self-employment is especially worth investigating.

3 Data

In the paper we exploit the data from the survey 'Diagnoza Spoleczna' (Social Diagnosis). The survey is conducted on a representative sample of people living in Poland (aged 16 and above) and takes into account many significant aspects of the life of individual households and their members, both the economic (income, material wealth, savings and financing), and the not strictly economic (education, medical care, problem-solving, stress, psychological well-being, lifestyle, pathologies, engagement in the arts and cultural events, use of new communication technologies as well as and many others). The survey was initiated in the year 2000 and has a panel structure. At the moment five waves of data are available (2000, 2003, 2005, 2007, 2009) with the sample size ranging between 6 and 26 thousands.

3.1 Sample

Our sample consists of persons aged 20-60 who were either heads of families or their partners. We excluded from the sample farmers as they compose very specific self-employed group. Besides employees, in the main sample we include students, unemployed, pensioners, retirees and professionally inactive persons since they could potentially enter self-employment.

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[2]According to Earle and Sakova (2000) Poland exhibited the highest growth rate of the self-employed in the early 1990s among six transition countries.

3.2 Measure of risk

The measure of risk preferences is obtained from two questions, which were included in two waves of the survey (in 2003 and 2005):

- If you won a bet for PLN 200 and had a choice: take the amount of PLN 200 or toss a coin and either get nothing if it is heads or get PLN 400 if it is tails - what would you choose? (1. take PLN 200 at once, 2. toss a coin and either get nothing or PLN 400).

- If you lost a bet for PLN 200 and had a choice: either pay PLN 200 at once or toss a coin and either pay nothing if it is heads or pay PLN 400 if it is tails - what would you choose? (1. pay PLN 200 at once 2. toss a coin and either pay nothing or pay PLN 400).

We use these two questions to construct our variables: risk preference for loss and risk preference for profit. The two variables take on values 1 if the respondent chooses the more risky option in each of the questions and zero otherwise. The risk propensity question was asked only in the second and third wave of 'Social Diagnosis' hence we pooled observations from the years 2003 and 2005. If a person participated in both waves of the survey, we took into account only observations from the year 2005. Our initial results are in accordance with previous findings on risk preferences and gender. All results are statistically significantly different between women and men in Table 1. Around 30 percent of men are risk-takers regardless of what option is at stake (to win or to lose). Women are more risk-averse with less than 20 percent choosing the more risky option. However, this picture is different in the group of self-employed. If the question concerned the possibility to lose women were more likely to remain risk-averse (about 75 percent) and over 30 percent are in favor of the positive lottery. This preferences for a positive lottery is also observed for men. As the 'Social Diagnosis' contains two measures of risk preferences: for loss and for profits, we chose the latter for the econometric specification. We find it explains better the variability of the dependent variable.

3.3 Savings

In line with many studies (e.g Hurst and Lusardi 2004, Do and Duchene, 2008) we assumed that a decision to become self-employed is subject to financial constrains. The data set we exploited did not allow us to construct a household wealth variable in the same way as Hurst and Lusardi who defined it "as the sum of savings and checking accounts, bonds, stocks,

individual retirement accounts, housing equity, other real estate, and vehicles, minus all debt." (pp. 323-324). Instead, we used savings as a proxy for wealth. In 'Social Diagnosis' savings include household financial resources in cash, bank deposits (both in Polish and foreign currencies), bonds, investment funds, individual pension funds, securities quoted on the stock exchange, shares and stocks in private joint-stock companies, investments in real estate property, investments in goods other that real estate. The amount of savings is not measured directly but in categories, as an equivalent of a monthly household income. In order to construct a measure of savings we multiplied a household monthly income by the middle value of the respective category. In order to grasp a non-linear relationship between wealth and a propensity of being self-employed reported by Hurst and Lusardi we used a fifth-order polynomial in savings in most specifications.

3.4   Liabilities

Contrary to Hurst and Lusardi (2004), we do not subtract household debt from household savings. Since we do not know whether the respondents reported gross or net savings we decided to add a separate debt variable to our models. The amount of a household debt in the survey is measured in the same way as savings (as an equivalent of a monthly household income). We construct a debt variable in the same way as a savings variable.

3.5   Demographic Variables

In our models we included a set of control variables. Educational attainment is expressed by a set of dummy variables indicating low (less than high school), medium (high school) and high (higher educational degree) educational level. The potential professional experience is proxied by age (and its quadratic term) of respondents. In line with studies of Connelly (1992), Devine (1994) and Budig (2006) we expected that an occupational choice is potentially affected by the structure of the family, especially when differences between men's and women's decisions are under scrutiny. The set of household composition variables includes number of persons in a household and number of minors under age 18, a dummy for living in a multigenerational family, a dummy for having children in a preschool age (aged 3 and below) and marital status variable. We included also controls for individual's profession (9 major occupational groups classified according to International Standard Classification of Occupations, ISCO-88), region of residence (16 voivodships/provinces) and indicator variables for the wave year (2003 or 2005).

3.6 Other variables

We use a third proxy for financial liquidity, which is the average household income from previous two years.

In some specification of our model we added proxies for bargaining power: a dummy for being a family head and a dummy if a length of schooling of a respondent exceeded a length of schooling of her/his partner.

In the full probit model (See section 4.1 for details) an auxiliary equation is an earnings equation developed by Mincer (1974). Since 'Social Diagnosis' does not have an exact measure of earnings, an individual labor income is proxied by the variable 'personal income'. However, in the full probit model a sample consists only of individuals who defined themselves as employed or self-employed. In this group all the respondents stated that their main source of revenues was labor income, hence 'personal income' seemed to be a good proxy for individual earnings.

4 Methodology

4.1 Empirical strategy

First, we examine the determinants of self-employment for the population as a whole testing various specifications. Then we compare the results for women and men to see whether there are gendered effects of any of the explanatory variables. Finally, in order to address the issue of selection bias, we estimate a full probit model. In this model we follow a standard three step procedure (eg. Lee (1978), Bernhardt (1994), Johansson (2000), Constant and Zimmermann (2004), Do and Duchene (2008)). In the first step, we estimate the determinants of self-employment (alternatively to being an employee) using a (reduced) probit model. We exclude the measure of average household income from the set of regressors since we expect that this variable could cause simultaneity problem in the second step. Next, based on the Mincer model we estimate potential earnings an individual could receive in employment and self-employment. In the last step, predicted earnings differences are used as an additional variable in the full probit model.

The participation equation in self-employment is as follows:

$$SE_i^* = X_i\beta + U_i \tag{1}$$

where SE_i^* is an indicator variable equal to 1 if individual i chooses to be an entrepreneur and 0 otherwise; X_i is a set of explanatory variables; β is a vector of coefficients and u_i is a disturbance term with unit variance.

Since the self-employed may be a selected group, in order to control for self-selection we also consider our model as one of occupational choice and apply the traditional econometric strategy of the Heckman two-step, which considers two occupations (j): self-employment and wage employment. In this model each individual has a vector of observable characteristics X_i and derives utility $U_{ij} = U(X_i; j) + u_{ij}$. where U(.;.) is utility and u_{ij} is idiosyncratic unobserved utility.

Let's assume z_i^* measures the relative advantage for individual i of being in self-employment (SE) versus having a salaried job (W)

$$z_i^* = U(X_i; SE) - U(X_i; W) + u_{iSE} - u_{iW} = X_i\beta + u_i \tag{2}$$

then $\beta = \beta_{SE} - \beta_W$ is a vector of coefficients and $u_i = u_{iSE} - u_{iW}$ and $u_i \tilde{} IIN(0, \sigma^2)$ is the disturbance term. In this case, $z_i = 1$ if $z_i^* > 0$ and individual chooses self-employment and $z_i = 0$ if $z_i^* \leq 0$ and individual chooses wage employment. The utility derived depends on the earnings each individual expects to obtain from each alternative - these may affect men and women differently. Hence, the earnings equation is estimated separately for the two groups.

The earnings function for each occupation is the following:

$$[\ln y_{iSE} | z_i = 1] = M_i\gamma_{SE} + \vartheta_{SE}\lambda_{iSE} + v_{iSE} \tag{3}$$

$$[\ln y_{iW} | z_i = 0] = M_i\gamma_W + \vartheta_W\lambda_{iW} + v_{iW} \tag{4}$$

where $\lambda_{iSE} = -\frac{\phi(\hat{z}_i)}{\Phi(\hat{z}_i)}$
and $\lambda_{iW} = \frac{\phi(\hat{z}_i)}{1-\Phi(\hat{z}_i)}$ are the inverse Mills Ratio calculated from eq(2) to correct from selectivity into each occupation and allow for the consistent estimation of the earnings equation. $\phi(\hat{z}_i)$ and $\Phi(\hat{z}_i)$ are standard normal density functions and standard normal cumulative, respectively, evaluated at $(-X_i\beta/\sigma_u)$. The predicted earnings differences derived from the wage equations are used in the full probit model as additional regressors.

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4.2 Dependent variable

In the first instance we focus on two dependent variables. The first, is the probability that at a point in time women and men are self-employed and the second is the decision of becoming a business owner in a given year. Both have their advantages and disadvantages.[3] First, we compare descriptive statistics of entrepreneurs using both variables. In Table 2 we find that self-employed women and men differ. Statistically significant differences between women and men entrepreneurs are found in marital status (women entrepreneurs are less likely to be single and married compared to men and more likely to be divorced). Women are less likely to have low education and significantly more likely to have high education. They are less likely to have children under 18 and are less likely to go for the negative or positive lottery than men. Women are also significantly more likely to have higher savings. These patterns slightly change when the business owner definition is used, but are robust if we only consider those statistically significantly different. Overall, the results are stronger with the first definition. This pattern of stronger results is also found in our regression estimates, hence we only report the result for the self-employment status.

5 Empirical Results

In this section we begin by focusing our attention on the relationship between wealth and self-employment and whether there are any gendered effects in the explanatory variables. We also introduce risk preference into the model and examine its differential effect in comparison with other controls on men and women. Finally, we introduce occupational groups (professionals/nonprofessionals) into the regressions. In the subsequent subsections we estimate alternative earnings and estimate a full probit model.

5.1 Self-employment, savings, risk and profession

Here, we examine whether the relationship between wealth or savings (as this is captured in our survey) and becoming self-employed is non-linear as in (Hurst and Lusardi (2004)) and only strong and positive for the richest households or whether this relationship is weaker. Both, Carroll (2002) and Charles and Hurst (2003) have found that those at the top of the wealth distribution are substantially more willing to take risks. The idea is that if liquidity constraints are important, low-wealth households should be less likely to start

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[3]Researchers argue that the first confounds entry and survival effects, but the second excludes people that are already successfully running their own business. Both groups are of interest and we examine both at the start. See Parker (2009) for details.

businesses, particularly those that require high capital investments. If indeed there is a positive relationship between savings and being self-employed then liquidity constraints should disappear at higher levels of wealth as these constraints should vanish. For this reason we also include the debt variable in our regression.

In figure 1 we report probit estimates of the effect of household savings using several specification. In the first and fourth columns we consider the current level of savings-the "linear" specification and in the others we use a fifth-order polynomial and refer to this as the "non-linear" model. In the regressions we also include income, debt and various demographic variables. In the linear model the coefficient on savings is significant in column (1) suggesting that there is a strong relationship between savings and being self-employed. In the non-linear specification the the coefficient on savings is positive and significant. The average marginal effect from the second model is larger for the nonlinear model than for the linear model (.053 versus -.003).

In column 4 - 6, we show the results with the inclusion of the risk variable, which remain robust for the non-linear specification. There is a positive, significant relationship between choosing a risky option and the probability of being self-employed.

In the third specification we include indicators for industry. Hurst and Lusardi (2004) are able to classify these according to starting capital to test whether wealth matters for self-employment in industries with high starting capital more than in others. Our classification is slightly different [4] and in fact may serve as a proxy for other characteristics of the Polish labor market. Simple descriptive statistics indicate that managers are by far most likely to be self-employed, followed by clerks. Our estimated results are in column (3) and (6) of figure 1. The coefficient on the occupation variables are in line with our descriptive results, confirming that even controlling for other characteristics managers are most likely to be self-employed. In addition the fit of the model almost triples. The savings variable remains significant and positive.

In terms of other variables included in the regressions we find income, education and marital status to be significant. Including the professional indicators affects the significance of marital status. What remains robust is the positive effect of income on self-employment, risk preferences and the fact that women are significantly less likely to be self-employed than men. In the next subsection we explore gender differences in more detail.

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[4]The ISCO-88 occupation classification is as follows: managers, specialists, technicians/middle personnel, office workers, clerks/service-workers, farmers, craftsmen/ blue-collars, machine operators and the untrained.

5.2 Self-employment, savings, risk and profession: Gender differences

After establishing the robust role risk plays in the previous regressions we examine the determinants of self-employment separately for women and men to see if there are any gender effects in all the explanatory variables. Some previous papers dealt with possible gender differences by including a 0/1 indicator variable for gender (for example see Verheul et al. (2006) or Cowling (2000) for multi-country studies), but this is rather restrictive. Others have used similar methods to ours (for example see Tervo and Haapanen (2010) for Finland, Georgellis and Wall (2005) for Germany and Do and Duchene (2008) for Vietnam). Our chosen specifications are in figure 2. Here we find that savings do not play a significant role in the probability of becoming self-employed for women and men in the linear specification. In the non-linear specification, savings are significant and positive for women and insignificant for men. Household income is both positive and significant for men, but not women. Age and age squared are also in line for men and self-employment exhibits a positive relationship with age, but at a decreasing rate. Unlike for men, education does not play a significant role in becoming self-employed for women. The risk variable is insignificant for women while it remains positively significant for men. For men, living in a multifamily household has a negative effect on being self-employed. The inclusion of occupation variables affects the significance of age and education variables for men and savings for women. Also for women in the third specification, the having a child under 3 variable becomes positive and significant. This could be suggestive of the fact that women want to remain flexible in the labor market, while having young children. The coefficients on all the industry variables remain negative and significant suggesting people from these industries are less likely to be self-employed than managers (except clerks for women-which are just as likely).

5.3 Full-probit model of self-employed

In the previous section, we examined the role of savings and other determinants in becoming self-employed. In this section, we want to estimate a full probit model, as explained in Eq (2), which takes into account potential earnings of a person in employment and self-employment.[5] In figure 3 you can find the earnings equations for women and men in salaried jobs and self-employment. The dependent variable is the log of annual labor income discussed in section 3.6. First, we look at the influence of unmeasured variables on earnings captured by lambda. We see that it is negative and significant for men in both fields with a stronger effect for the self-employed. This is in line with findings for Bernhardt

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[5]Here, we limit the sample to employees and self-employed individuals (we exclude retirees, pensioners, students, unemployed and professionally inactive persons).

(1994) Georgellis and Wall (2005) who found a negative selection into self-employment for men. For women the effect is positive for employees and negative for the self-employed, but not significant. This indicates that for women the workers in each sector is a random sample of all workers.

Using the estimated earnings equations we compute the earnings differentials for the two sectors by gender. We introduce this calculated variable into the reduced probit and estimate the full probit. The results are found in figure 4. We see some changes with regards to the reduced probit. The earnings differential variable is negative and significant for both men and women with a stronger effect for the latter. This suggests that the difference in earnings in the two sectors has a negative effect on being self-employed and there may be other non-pecuniary benefits that affect the choice of being self-employed. This also indicates that higher earnings are not the main reason for choosing this sector.[6] As discussed before some people may be forced to go into self-employment because of the difficulty of finding a job in the wage sector.

Education positively influences the probability of being self-employed for men and women-particularly individuals with high education. Women with finished high school are less likely to be self-employed. For this education group their work is more appreciated in the employee sector than the self-employment sector. For women, the number of people in the households and having young children plays a significant role, but negative and positive, respectively. This has also been found in a study by Connelly (1992). Unlike in other studies marital status does not play a role for women. For men, being divorced or separated has a very strong negative effect on being self-employed.

In the third column, we also test whether the coefficients are significantly different for men and women. The significantly different coefficient is age squared, medium education and marital status. For age and for men the relationship seems to be linear given that the term age square, although negative, is not statistically significantly, but it is statistically significantly different from that of women and opposite in sign (perhaps women remain self-employed to supplement their pensions (or this is a joint decision for men and women, which needs to be further investigated)).

6   Conclusions

The preliminary results suggest a nonlinear relationship between household wealth (proxied by savings) and the propensity for self-employment. Individual risk preferences play an

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[6]We find earnings to be as follows (in thousand PLZ): for women in self-employment 1.162 and .966 in wage employment; and for men 1.361 and 1.193, respectively.

important role for men, but not women, where risk takers are more likely to work as self-employed. In the case of women, family composition seems to have a larger effect. Our results also indicate that highly educated women with young children pursue the entrepreneurial career path. Possibly because it provides them with the opportunity to have flexible work arrangements and allows them to develop their entrepreneur skills. Flexibility is also needed in terms of career advancement and child-care. Another reason for women to chose this sector of employment may be that there are not enough opportunities for highly educated women and they are able to realize their entrepreneurial potential via this career path. Anecdotal evidence indicates that recently women in Poland have been a very large source of economic growth, although we still find a large discrepancy between women's and men's self-employment rate.

Table 1: **Entrepreneurship and preference for risk by gender (percentages).**

	Men	Women	Total
Self-employed	12	4	8
Business Owner	3	1	2
Positive Lottery	32	19	25
Negative Lottery	29	18	23
N	2,433	2,981	5,414

Table 2: **Characteristics of women and men entrepreneurs (mean and median).**

	Self-employed			Business Owners		
	Men	Women	Diff	Men	Women	Diff
Age	44.813	43.636		42.736	43.205	
Single	0.032	0.030	*	0.056	0.077	
Married	0.905	0.848	*	0.931	0.846	*
Divorced	0.014	0.091	*	0.000	0.077	*
Educ.Low	0.311	0.242	*	0.375	0.128	*
Educ.Med	0.420	0.417		0.361	0.436	
Educ.High	0.254	0.318	*	0.264	0.410	*
Mulfamily	0.060	0.098		0.069	0.077	
Children lt18	0.979	0.826	*	0.903	0.795	
Children lt3(0/1)	0.078	0.068		0.097	0.026	*
Positive Lottery	41.696	30.303	*	45.833	35.897	
Negative Lottery	35.106	24.242	*	37.500	28.205	
Savings	6.097	8.997	*	5.280	3.805	
HH Income	2.650	2.470		2.351	2.098	
Debt	7.538	8.159		9.336	8.349	
Median						
Savings	0.000	0.000		0.000	0.000	
HH Income	2.142	2.074		2.150	2.123	
Debt	0.000	0.000		1.804	2.164	
N	283.000	132.000		72.000	39.000	

Note: *indicates statistically significant differences between women and men (at least at a 10% level).

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Figure 1: Probit Estimates of Self-Employment (marginal effects)

	(1)		(2)		(3)		(4)		(5)		(6)	
savings	-0.004		0.060	*	0.045	*	-0.003		0.058	*	0.044	*
	(0.004)		(0.032)		(0.025)		(0.004)		(0.032)		(0.026)	
savings2			-0.032		-0.027	*			-0.031		-0.026	*
			(0.020)		(0.014)				(0.021)		(0.014)	
savings3			0.006		0.005	**			0.006		0.005	*
			(0.004)		(0.003)				(0.004)		(0.003)	
savings4			-0.000		-0.000	**			-0.000		-0.000	**
			(0.000)		(0.000)				(0.000)		(0.000)	
savings5			0.000		0.000	**			0.000		0.000	**
			(0.000)		(0.000)				(0.000)		(0.000)	
hhincper	0.213	***	0.235	***	0.172	***	0.202	***	0.223	***	0.166	***
	(0.060)		(0.058)		(0.052)		(0.060)		(0.058)		(0.052)	
debt	0.002		0.006		0.001		0.002		0.005		0.001	
	(0.004)		(0.004)		(0.004)		(0.004)		(0.004)		(0.004)	
age	0.008		0.007		0.004		0.008		0.007		0.004	
	(0.007)		(0.007)		(0.006)		(0.007)		(0.007)		(0.006)	
age2	-0.000		-0.000		-0.000		-0.000		-0.000		-0.000	
	(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
female	-0.066	***	-0.063	***	-0.045	***	-0.060	***	-0.058	***	-0.042	***
	(0.012)		(0.012)		(0.012)		(0.013)		(0.012)		(0.012)	
married	0.047	*	0.041		0.020		0.048	*	0.043	*	0.020	
	(0.025)		(0.025)		(0.025)		(0.024)		(0.025)		(0.025)	
widowed	0.002		-0.005		-0.036		0.002		-0.004		-0.036	
	(0.054)		(0.051)		(0.031)		(0.054)		(0.051)		(0.031)	
divorced/sep.	0.033		0.035		-0.006		0.032		0.034		-0.006	
	(0.058)		(0.058)		(0.042)		(0.057)		(0.058)		(0.041)	
education: med.	0.039	**	0.031	**	0.011		0.038	**	0.031	**	0.012	
	(0.015)		(0.015)		(0.015)		(0.015)		(0.015)		(0.015)	
education: high	0.007		-0.009		-0.016		0.004		-0.010		-0.016	
	(0.018)		(0.017)		(0.019)		(0.018)		(0.017)		(0.019)	
multifamily	-0.042	**	-0.045	***	-0.039	***	-0.042	**	-0.044	***	-0.038	***
	(0.017)		(0.017)		(0.014)		(0.017)		(0.017)		(0.014)	
children18	-0.008		-0.006		-0.001		-0.008		-0.006		-0.002	
	(0.007)		(0.007)		(0.006)		(0.007)		(0.007)		(0.006)	
children3d (0/1)	0.010		0.016		0.014		0.010		0.017		0.014	
	(0.029)		(0.030)		(0.026)		(0.029)		(0.029)		(0.026)	
year	-0.009		-0.010		-0.004		-0.010		-0.010	*	-0.005	
	(0.006)		(0.006)		(0.006)		(0.006)		(0.006)		(0.006)	
Industry												
specialists					-0.105	***					-0.105	***
					(0.009)						(0.010)	
technicians					-0.098	***					-0.098	***
					(0.009)						(0.009)	
office workers					-0.099	***					-0.098	***
					(0.008)						(0.008)	
clerks					-0.063	***					-0.062	***
					(0.011)						(0.011)	
farmers					-0.077	***					-0.076	***
					(0.007)						(0.007)	
craftsmen					-0.101	***					-0.100	***
					(0.011)						(0.011)	
machine operators					-0.097	***					-0.096	***
					(0.008)						(0.008)	
untrained					-0.101	***					-0.100	***
					(0.007)						(0.008)	
risk							0.040	***	0.035	**	0.023	*
							(0.014)		(0.014)		(0.013)	
r2_p	0.056		0.068		0.171		0.061		0.071		0.173	
N	2497		2497		2497		2497		2497		2497	
ll	-809.382		-799.461		-710.796		-805.185		-796.260		-709.049	

Ref group: managers/officers; Regional variables included

Figure 2: Probit Estimates of Self-Employment by Gender

	Women			Men		
savings	0.041	0.446 *	0.378	-0.049	0.429	0.300
	(0.042)	(0.265)	(0.427)	(0.030)	(0.270)	(0.275)
savings2		-0.223	-0.118		-0.276	-0.239
		(0.154)	(0.350)		(0.173)	(0.172)
savings3		0.044	0.009		0.054	0.051
		(0.028)	(0.091)		(0.035)	(0.034)
savings4		-0.003 *	0.001		-0.004	-0.004
		(0.002)	(0.009)		(0.002)	(0.002)
savings5		0.000 *	-0.000		0.000	0.000
		(0.000)	(0.000)		(0.000)	(0.000)
hhincper	-0.009	0.340	0.296	1.707 ***	1.774 ***	1.535 ***
	(0.673)	(0.639)	(0.665)	(0.427)	(0.442)	(0.462)
debt	0.028	0.052	0.050	0.009	0.024	-0.010
	(0.043)	(0.041)	(0.046)	(0.032)	(0.031)	(0.036)
age	-0.012	-0.025	-0.011	0.128 **	0.127 **	0.091
	(0.061)	(0.061)	(0.068)	(0.057)	(0.057)	(0.060)
age2	0.000	0.000	0.000	-0.001 **	-0.001 **	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
married	0.695 *	0.645	0.405	0.056	0.019	-0.057
	(0.414)	(0.412)	(0.423)	(0.260)	(0.263)	(0.258)
widowed	0.518	0.450	0.124			
	(0.477)	(0.482)	(0.516)			
divorced/sep.	0.632	0.654	0.416	-0.634	-0.639	-0.714
	(0.454)	(0.453)	(0.483)	(0.550)	(0.560)	(0.602)
education: med.	0.024	-0.029	-0.092	0.348 ***	0.314 ***	0.173
	(0.140)	(0.143)	(0.174)	(0.103)	(0.106)	(0.120)
education: high	-0.120	-0.244	-0.145	0.145	0.076	-0.115
	(0.161)	(0.168)	(0.226)	(0.141)	(0.146)	(0.200)
multifamily	-0.111	-0.160	-0.138	-0.463 **	-0.480 **	-0.461 **
	(0.212)	(0.222)	(0.246)	(0.188)	(0.192)	(0.191)
children18	-0.038	-0.023	-0.018	-0.059	-0.053	-0.013
	(0.065)	(0.064)	(0.071)	(0.049)	(0.050)	(0.050)
children3d (0/1)	0.264	0.336	0.461 *	-0.031	-0.016	-0.062
	(0.267)	(0.254)	(0.259)	(0.200)	(0.199)	(0.209)
year	-0.014	-0.020	0.001	-0.090 *	-0.091 *	-0.074
	(0.058)	(0.059)	(0.065)	(0.049)	(0.049)	(0.051)
risk	0.081	0.016	0.025	0.316 ***	0.303 ***	0.212 **
	(0.137)	(0.142)	(0.154)	(0.096)	(0.096)	(0.101)
specialists			-1.198 ***			-1.372 ***
			(0.238)			(0.228)
technicians			-0.863 ***			-1.433 ***
			(0.234)			(0.197)
office workers			-1.306 ***			
			(0.275)			
clerks			-0.222			-0.987 ***
			(0.251)			(0.210)
farmers			-1.296 **			-1.243 ***
			(0.528)			(0.338)
craftsmen			-0.849 **			-1.264 ***
			(0.350)			(0.186)
machine operators			-1.194 **			-1.543 ***
			(0.483)			(0.201)
untrained			-1.590 ***			-2.256 ***
			(0.358)			(0.434)
constant	25.750	37.625	-2.842	174.828 *	177.819 *	145.507
	(115.400)	(118.111)	(129.339)	(98.328)	(98.618)	(102.960)
r2_p	0.031	0.052	0.163	0.083	0.090	0.185
N	1134	1134	1134	1244	1244	1244
ll	-297.546	-291.035	-256.799	-478.226	-474.260	-425.091

Ref group: managers/officers; Regional variables included

Figure 3: Earnings equations for Women and Men

	Women				Men			
	employee (e)		self-emp(e)		employee (e)		self-emp(e)	
age	0.005		-0.011		0.026		-0.006	
	(0.016)		(0.084)		(0.016)		(0.074)	
age2	-0.000		0.000		-0.000	*	-0.000	
	(0.000)		(0.001)		(0.000)		(0.001)	
education: med.	0.087	**	-0.181		0.087	**	0.131	
	(0.044)		(0.181)		(0.042)		(0.178)	
education: high	0.166	***	0.471	**	0.131	*	0.605	**
	(0.054)		(0.235)		(0.068)		(0.261)	
specialists	-0.213	**	0.136		-0.439	***	1.051	*
	(0.097)		(0.419)		(0.161)		(0.591)	
technicians	-0.401	***	0.016		-0.666	***	1.338	**
	(0.091)		(0.307)		(0.165)		(0.604)	
office workers	-0.466	***	-0.437		-0.938	***	.	
	(0.100)		(0.425)		(0.210)		.	
clerks	-0.618	***	-0.256		-0.795	***	0.720	*
	(0.082)		(0.230)		(0.148)		(0.437)	
farmers	-1.684	***	-0.120		-0.844	***	-0.089	
	(0.308)		(0.621)		(0.201)		(0.635)	
craftsmen	-0.711	***	-0.329		-0.910	***	1.098	*
	(0.108)		(0.601)		(0.163)		(0.593)	
machine operators	-0.342	***	0.700		-0.887	***	1.402	*
	(0.125)		(0.713)		(0.176)		(0.721)	
untrained	-0.636	***	0.103		-1.249	***	1.710	
	(0.112)		(0.606)		(0.204)		(1.169)	
lambda	0.165		-0.126		-0.426	**	-1.171	**
	(0.181)		(0.246)		(0.179)		(0.522)	
constant	-21.459		5.219	***	5.179	***	6.084	***
	(29.588)		(1.847)		(0.370)		(1.773)	
N	1070		1061		1196		1181	

Figure 4: Full Probit of Self-Employment for Women and Men

	Women		Men		Sign diff
wagedif	-18.139	***	-15.317	***	
	(5.341)		(4.793)		
savings	0.522		-0.115		
	(0.454)		(0.468)		
savings2	-0.285		0.434		
	(0.373)		(0.481)		
savings3	0.048		-0.247		
	(0.097)		(0.168)		
savings4	-0.002		0.044	*	
	(0.010)		(0.023)		
savings5	-0.000		-0.002	**	
	(0.000)		(0.001)		
hhincper	1.003		1.826	***	
	(0.770)		(0.486)		
debt	0.068		-0.024		
	(0.044)		(0.036)		
age	-0.093		0.148	**	
	(0.079)		(0.070)		
age2	0.001		-0.001		*
	(0.001)		(0.001)		
married	0.457		-0.271		
	(0.423)		(0.275)		
widowed	0.197				
	(0.521)				
divorced/sep.	0.507		-2.204	**	*
	(0.486)		(0.898)		
education: med.	-0.584	**	0.585	***	*
	(0.235)		(0.191)		
education: high	0.670	*	0.727	**	
	(0.345)		(0.339)		
multifamily	0.250				
	(0.277)				
children18	0.141		-0.079		
	(0.103)		(0.071)		
children3d (0/1)	0.493	*	-0.184		
	(0.287)		(0.227)		
personshh	-0.143	*	-0.052		
	(0.074)		(0.054)		
year	-0.028		0.039		
	(0.072)		(0.061)		
specialists	-0.510		-1.533	***	
	(0.331)		(0.240)		
technicians	-0.079		-0.599	*	
	(0.359)		(0.336)		
office workers	-1.141	***			
	(0.304)				
clerks	0.698	*	-0.013		
	(0.362)		(0.366)		
farmers	2.299	**	-0.762		*
	(0.963)		(0.504)		
craftsmen	-0.103		-0.496		
	(0.451)		(0.332)		
machine operators	1.168		-0.836	***	
	(0.818)		(0.324)		
untrained	-0.175		-1.686	***	
	(0.547)		(0.488)		
risk	0.032		0.591	***	
	(0.169)		(0.181)		
mulfamily			-1.244	***	
			(0.328)		
constant	56.637		-81.982		
	(144.277)		(123.021)		
r2_p	0.201		0.199		
N	980		1097		
ll	-217.489		-378.933		

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