

Volume 39, Issue 3

Who creates jobs in transition economies? The role of entrepreneurial risk preferences.

Muzaffarjon Ahunov
Endicott College of International Studies

Dilnovoz Abdurazzakova
Westminster International University in Tashkent

Nurmukhammad Yusupov
Solbridge International School of Business

Abstract

Entrepreneurs create jobs, but hiring outsiders is a risky decision. In this paper, using a large cross-country survey data, we find that more risk-tolerant entrepreneurs indeed tend to hire outside labor. However, the relationship between risk tolerance and likelihood of hiring appears to be non-monotonic in transition economies. We offer both demand and supply side explanations for this result, which has important policy implications.

Citation: Muzaffarjon Ahunov and Dilnovoz Abdurazzakova and Nurmukhammad Yusupov, (2019) "Who creates jobs in transition economies? The role of entrepreneurial risk preferences.", *Economics Bulletin*, Volume 39, Issue 3, pages 1876-1886

Contact: Muzaffarjon Ahunov - mahunov@endicott.ac.kr, Dilnovoz Abdurazzakova - d.abdurazzakova@wiut.uz, Nurmukhammad Yusupov - nyusupov@solbridge.ac.kr.

Submitted: February 17, 2019. **Published:** August 20, 2019.

1. Introduction

Entrepreneurs are viewed as individuals who efficiently assemble various factors of production, including human capital of others (Lazear, 2005). Thus, entrepreneurs create jobs (Neumark et al., 2006; Parker, 2009). Empirical literature on self-employment and job creation seems to focus on firm-level characteristics, such as firm age, size, ownership and organizational forms, etc. (Fölster, 2000; Neumark, et al., 2011; Haltiwanger, et al., 2013; Ayyagari et al., 2014; Heyman, et al., 2018), ignoring the complexity of the relationships that the entrepreneur and job applicant must enter in order for the job to materialize (Azariadis, 1983).

Indeed, in this context, where the principals hire agents, information problems arise in abundance. In particular, the principal has to give up some information rent to the agent, privately informed about his or her skills and intentions, which is costly to the principal. Eventually, the principal's problem comes down to figuring out the optimal risk sharing arrangement (Hart, 1983; Grossman and Hart, 1983). Thus, whether a given interaction between an entrepreneur and a job seeker results in job creation is affected by the risk preferences of the entrepreneur who offers the contract¹.

Although it definitely takes some appetite for risk to invest in business projects and hire outsiders, some recent research seems to suggest that the relationship between risk tolerance and various outcomes of entrepreneurial activity is not monotonic. For example, Korunka et al. (2003) document that business owner-managers tend to exhibit medium risk-taking propensity. Extreme risk-taking behavior can lead to costly failures (Alvarez, 2007), while businesses voiding risky choices too often may miss out on valuable opportunities (Hughes and Morgan, 2007). In a multi-country study, Kreiser et al. (2013) finds an inverse U-shaped relationship between risk-taking and SME performance. A similar pattern is reported by Dai et al. (2014) for the effect of risk-taking on international scope of firms in the US. Thus, the role of risk preferences in entrepreneurial behavior is nuanced.

Additionally, when it comes to hiring outside labor, entrepreneurs may act very watchfully for a variety of reasons. Entrepreneur, as the owner of the firm, bears a lot of risk, while employees usually get a fixed pay, at least partially, out of the firm's cash flows (Jensen and Meckling, 1976)². Differential tax treatment of profit-making vs loss-making businesses, according to Eeckhoudt et al. (1997), is likely to induce an otherwise risk-neutral firm to behave in a very risk-averse manner³. Booth et al. (2002) argue that institutional costs associated with termination of employment, such as employment protection laws, for example, diminish incentives for businesses to hire and train new employees. Entrepreneurs may also act risk averse when it comes to hiring decisions in order to avoid bad hires, because they are costly for the firm (Housman and Minor, 2015)⁴, or due to concave hiring rules⁵ (Ilut et al., 2018). In

¹ One can refer to the textbook discussions of contract theoretic models of hiring outside labor, where more risk averse firms end up allocating more risk onto the workers and less risk averse firms can offer full insurance. See, for example, Chapter 2 in Bolton and Dewatripont (2005).

² Jensen and Meckling (1976) discuss this issue in the context of shareholders, as owners, and managers, who are employed by owners to run the firm.

³ Specifically, the reasoning in simplified terms is as follows: (i) taxes are typically progressive in a non-smooth manner, or piecewise linear, therefore post-tax profits are typically a concave function of pre-tax profits, (ii) a highly risk-loving entrepreneur tends to consider highly risky projects with high expected returns, or cash flows, (iii) because of concavity of post-tax profits with respect to pre-tax profits, an entrepreneur described in part (ii) may shy away from hiring outside labor to expand operations and generate higher cash flows.

⁴ Risky but profitable projects are likely to require skilled labor. Managing such hires can be very costly, e.g. can generate enormous regulatory and legal fees and liabilities.

⁵ Concave hiring rules imply that firms respond to negative shocks more significantly than to positive shocks. In other words, entrepreneurs foreseeing good growth opportunities will act more slowly to hire outside labor than they

Choudhary and Levine (2010), risk-aversion does not affect the steady state or the possibility of instability in employment dynamics. Instead, risk aversion of firms only impacts the speed of adjustment to the steady-state. In developing countries, Grimm and Paffhausen (2015) suggest that many entrepreneurs may be risk averse and, consequently, “reluctant to hire, even if it would be beneficial for them”⁶.

Against this background, in this paper, we hypothesize that more risk-tolerant entrepreneurs are more likely to hire outside labor for their businesses. Also, we test whether this relationship is monotonic. We focus on transition economies which have undergone through rapid transformation of their economies in recent decades towards more entrepreneurship-friendly arrangements, and where job creation has been a major policy concern due to difficult labor market circumstances (Drnovsek, 2004). In such countries, with weak institutions and risky business environment, data on entrepreneurs’ preferences should exhibit higher variation. To that end, we use the Life in Transition Survey (LiTS), administered by the European Bank for Reconstruction and Development. The LiTS dataset is representative of about half a billion of the world’s population. As Figure 1 shows, the share of entrepreneurs with hired labor has large variation across transition economies.

Figure 1: Share of entrepreneurs with hired labor.



Source: Authors’ estimates based on LiTS data.

We find that, indeed, it is the more risk-tolerant entrepreneurs who hire outside labor. However, the relationship turns out to be non-monotonic. Specifically, those with the highest level of willingness to take risks exhibit lower likelihood of hiring than those within the second highest risk tolerance level. These results are robust to various specifications. Possible reasons can be grounded both in the supply side as well as the demand side of the labor contracting relationships. Namely, too risk-loving entrepreneurs may also be overconfident and underestimate their needs for additional manpower, or job seekers may avoid approaching extremely risk loving entrepreneurs.

would if they view bad times ahead and need to terminate their employees. In aggregate, it generates negative skewness of aggregate employment growth (Ilut et al., 2018).

⁶ In the context of weak economic growth, governments often try to stimulate investments to increase productivity. For such interventions, employment does not necessarily increase. For example, for risky but profitable projects, investments can be made into labor-saving improvements, thus reducing job creation. Whether new jobs are created depends on the price elasticity of demand and the degree of competition.

The rest of the paper is structured as follows: in the next section we describe the dataset and our methodology, then we discuss our results, followed by concluding remarks.

2. Data and Methodology

We use the second and third waves of LiTS administered in 2010 and 2016 respectively. We limit our sample to those individuals in 28 transition economies⁷ who reported being self-employed, which results in 1,544 and 1,276 entrepreneurs in the two waves respectively. We estimate the following model:

$$Y_i = f(\text{Risk attitude } i, \text{ individual-level factors } i, \text{ country-level factors } i)$$

Our dependent variable Y_i is a dummy indicating whether the respondent employs outside people in his/her business. Thus zero is assigned for sole entrepreneurs (without employees).

For our key explanatory variable, we use self-reported willingness to take risk, following Ahunov and Yusupov (2017). This variable is recorded on a 10 point scale with 1 capturing the most risk averse and 10 identifying the most risk tolerant respondents. We monotonically recode this variable into a five point scale⁸, by combining responses to 2 adjacent categories into a single one. Thus, under the new risk preference variable, the highest degree of risk-aversion is in category 1 while the highest level of risk-tolerance is in category 5.

To address possible omitted variable bias, based on the literature, we include a set of independent control variables - individual-level factors - that are likely to impact entrepreneurs' choices to hire labor. Specifically, we use bio-physical parameters such as respondent's gender, age and self-reported health status. We also control for socio-economic characteristics such as current marital status, respondent's education, religion, and whether their household is located in a rural area. Additionally, we include key business characteristics such as business' age, whether business has a formal status as well as industry controls. Importantly, including these business characteristics⁹ will enable us to differentiate sole entrepreneurs who do not hire because they cannot afford to do so, from those who do not want hire. Finally, we control for alternative country-level factors that may impact entrepreneurs' hiring decisions.

Sample descriptive statistics are shown in Table 1. Preliminary results in the form of mean differences, in column and associated p-values, suggest statistical significance of 11 out of total 19 characteristics between the two groups. Importantly, both statistically and economically larger shares of employers relative to sole entrepreneurs report higher willingness to take risks. The opposite is observed for lower levels of risk tolerance. Almost all differences are statistically significant at 1% level.

Furthermore, as opposed to sole-entrepreneurs, employers seem more likely to have higher education, be married, and be in the two highest quintiles of income distribution. Proportion of employers located in rural area is 5 percent lower than that of sole entrepreneurs; the difference is statistically significant at one percent level. Moreover, proportion of unregistered, or informal, business establishments is 17

⁷ We excluded a number of countries that are present in the original LiTS dataset. Specifically, we eliminated all developed economies as they are assumed to have efficient institutions and are outside of our research interests. We also excluded Turkey because it is a long standing market economy. Finally, Ukraine was removed due to significant military conflicts that took place between the two waves of the survey, which we expect to have introduced abnormal distortions in the country's labor market.

⁸ Doing so should positively affect reliability and validity according to Dawes (2008).

⁹ From this list, gross domestic product per capita (GDP per capita) and unemployment come from World Bank's World Development Indicators database. The rest of the country-level controls come from the World Bank's Enterprise surveys.

percent larger among sole entrepreneurs relative to employers. Finally, table 1 shows that larger proportion of employers operate in manufacturing.

Table 1. Means comparison t-tests, sole entrepreneurs versus employers.

	Sole entrepreneurs		Employers		Mean difference	
	Observations	Mean	Observations	Mean	Difference	p-value
Unwillingness to take risk	1773	0.14	1139	0.10	0.03***	0.01
Low willingness to take risk	1773	0.19	1139	0.13	0.06***	0.00
Moderate willingness to take risk	1773	0.30	1139	0.26	0.04**	0.03
High willingness to take risk	1773	0.23	1139	0.31	-0.08***	0.00
Extreme willingness to take risk	1773	0.15	1139	0.20	-0.06***	0.00
Female	1832	0.43	1168	0.39	0.03*	0.07
Natural log of age	1834	3.68	1169	3.66	0.02	0.14
Very good health	1830	0.18	1162	0.19	-0.01	0.45
Married	1828	0.67	1165	0.70	-0.03*	0.08
Has a higher education	1835	0.19	1169	0.28	-0.10***	0.00
2nd richest wealth quantile	1799	0.13	1155	0.22	-0.08***	0.00
Richest wealth quantile	1799	0.02	1155	0.04	-0.02***	0.00
Rural area	1835	0.42	1169	0.37	0.04**	0.02
Muslim	1796	0.33	1143	0.28	0.05***	0.00
Business age	1436	2.15	960	2.10	0.05	0.17
Informal entrepreneur	1835	0.52	1169	0.34	0.17***	0.00
Manufacturing	1830	0.05	1169	0.07	-0.02***	0.02
Retail trade	1830	0.21	1169	0.21	-0.00	0.90

Note: *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

3. Results

Since our dependent variable is a dummy, for our main results we resort to logistical estimations shown in Table 2. In all specifications we use sampling weights, available in LiTS surveys multiplied by the population weight of each country. By doing so we correct for sample-to-population ratios to ensure unbiased estimations in our analysis. The pseudo likelihood statistics and associated p-values suggest that the independent variables collectively have a substantial explanatory power.

For our main results, we only include three categories of highest risk tolerance in these estimations to avoid issues with standard errors due to multicollinearity¹⁰. The coefficients for the three risk attitudes are consistently positive. Specifically, those who are extremely willing to take risks appear to be, on average, over 1.6 times more likely to be employers than being sole entrepreneurs. Chances of observing employers among the second highest risk-tolerance category are, on average, about 2.3 times higher than those of observing sole entrepreneurs. Both of these results are significant at 1% level.

Moving down the list of individual-level variables, the coefficients of the *natural log of age* are statistically significant and consistently above 0.5, meaning that odds of being an employer decreases

¹⁰ When regressing against a categorical variable, the rule of thumb is to use the largest category or the most normal category, for smaller standard errors and interpretability respectively (e.g. see Dougherty (2011)). Since most people tend to be risk-averse, we prefer to use the lowest level of willingness to take risks as the base category. However, in our sample, only about 8 percent of employers are in that category. Therefore, we combine the lowest and second lowest categories for willingness to take risk into a single baseline category by only including the highest three categories in the regressions.

with age¹¹. Similarly, the coefficient of *Informal entrepreneur* dummy is statistically significant with odds ratio below one, indicating that informal entrepreneurs have around 0.5 times likelihood to be employers relative to their peers with a formal status.

Table 2. Determinants of decision to hire labor, logistic model.

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Risk preferences							
Moderate willingness to take risk	1.23* (0.06)	1.25** (0.04)	1.23* (0.06)	1.20 (0.12)	1.23* (0.07)	1.23* (0.09)	1.24* (0.05)
High willingness to take risk	2.34*** (0.00)	2.34*** (0.00)	2.34*** (0.00)	2.22*** (0.00)	2.32*** (0.00)	2.29*** (0.00)	2.36*** (0.00)
Extreme willingness to take risk	1.65*** (0.00)	1.65*** (0.00)	1.66*** (0.00)	1.60*** (0.00)	1.64*** (0.00)	1.62*** (0.00)	1.67*** (0.00)
Individual level factors							
Natural log of age	0.57*** (0.00)	0.58*** (0.00)	0.57*** (0.00)	0.54*** (0.00)	0.57*** (0.00)	0.55*** (0.00)	0.56*** (0.00)
2nd richest wealth quantile	1.62* (0.09)	1.59 (0.11)	1.62* (0.10)	1.60* (0.10)	1.62* (0.09)	1.64* (0.08)	1.61* (0.10)
Richest wealth quantile	0.86 (0.75)	0.83 (0.69)	0.86 (0.74)	0.83 (0.68)	0.86 (0.74)	0.82 (0.64)	0.86 (0.74)
Informal entrepreneur	0.48*** (0.00)	0.49*** (0.00)	0.48*** (0.00)	0.49*** (0.00)	0.48*** (0.00)	0.50*** (0.00)	0.47*** (0.00)
Country level factors							
ln(GDP per capita)	2.10** (0.03)	1.94** (0.03)	2.05** (0.04)	2.14** (0.02)	2.21** (0.05)	2.16** (0.01)	2.08** (0.03)
Unemployment	1.01 (0.89)						
Labor regulations, obstacle		1.07 (0.40)					
Inadequately educated workforce, obstacle			1.00 (0.91)				
Access to finance, obstacle				0.94*** (0.01)			
Corruption, obstacle					0.98 (0.66)		
Courts, obstacle						0.82*** (0.01)	
Tax rates, obstacle							1.01 (0.53)
Observations	2248	2248	2248	2248	2248	2248	2248
Pseudo R ²	0.16	0.16	0.16	0.17	0.16	0.17	0.16
Log pseudo likelihood	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02

Note: The dependent variable in all regressions is the dummy for being an Employer. Regressions were run with binary logit; the estimated coefficients are reported in exponential form and, therefore, represent odds ratios. All regressions are weighted using sampling weights multiplied by the population weight of countries in the overall sample. Standard errors are reported in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. All errors are clustered by country and all regressions include controls for gender, marital and health status, education, religion, rural area, business age, dummies for industry, region and wave of the survey. Estimation data on these unreported coefficients are available upon request.

This means that being informal prevents entrepreneurs from hiring outside labor. On contrary to these, statistically significant coefficient of 2nd richest wealth quantile dummy indicate that entrepreneurs belonging to households with 2nd richest wealth quartile are 1.62 time more likely to be employers that entrepreneurs from other income groups. Interestingly, statistically insignificant coefficient of the

¹¹ Literature suggests risk aversion decreases with horizon length (Bommier and Rochet, 2006). Therefore, with age, individuals get more risk averse. In the context of entrepreneurship, it implies lower likelihood of making risky decisions, such as hiring outside labor, by older entrepreneurs.

dummy for the richest income quantile suggest that this is not the case for entrepreneurs from the wealthiest households.

With respect to macro-economic and institutional variables, Table 2 shows that odds of being an employer increases with income per-capita as evidenced by statistically significant coefficient of *log GDP per capita*. Next, odds of being an employer is lower in countries where percentage of firms reporting access to finance and courts as an obstacle is higher. Interestingly, the other aspects of business environment like unemployment, percentage of firms reporting labor regulations, inadequately educated labor force, and corruption, tax rates as obstacle exhibit no statistically significant impact on entrepreneurs' likelihood of hiring outside labor in our estimations.

These results appear to be economically significant, according to Table 3, where we report estimations of marginal changes in probabilities as responses to changes in the above variables. Thus, probability of being an employer increases by 17 percentage points for the highly willing to take risks, and by 10 percentage points for the extremely willing to take risks.

Respondents with moderate level of risk tolerance yield qualitatively similar results, with coefficients varying around 1.23, but significant only at 5-10%. Overall, these results lend support to our hypothesis of higher likelihood of selection into employerhood vs sole entrepreneurship among the more risk tolerant entrepreneurs.

An interesting observation that emerges from these results is that the employerhood as a function of risk tolerance is concave, i.e. most risk loving entrepreneurs are less likely to be employers than entrepreneurs in the second most risk loving category, but still more likely than those who are moderately risk loving. In addition to the possible mechanisms suggested by the extant literature (mentioned in the introduction), we conjecture that extreme risk lovers may have significant overconfidence in their skills (Koellinger et al., 2007) and more often find it unnecessary to hire outside labor for their businesses than their second most risk tolerant peers. Alternatively, extremely risky entrepreneurs may have unusually risky projects and fewer people may seek opportunities to work for such entrepreneurs. Thus, there can be two labor market channels at play – through demand for and supply of labor. Further exploration of this issue can be a promising next step in this research.

Table 3. Marginal impact of risk preferences on the probability to hire outside labor.

Risk preferences		(a)	(b)	(c)	(d)	(e)	(f)	(g)
Moderately willing to risk	probability	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	p-value	0.06	0.04	0.06	0.12	0.07	0.09	0.06
Highly willing to risk	probability	0.17	0.17	0.17	0.16	0.17	0.16	0.17
	p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Extremely willing to risk	probability	0.10	0.10	0.10	0.09	0.10	0.09	0.10
	p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00

As a robustness check of our main results, we also rerun estimations for various subsamples of countries, which we report in the Appendix. First, we limit our sample to countries with population higher than 5 million (see Panel 1). We do so to verify if our results are driven by a number of small countries, whose cases might be unique due to their size. Next, we remove countries with population lower than 10 million as well (see Panel 2). In both cases, results suggest no evidence for a small country effect. Then we turn to regional distinctions, and resample our data by omitting all countries located in Southeastern Europe (see Panel 3). We also estimate our results for a sample that excludes countries of the Former Soviet Union (see Panel 4). Again, in both approaches, results seem to be robust.

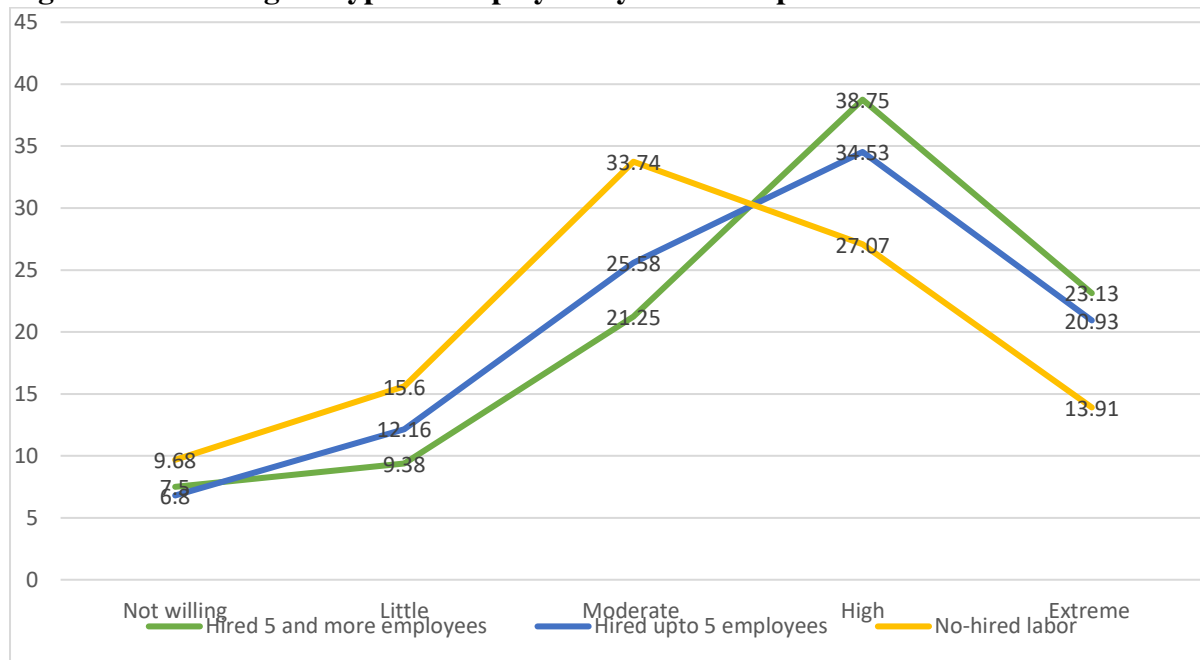
Because former members of the USSR share common history, and probably culture and institutions in some form, while some of the economies in Central and Eastern Europe have already formally declared

having completed the transition to a market economy, we rerun our estimations within the sample of countries which used to be a part of the Former Soviet Union (see Panel 5) and obtain results similar to those reported in Table 2. Finally, we examine all countries in transition, including Ukraine and Kosovo (see Panel 6), and get similar results.

Finally, LiTS data allows to classify employers by the number of employees their hire. For example, LiTS 3 specifically asks for a number of employees, within pre-specified brackets, that work in each business establishment. The answer to this question is recorded within 4 categories for private businesses - without any hired labor, with less than 5 employees, from 5 to 100 employees and finally with more than 100 employees. However, the latter only contains 13 observations. Therefore, we grouped the last two categories into a single one, which is identified as those with 5 and more employees.

In Figure 2, we plot risk preferences across these three categories of the self-employed. The reported numbers indicate what percent within each employer type belongs to a given risk preference group. Thus, 13.91% of those with no hired labor claim to be extreme risk lovers. The highest percentage of both categories with any hired labor is in highly-willing-to-risk category, that is 38.75% and 34.53%. Interestingly, the percentage of highly-willing-to-risk is largest for entrepreneurs with 5 and more employees, and lowest for the self-employed without hired labor. These results provide additional support for the robustness of our estimates in Table 2.

Figure 2: Percentage of types of employers by their risk preferences.



Source: Authors' estimates based on LiTS data.

4. Conclusion.

Entrepreneurs create jobs, but hiring outsiders is a risky decision. In this paper, we found that more risk-tolerant entrepreneurs tend to hire outside labor. However, the relationship between risk tolerance and likelihood of hiring is not monotonic. Those with the highest level of willingness to take risks exhibit lower likelihood to hire labor than those within the second highest risk tolerance level. More focused study of risk preferences and job creation seems to be a promising avenue for future research for understanding the antecedents of job creation have important policy implications. One possibility is that, in order to succeed in job creation, entrepreneurship training initiatives, or wage subsidy programs, must

take differential approaches based on risk preferences of entrepreneurs and the nature of risk in their businesses.

Our results, also highlight that policy efforts to promote job creation should focus on reducing risks associated with the business environment so that to enable entrepreneurial entry of people with lower than highest level of risk tolerance. In the context of transition economies, the most practical way to do so might be improving business oriented institutions, e.g. reducing administrative barriers and curbing corruption.

References:

- Ahunov, M. and N. Yusupov (2017) “Risk Attitudes and Entrepreneurial Motivations: Evidence from Transition Economies” *Economics Letters* 160, 7–11.
- Alvarez, S.A. (2007) “Entrepreneurial Rents and The Theory of The Firm” *Journal of Business Venturing* 22(3), 427–442.
- Ayyagari, M., Demircuc-Kunt, A. and V. Maksimovic (2014) “Who Creates Jobs in Developing Countries?” *Small Business Economics* 43(1), 75–99.
- Azariadis, C. (1983) “Employment with Asymmetric Information” *The Quarterly Journal of Economics* 98, 157–172.
- Bolton, P., and M. Dewatripont (2005) *Contract theory*, MIT Press.
- Bommier, A. and J.-C. Rochet (2006) “Risk Aversion and Planning Horizon” *Journal of European Economic Association* 4(4), 708–734.
- Booth, A., Chen, Y.F., and G. Zoega (2002) “Hiring and Firing: A Tale of Two Thresholds” *Journal of Labor Economics* 20, 217–48.
- Choudhary, M.A. and P. Levine (2010) “Risk-averse Firms and Employment Dynamics” *Oxford Economic Papers* 62, 578–602.
- Dai, L., Maksimov, V., Gilbert, B.A. and S.A. Fernhaber (2014) “Entrepreneurial Orientation and International Scope: The Differential Roles of Innovativeness, Proactiveness, and Risk-taking” *Journal of Business Venturing* 29, 511–524.
- Dawes, J. (2008) “Do Data Characteristics Change According to The Number of Scale Points Used? An Experiment Using 5-point, 7-point and 10-point Scales” *International Journal of Marketing Research* 50 (1), 61–77.
- Dougherty, C. (2011) *Introduction to Econometrics*, Oxford University Press.
- Drnovsek, M. (2004) “Job Creation Process in a Transition Economy, *Small Business Economics*, 23 (3), pp 179–188.
- Eeckhoudt, L., Gollier, C. and H. Schlesinger (1997) “The No-loss Offset Provision and The Attitude Towards Risk of A Risk-neutral Firm” *Journal of Public Economics* 64, 207–217.
- Fölster, S. (2000) “Do Entrepreneurs Create Jobs?” *Small Business Economics* 14(2), 137–148.
- Grimm, M. and A.L. Paffhausen (2015) “Do Interventions Targeted at Micro-entrepreneurs and Small and Medium-sized Firms Create Jobs? A Systematic Review of The Evidence for Low and Middle Income Countries” *Labour Economics* 32, 67–85.
- Grossman, S.J. and O.D. Hart (1983) “An Analysis of The Principal-agent Problem Source” *Econometrica* 51 (1), 7–45.
- Haltiwanger, J., Jarmin, R.S. and J. Miranda (2013) “Who Creates Jobs? Small Versus Large Versus Young” *The Review of Economics and Statistics* XCV(2), 347–361.
- Hart, O.D. (1983) “Optimal Labour Contracts Under Asymmetric Information: An Introduction” *The Review of Economic Studies* 50 (1), 3–35.
- Heyman, F., Norbäck, P.-J. and L. Persson (2018) “Who Creates Jobs and Who Creates Productivity? Small Versus Large Versus Young Versus Old” *Economics Letters* 164, 50–57.
- Housman, M. and D. Minor (2015) “Toxic Workers” Harvard Business School working paper number 16-057.
- Hughes, M. and R.E. Morgan (2007) “Deconstructing The Relationship Between Entrepreneurial Orientation and Business Performance at The Embryonic Stage of Firm Growth” *Industrial Marketing Management* 36, 651–661.
- Ilut, C., Kehrig, M. and M. Schneider (2018) “Slow to Hire, Quick to Fire: Employment Dynamics with Asymmetric Responses to News” *Journal of Political Economy*, forthcoming
- Jensen, M.C. and W.H. Meckling (1976) “Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure” *Journal of Financial Economics* 3(4), 305–360.

- Khavul, S., Bruton, G.D. and E. Wood (2009) “Informal Family Business in Africa” *Entrepreneurship: Theory and Practice* 33 (6), 1219–1238.
- Koellinger, P., Minniti, M. and Ch. Schade (2007) “‘I think I can, I think I can’: Overconfidence and Entrepreneurial Behavior” *Journal of Economic Psychology* 28, 502–527.
- Korunka, C., Frank, H., Lueger, M. and J. Mugler (2003) “The Entrepreneurial Personality in The Context of Resources, Environment, and the Startup Process — A Configurational Approach” *Entrepreneurship: Theory and Practice* 28(1), 23–42.
- Kreiser, P.M., Marino, L.D., Kuratko, D.F. and K.M. Weaver (2013) “Disaggregating Entrepreneurial Orientation: The Non-linear Impact of Innovativeness, Proactiveness and Risk-taking on SME Performance” *Small Business Economics* 40, 273–291.
- Lazear, E.P. (2005) “Entrepreneurship” *Journal of Labor Economics* 23(4), 649–680.
- Neumark, D., Zhang, J. and B. Wall (2006) “Where the Jobs Are: Business Dynamics and Employment Growth” *Academy of Management Perspectives* 20(4), 79–94.
- Neumark, D., Wall, B. and J. Zhang (2011) “Do Small Businesses Create More Jobs? New Evidence for The United States from The National Establishment Time Series” *The Review of Economics & Statistics* 93 (1), 16–29.
- Parker, S. (2009) *The Economics of Entrepreneurship*, Cambridge University Press.

Appendix. Robustness check for alternative sub-samples.

Willingness to take risk	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Panel 1. Countries with population higher than 5 million							
Moderate	1.25*	1.27*	1.25*	1.18	1.25*	1.22	1.25*
	(0.10)	(0.05)	(0.08)	(0.22)	(0.09)	(0.17)	(0.08)
High	2.42***	2.41***	2.41***	2.23***	2.40***	2.32***	2.43***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Extreme	1.65***	1.62***	1.62***	1.54***	1.62***	1.56***	1.64***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Panel 2. Countries with population higher than 10 million.							
Moderate	1.27	1.35	1.34	1.18	1.27	1.19	1.20
	(0.21)	(0.10)	(0.12)	(0.40)	(0.20)	(0.37)	(0.33)
High	2.76**	2.69***	2.64**	2.45**	2.69**	2.40**	2.66***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Extreme	1.68***	1.61***	1.60***	1.52***	1.63***	1.48***	1.64***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Panel 3. Countries outside of Southern Europe							
Moderate	1.03	1.07	1.05	0.99	1.04	1.01	1.05
	(0.64)	(0.34)	(0.48)	(0.90)	(0.54)	(0.87)	(0.52)
High	2.56***	2.53***	2.51***	2.35***	2.49***	2.40***	2.61***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Extreme	1.55***	1.48***	1.48***	1.42***	1.46***	1.39***	1.51***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Panel 4. Countries outside of the Former Soviet Union							
Moderate	1.15	1.15	1.16	1.17	1.15	1.20	1.20
	(0.48)	(0.52)	(0.46)	(0.45)	(0.50)	(0.39)	(0.35)
High	2.13**	2.10**	2.15**	2.16**	2.11**	2.18**	2.20**
	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
Extreme	1.69**	1.68**	1.71***	1.70**	1.69**	1.73***	1.75***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Panel 5. Countries of the Former Soviet Union							
Moderate	1.11	1.22	1.22	1.09	1.11	1.13	1.11
	(0.52)	(0.15)	(0.19)	(0.62)	(0.49)	(0.47)	(0.52)
High	1.68***	1.76***	1.73***	1.63**	1.62***	1.72***	1.67***
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)
Extreme	1.66***	1.64***	1.73***	1.59***	1.56**	1.59**	1.58***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Panel 6. All countries, including Ukraine and Kosovo							
Moderate	1.41*	1.43**	1.41*	1.34*	1.40*	1.45*	1.41*
	(0.06)	(0.05)	(0.06)	(0.10)	(0.06)	(0.06)	(0.06)
High	2.14***	2.15***	2.13***	1.98***	2.13***	2.18***	2.14***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Extreme	1.66***	1.67***	1.67***	1.62***	1.67***	1.65***	1.68***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes: Due to space limitations, we only report coefficients on risk preferences. Specifications are the same as in Table 2