Senior Entrepreneurship in European Context: Key Determinants of Entrepreneurial Activity[1]

Jakub ČERVENÝ – Anna PILKOVÁ** – Ján REHÁK***

Abstract

This paper examines the determinants of total early stage entrepreneurial activity (TEA) within European countries and the different effect of these determinants on general population and senior cohort (aged 50+) in Eastern and Western Europe. We exploit the Global Entrepreneurship Monitor (GEM) dataset spanning years 2001 – 2012 to address this issue. We examined both standard individual characteristics and indicators of social capital, and entrepreneurial potential (based on entrepreneurial skills, perception of opportunities and fear of failure). Using a multi-level logistic regression, we also analyzed impact of specific characteristics of entrepreneurial environment. The results show that negative perception of skills and opportunities significantly lowers the probability to be involved in TEA. We also find that cultural norms, government programs and good banking services have a positive impact on TEA.

Keywords: *entrepreneurship*

JEL Classification: L26

Introduction

In the recent years the aspects of entrepreneurship in the senior cohort has become a popular research topic. This shift in attention is mainly due to the demographic changes and therefore the increasing importance of policies focused on this group of population. Both Europe and United States, alongside with most

* Jakub ČERVENÝ, Tilburg University, CentER, Department of Economics, P. O. Box 90153, 5000 LE Tilburg, The Netherlands; e-mail: j.cerveny@uvt.nl

** Anna PILKOVÁ – Ján REHÁK, Comenius University in Bratislava, Faculty of Management, Department of Strategy and Entrepreneurship, Odbojárov 10, 820 05 Bratislava 25, Slovak Republic; e-mail: anna.pilkova@fm.uniba.sk; jan.rehak@fm.uniba.sk

[1] This work was supported by the Slovak Research and Development Agency under the contract No. APVV-14-0647.

of the developed countries face a problem of the aging population, which causes increasing pressure on social security funds and retirement funds. The inclusivity of seniors in the entrepreneurial process is, by many academics, considered to be a partial solution to this issue. In order to create policies and programs that would ease the transition of senior towards entrepreneurship, there is a need for a thorough research of this field.

Senior entrepreneurship in Central and Eastern European countries is considerably lower compared to Western economies (Pilkova et al., 2014). This difference can be caused by various factors including historical background and different attitudes towards entrepreneurship. What are the factors, both from individual attributes and framework conditions point of view that affect seniors to start a new venture? What effect can these factors have on the difference in senior entrepreneurial propensity within Western and Eastern European countries? The aim of this article is to investigate the answers to these questions. Drawing upon research results of a number of studies that contribute to the body of knowledge on senior entrepreneurship, we select specific variables and compare their effect on general population and senior cohort. As a second step of our analysis, we compare Western and Eastern European countries based on the variables in question. This approach offers interesting new results, filling the missing piece in the contemporary knowledge on senior entrepreneurship.

Through our analysis we were able to quantify the difference in the inclusivity of senior entrepreneurship between Western and Eastern Europe and narrow down the influencing factors of the entrepreneurial activity of seniors. We provide evidence that both individual factors such as the ability to recognize opportunities, as well as national entrepreneurial framework conditions such as government programs constitute important areas of opportunity for Eastern European countries, which can lead to the increase of senior entrepreneurial inclusivity.

1. Review of Literature

The theme of senior entrepreneurship is tackled from various perspectives by a number of researchers. In the senior cohort there is allocated a great and untapped potential which has the ability to ease the pressure of the demographic changes (Wainwright and Kibler, 2014; OECD/European Commission, 2013). The benefits that the increase of senior entrepreneurship could provide extend to the whole society. The analysis of Department for Business, Innovation and Skills (BIS, 2011) calculated that if every adult in Britain delayed their retirement for one year the annual contribution would be a sum of approximately GBP 13 bl to the national economy. At the same time, a study in the United

States (Ting Zhang, 2008) provided evidence of a positive relationship between the level of senior entrepreneurial activity one side and the economic growth and surplus in the social security funds on the other. These findings are reinforced by the fact that senior entrepreneurs tend to retire later than employees (Ting Zhang, 2008). The increase in senior entrepreneurship is seen by various researchers as a means to retain seniors in active work force, and therefore search for possibilities how to encourage the older generation to engage in entrepreneurial activity (Curran and Blackburn, 2001; Sing and De Noble, 2003; Weber and Schaper, 2004; Kautonen and Luoto, 2008). At the same time, entrepreneurial experience was found to provide seniors with both necessary skills and attitudes which help them remain active via employment, even if their entrepreneurial endeavor fails (OECD/European Commission, 2013).

Once the importance of the third age entrepreneurs is established, research focuses on the potential and predispositions of seniors to become entrepreneurial. Age is one of the most studied factors, possibly influencing the preference of individuals to become entrepreneurs. The number of seniors starting new businesses is about a half compared to their younger counterparts (Hart, Anyadike-Danes and Blackburn, 2004; Kautonen, 2008). Time allocation preferences were also studied in the connection to senior entrepreneurship (Levesque and Minniti, 2006) where a relationship was established between the age and the decrease in entrepreneurial activity. This can be caused not only by the different preferences of seniors, but also due to other negative factors such as health issues and lower energy levels at the older age (Singh and DeNoble, 2003).

There are various other factors besides the age that influence the probability of seniors to become entrepreneurial. Firstly, there is an immense human capital allocated in the senior cohort in the form of work experience, knowledge and skills that can help seniors in their entrepreneurial activity (Botham and Graves, 2009). The nature of previous work experience plays an important role, where entrepreneurial or managerial experience has a significantly higher influence on entrepreneurship (Weber and Schaper, 2004). Even though senior entrepreneurs possess experience and knowledge, in terms of innovation, businesses owned by seniors were significantly less innovative compared to younger entrepreneurs (Kautonen, Down and South, 2008).

Accumulated financial capital can influence seniors in creating new ventures both positively and negatively. In the case of excess of financial capital, the motivation to become entrepreneurial can be lower, but at the same time, the finances can facilitate the first phases of venture creation (Webster and Walker, 2005; Singh and DeNoble, 2003). Social capital in the form of networks and contacts accumulated over the years is also associated with senior entrepreneurship. Firstly

higher age is linked to broader networks that can be useful when starting a new business (Baucus and Human, 1994; De Bruin and Firkin, 2001). The nature and quality of networks also has an important role when linking it's potential to aid entrepreneurial activity, and depends on the work experience of the individual as well as his age (Botham and Graves, 2009).

Another group of the studies of senior entrepreneurship is focused on the characteristics of the entrepreneurial environment and culture that influence entrepreneurial activity. The characteristics of environment on a national level are an important factor in the economies and have a significant influence on entrepreneurship as such (Stenholm et al., 2013, Holienka, 2013). The concept of entrepreneurial environment and its characteristics is formed on the basis of institutional theory, traditionally concerned with how individuals and organizations are able to secure their positions and legitimacy by conforming to the rules of institutional environment (Bruton et al., 2010). Institutions, based on their nature, are divided into formal and informal, and represent the rules of the game in a society or an environment (North, 1990).

In the research of senior entrepreneurship, formal institutions have been studied from the perspective of laws, policies and programs that aid or constrain entrepreneurial activity in this group. Studies suggest that well implemented programs and policies, focused on development of ventures, education or skills development have mostly positive effect on senior entrepreneurship (Botham and Graves, 2009). At the same time, constraining senior programs or generous and benevolent pension schemes have a negative influence on senior entrepreneurship (Kautonen, Down and South, 2008). Informal institutions such as cultural openness and positive attitude towards seniors in a society have a strong positive effect on the entrepreneurial activity in this age cohort (Kautonen, Tornikoski and Kibler, 2011). Ageism on the other hand, is argued to have a negative effect on senior entrepreneurship (Ting Zhang, 2008). From the perspective of motivation, age discrimination can have a positive effect on the determination of a senior individual to become an entrepreneur, through the challenge of the obstacles created by the society (Kibler et al., 2011). According to a study of Estrin and Mickiewicz (2011) both formal and informal institutions significantly influence senior entrepreneurship, especially in the former Communist countries of Central and Eastern Europe, and former Soviet Union countries. The transition economies lack certain formal institutions regarding for example property rights stability, and even though there were many changes in the past decades in formal institutions there is a considerably higher level of corruption. In the informal institutions, they discovered that many transition economies still have social norms and conditions that are influenced by communism, and argue that

these change slowly over time. This is the reason for a missing generation of senior entrepreneurs in these countries, so called generation gap. Wyrwich (2013) builds on these findings and confirms that socioeconomic heritage has an impact on the entrepreneurial propensity of seniors.

Based on the literature review, we seek to contribute to the discussion on the senior entrepreneurship by identifying factors that serve as facilitators of the entrepreneurial inclusivity of seniors on European level. Reviewing the existing research, we selected a number of variables that we believe have an impact on senior entrepreneurs. Among the variables we implement for our analysis, we choose a number of demographic variables such as age, gender, education, occupation and income. Moreover we focus on variables that we believe have an impact on entrepreneurial potential, such as capacity to recognize opportunities, perception of skills needed to start a business and fear of failure. At the same time, based on the literature review, we believe that the social capital of a senior has an impact on his inclusivity in entrepreneurial activity. Third set of variables we selected for our analysis is focused on entrepreneurial framework conditions of European countries. In the analysis we test the influence of variables such as access to finance and commercial infrastructure, government policies and programs, cultural and social norms and intellectual property rights enforcement. We also test the impact of effective retirement age and corporate tax on the entrepreneurial inclusivity of seniors in Europe.

2. Data and Methodology

The dataset we exploit in this paper is Global Entrepreneurship Monitor surveys.[2] The surveys consist of the Adult Population Survey (APS) and National Expert Survey (NES). APS data are used to produce indicators which measure the entrepreneurial activity, attitudes and aspirations of individuals, along with personal characteristics such as age, gender, income category and educational attainment. Data collected as part of the GEM National Expert Survey enables the measurement of factors that impact national entrepreneurial activity – Entrepreneurial Framework Conditions (EFCs). For each of these EFCs, Likert scale items are completed by selected experts; based on these results, factors are constructed that summarize the national perceptions of experts for each EFC. Our dataset covers years 2001 – 2012 and consists of 30 European countries including Russia. Data availability for both APS and NES surveys varies for different countries and years. 10 countries were observed for the full period, while for

[2] The Global Entrepreneurship Monitor (GEM) project is the world foremost study on entrepreneurship. See more <www.gemconsortium.org>.

some there is only one year present. The summary of included countries and respective years is presented in Appendix B.

2.1. Variables and Descriptive Statistics

Full summary of variables we use in our research can be found in Appendix A. The dependent variable used in regressions is a binary indicator of total early-stage entrepreneurial activity. Total early-stage entrepreneurial activity (TEA) includes individuals who are setting up a business which they will (partly) own and manage, as well as those who are currently owner managers of a business that is not older than 42 months. Senior cohort we analyze in our research is determined by the age of 50+, drawing upon research in this field described in literature review. Apart from traditional explanatory variables such as gender, age, educational attainment, work status and income category we pay special attention to variables capturing the potential of individuals to be entrepreneurial through skills, perceived opportunities and fear of failure in relation to entrepreneurship. We also focus on the effect of social capital on entrepreneurial propensity through a variable focused on knowing other entrepreneurs. These variables were selected based on the previous research of personal attributes and characteristics of seniors described in the literature review.

The next step of our analysis is to capture the effect of framework and policy conditions on the different involvement of seniors and general population at early-stage entrepreneurial activity. Our dataset provides a comprehensive set of a number of indicators which can be used as a proxy. Regarding the formal institutional context, we studied effects of government programs, entrepreneurship related policies, access to finance and infrastructure and intellectual property rights enforcement. We also focus on cultural support for individual self-reliance to control for the effect of informal institutional context. Corporate tax rate and effective retirement age are also included in the model as additional explanatory variables since we assume that both might have an impact on decision whether to start a business or not. Appendix A presents descriptive statistics for the restricted dataset used in the estimation. In total there is 1,005,269 observations, out of these 282,326 was suitable for the purpose of analysis. The bottom part of Appendix A summarizes country-specific variables focused on entrepreneurial framework conditions. The range of Likert scale used in this section ranges from 1 to 5, where 5 represents the best conditions. Effective retirement age[3] and corporate tax rate (see Eurostat, KPMG[4]) were included as additional controls.

[3] Calculated as an average for both men and women (OECD/EC, 2013).

[4] Combined data from Eurostat EU (2012) and KPMG corporate tax rates table (online) in Appendix C

2.2. Methodology

The dataset described in the previous sections forms a repetitive cross-section pseudo-panel. The individual responses are nested within several groups – countries. This effectively violates the assumption of independence within observations. The use of standard tools might potentially lead to large and overestimated standard errors and too liberal significance levels. Econometric literature in such cases suggests the use of multilevel models (see Rabe-Hesketh, Skrondal and Pickles, 2005) which can control the assumption of the independence of observations in grouped data. We marry the approach used by Bosma and Schutjens (2011), who claim that such grouping of individuals means that some regional and national characteristics may shape individual entrepreneurial behavior, and that this context may not be independent for individuals because of such influences as peer effects, regional role models, and knowledge spillovers. Since the outcome variable representing involvement in total-early stage entrepreneurial activity (TEA) has a binary format, we estimated a logit model. The response of individual *i* in country *j* is denoted as y_{ij}. Formally, the model can be written as:

$$\Pr\left(y_{ij}=1\right)=H(X_{ij}^{'}\beta+u_i)$$

where

$$H(z)=\frac{\exp(z)}{[1+\exp\left(z\right)]}$$

is a standard logit function, $X_{ij}^{'}$ is vector of covariates, β vector of coefficients to be estimated and u_i represents random intercept. In the terms of underlying latent variable y_{ij}^{*} where

$$\begin{aligned} y_{ij} &= 1 \ if \ y_{ij}^{*}>0 \\ &= 0 \ \text{otherwise} \end{aligned}$$

the equivalent formulation is as follows:

$$y_{ij}=X_{ij}^{'}\beta+u_i+\epsilon_{ij}$$

where error term ϵ_{ij} has logistic distribution with mean 0 and variance $\pi^{2/3}$ Variation of random intercept u_i is then modelled as:

$$u_i = \alpha + \mathcal{F}_j^{'}\gamma + \zeta_j$$

where $\mathcal{F}_j^{'}$ represents country-specific fixed effects and γ vector of coefficients to be estimated. Since the model incorporates only one level (country), we assume the random effects to be uncorrelated with shared variance, and

variance-covariance matrix to be multiple of identity matrix $\sum = \sigma_i^2 \mathrm{I}$. Since interpretation of interaction effects in nonlinear models is not as straightforward as in e.g. linear regression, the model is estimated separately for the whole sample and for seniors.

As a second step in our methodology, based on the results of the statistical model, we carry out a comparative analysis of the average values of the selected variables for Western and Eastern Europe, to estimate the impact of the variables on the senior entrepreneurial activity. Furthermore we implement a statistical test of differences between the Western and Eastern European countries. We use nonparametric Mann-Whitney U Test with respect to deviations from normality and breach of the presumption of equal variances for certain variables from APS. We tested two null hypotheses *There is no statistically significant difference between the levels of the factor Group (East, West) in the values of examined variables* and *Examined variables do not depend on the factor Group (East, West).* The results of this test provide us with a better understanding of the possible impact of examined variables on the senior inclusivity in these blocs.

3. Results

Table 1 presents parameter estimates from the model outlined in the previous section. The coefficients we present in this section are presented in the form of Odds Ratios (OR). Column (1) reports estimates for the whole population including senior group, column (2) reports results only for senior group in European countries.

3.1. Demographic Profile

The results of demographic variables (Table 1) suggest that men in both estimates have in general population 18% higher odds $\left(100 \times \left(\widehat{OR} - 1\right)\right)$ to be involved in TEA compared to women, in the senior cohort the odds of men being entrepreneurial are 17% higher. The estimated coefficient near variable age suggests that with each year of age the odds of the involvement in TEA decrease by 1.5% $\left(100 \times \left(1 - \widehat{OR}\right)\right)$. Turning to educational attainment, as the reference category we take individuals with primary education. Finishing only primary education is associated with lower entrepreneurial activity. Education attainment as such has a significantly higher effect on seniors compared to general population. Interestingly, seniors from lowest part of income distribution have higher odds to be involved in TEA, compared to the rest of the population. Occupation as such has a significant impact on the odds of being entrepreneurial. Compared to the

reference category (full or part-time job), each category lowers the odds to be involved in TEA significantly for the general population, and with the exception of two categories (student and part-time), the same effect is observed on senior population.

3.2. Entrepreneurial Potential and Social Capital

Estimated coefficients associated with variables associated with entrepreneurial potential and social capital (Table 1) reveal no surprise. People who do not know anyone starting a business have 49% lower odds to start business by themselves, while in the senior group the results are similar with 49.7% lower odds. This result underlines the importance of social networks in entrepreneurship. People in general population who do not see any business opportunities have 43.7% lower odds to start a business compared to those who think that in the next six months there will be good opportunities. Seniors are a little less sensitive to opportunities perception, with 37% lower odds. Low perception of knowledge and skills required to start a business also plays a significant role. People who do not think they possess the necessary skills to start a business have around 83.2% lower odds to be involved in TEA. Magnitude of these results is very similar for both population and senior group (83.1% lower odds in senior cohort). An interesting difference was observed in perception of fear of failure, which seems to be less important for seniors, but still plays an important role for both groups (31.2% for seniors vs. 42.9% for population).

3.3. Entrepreneurial Framework Conditions Indicators

Regarding access to finance, *government subsidies* do not have any positive effect on involvement in early stage entrepreneurial activity (Table 1). As negative sign, this coefficient suggest, that an increase by 1 on Likert scale of this variable is associated with 19.1% lower odds in TEA on the general population, whereas there is no significant effect on European seniors. Adequate *government programs* seem to have positive effect both in general population and also for seniors, increasing the odds to start a business by 46.3% and 46.2% respectively. Lower *bureaucracy associated with setting up a new firm* seems to have a slight positive impact on early-stage entrepreneurial activity only in the general population. *Predictability of taxes and government regulations* seems to have a negative impact on TEA in general population and a slight negative impact on seniors. Significantly positive effect on both groups was found regarding the access to *good banking services* for new firms. An increase of this index is associated with 17.8% higher odds of involvement in TEA for general population and 21.3% for senior population.

T a b l e 1

Random Effects Logit Model Estimates

	General population (1)		**Seniors (2)**	
Demographic variables	Involved in Total early-stage Entrepreneurial Activity			
Age	0.986***	(0.001)	0.985***	(0.003)
Gender				
Male	1.181***	(0.019)	1.172***	(0.037)
Education: ref. category: primary education				
Secondary	1.088	(0.081)	1.300*	(0.154)
Secondary with degree	1.129	(0.083)	1.271*	(0.15)
Post-secondary	1.093	(0.081)	1.419**	(0.167)
Graduate	1.169*	(0.088)	1.645***	(0.199)
Occupation: ref. category: full or part-time				
Part time only	0.859***	(0.025)	0.929	(0.05)
Retired, disabled	0.320***	(0.031)	0.130***	(0.009)
Homemaker	0.331***	(0.019)	0.138***	(0.02)
Student	0.223***	(0.012)	0.962	(0.297)
Not working/other	0.580***	(0.019)	0.577***	(0.038)
Household income ref. category: lowest 33%				
Middle 33%	0.983	(0.02)	0.863***	(0.034)
Upper 33%	1.002	(0.02)	0.867***	(0.034)
Entrepreneurial potential				
In the next six months there will be good opportunities for starting a business: ref. category: yes				
No	0.563***	(0.009)	0.630***	(0.021)
Don't know	0.593***	(0.014)	0.646***	(0.03)
You have the knowledge, skill and experience required to start a new business: ref. category: yes				
No	0.168***	(0.004)	0.169***	(0.008)
Don't know	0.310***	(0.017)	0.336***	(0.04)
Fear of failure would prevent you from starting a business: ref. category: no				
Yes	0.571***	(0.009)	0.688***	(0.024)
Don't know	0.614***	(0.037)	0.547***	(0.066)
Social capital				
You know someone personally who started a business in the past 2 years: ref. category: yes				
No	0.510***	(0.008)	0.503***	(0.015)
Don't know	0.668***	(0.061)	1.104	(0.138)
Entrepreneurial framework conditions indicators				
Access to finance				
Adequate financial opportunities	0.998	(0.048)	0.815*	(0.075)
Enough govt. subsidies for new firms	0.809***	(0.041)	0.914	(0.087)
Government policies				
Govt. policy favors new firms	0.898*	(0.04)	1.044	(0.086)
New firms get permits in 1 week	1.093*	(0.041)	1.002	(0.066)
Tax amount not burden for new firm	1.03	(0.051)	1.054	(0.094)
Govt. taxes/regulations predictable	0.829***	(0.043)	0.830*	(0.076)
Government programs				
Adequate govt. programs for new firms	1.463***	(0.073)	1.462***	(0.138)
Access to commercial infrastructure				
New firms get good legal/acct. service	1.034	(0.065)	1.214	(0.141)
New firms get good banking service	1.178***	(0.045)	1.213**	(0.079)
Cultural and social norms				
Culture encourages self-reliance	1.158***	(0.049)	1.449***	(0.117)
Intellectual property rights				
IPR legislation comprehensive	0.994	(0.046)	1.146	(0.106)
IPR laws enforced	0.828***	(0.045)	0.652***	(0.066)
Additional variables				
Effective retirement age	1.105***	(0.016)	1.021	(0.021)
Corporate tax rate	1.010*	(0.004)	0.996	(0.007)
Random effects parameters	0.410	(0.064)	0.280	(0.053)
Observations	282,326		136,664	
Loglikelihood	–66,092.6		–18,114.3	

Note: Exponentiated coefficients (odds ratios); Standard errors in parentheses:
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Source: Authors.

Cultural factors such as encouragement of self-reliance seem to have a significant positive impact on early-stage entrepreneurial activity. The result seems to be even more pronounced for senior group, where the odds of involvement in TEA are increased by 44.9%, compared to 15.8% for general population. Stronger *enforcement of intellectual property rights* by European Union in year 2004 brought a widespread criticism. Our results show that enforcement of intellectual property rights (IPR) laws negatively affects TEA both in general population and in senior cohort, where the effect is almost doubled. The odds of involvement in tea are lowered by 17.7% for the general population and by 34.8% for seniors.

Effect of *cultural self-reliance* is corroborated also by coefficient near the variable capturing effective retirement age, where every year of increase leads to 10.5% higher odds of involvement in early-stage entrepreneurial activity. Positive sign near *corporate tax* rate variable suggests that an increase is associated with higher odds of TEA for general population. This result seems surprising, however the magnitude of estimated coefficient is very small. Also, corporate tax rates in countries with higher incidence of TEA are on average higher, which may explain this finding.

Finally, there is very substantial variation of the involvement in the early stage entrepreneurial activity across countries. The standard deviation of ran dom effect indicates that individuals in a country which is one standard deviation above the mean have odds of involvement in early stage entrepreneurial activity that are 52% higher than comparable individual in an average country (exp(0.420) = 1.52). The standard deviation is also equivalent to a correlation of 0.05 in the propensity to start a business among comparable individuals in the same country ($0.420^2/(0.464^2 + \pi^{2/3}) = 0.05$).

3.4. Comparative Analysis: Western and Eastern Europe

Interestingly, the results of the statistical model did not change significantly when we ran the model using the whole sample including all European countries, or Eastern and Western European countries separately. Based on the finding, that selected variables have similar effect on individuals regardless of the country of origin, we decided to follow up with a second step in our analysis by comparing of two blocs of the Western and Eastern Europe. In order to estimate the effect of the statistically significant variables on the propensity of senior entrepreneurship in Western and Eastern Europe, we compare the average levels of the selected variables between these two blocs of countries.

In the Table 2 and we present the results of the statistical test of differences between the Western and Eastern European countries, that was carried out using a nonparametric Mann-Whitney U Test. Based on the results in the Table 2, we

can observe that there are statistically significant differences between Western and Eastern Europe notable in the Inclusivity index SEI (Self-Esteem), which supports our argument in terms of differences of the inclusivity among European countries based on geographical location.

In terms of the capacity of individuals to recognize suitable opportunities for an entrepreneurial endeavor, the statistical difference between Eastern Europe and Western Europe is also significant according to our results. In the case of entrepreneurial framework conditions based on GEM NES data, there are significant differences between East and West in the variables regarding adequate financial opportunities, government subsidies for new firms and predictability of government regulations and taxes, adequacy of government programs for new firms as well as access to financial and legal services. At the same time the enforcement and comprehensiveness of IPR is significantly different between Eastern and Western Europe.

T a b l e 2

Statistical Test of Differences between Eastern and Western Europe

	Rank Sum EAST	**Rank Sum WEST**	**U**	**Z**	**p-value**
APS Variables					
Summary SEI index	168.00	360.00	48.00	–2.98326	*0.002852*
Social capital	250.00	278.00	125.00	0.07553	0.939797
Opportunity recognition	190.00	338.00	70.00	–2.15248	*0.031361*
Own skill perception	234.00	294.00	114.00	–0.49092	0.623486
Fear of failure	287.00	241.00	88.00	1.47275	0.140820
NES Variables					
Adequate financial opportunities	156.00	372.00	36.00	–3.43641	*0.000590*
Enough govt. subsidies for new firms	163.00	365.00	43.00	–3.17207	*0.001514*
Govt. policy favors new firms	209.00	319.00	89.00	–1.43498	0.151293
New firms get permits in 1 week	219.00	309.00	99.00	–1.05736	0.290350
Tax amount not burden for new firm	196.00	332.00	76.00	–1.92590	0.054118
Govt. taxes/regulations predictable	192.00	336.00	72.00	–2.07695	*0.037807*
Adequate govt. programs for new firms	165.00	363.00	45.00	–3.09655	*0.001958*
New firms get good legal/acct. service	171.00	357.00	51.00	–2.86997	*0.004105*
New firms get good banking service	292.00	236.00	83.00	1.66156	0.096602
Culture encourages self-reliance	203.00	325.00	83.00	–1.66156	0.096602
IPR legislation comprehensive	159.00	369.00	39.00	–3.32312	*0.000890*
IPR laws enforced	160.00	368.00	40.00	–3.28536	*0.001019*

Source: Authors; Global Entrepreneurship Monitor data 2001 – 2012.

In Table 3, we present average values for the variables constituting entrepreneurial potential and social capital of seniors. Seniors in Western Europe are significantly better at recognizing entrepreneurial opportunities compared to Eastern European seniors, and have slightly better perception of their own skills and experiences needed for entrepreneurship. Fear of failure would discourage

fewer seniors in Western Europe compared to their Eastern European counterparts. In terms of social capital, the average values for both blocs are almost the same, with very slight prevalence of Eastern European seniors.

T a b l e 3

Entrepreneurial Potential and Social Capital of Seniors in Western and Eastern Europe

	Opportunity recognition	Own skill perception	Fear of failure	Social capital
Western Europe	33.96	42.00	35.09	28.81
Eastern Europe	23.23	39.72	40.73	29.12

Source: Authors; Global Entrepreneurship Monitor data 2001 – 2012.

Entrepreneurial framework conditions for both blocs of countries are listed in Table 4. Financial opportunities in general are better in Western Europe and government programs focused on new firms have also significantly higher score on a Likert scale in Western European countries. Good banking services for new firms are interestingly better rated in Eastern European countries. Cultural norms encouraging self-reliance, have higher level in Western Europe compared to Eastern Europe, but the difference is only slight (0.23 points on Likert scale). The IPR law enforcement is unsurprisingly stricter in Western Europe.

T a b l e 4

Entrepreneurial Framework Conditions in Western and Eastern Europe

	Western Europe	Eastern Europe
Adequate financial opportunities	2.77	2.40
Enough govt. subsidies for new firms	3.07	2.54
Govt. policy favors new firms	2.17	1.99
New firms get permits in 1 week	2.27	2.05
Tax amount not burden for new firm	2.70	2.33
Govt. taxes/regulations predictable	2.88	2.50
Adequate govt. programs for new firms	3.09	2.65
New firms get good legal/acct. service	3.68	3.41
New firms get good banking service	3.43	3.57
Culture encourages self-reliance	2.70	2.47
IPR legislation comprehensive	3.66	3.05
IPR laws enforced	3.29	2.57

Source: Authors; Global Entrepreneurship Monitor data 2001 – 2012.

4. Discussion

Our results suggest that regardless of the country of origin, factors that influence entrepreneurial propensity of both general population and seniors remain the same. Drawing from our results of demographic characteristics, effects of gender and age of seniors are in accordance with reviewed literature. Interesting

factors are education and income, where education had higher impact on seniors than on general population in all categories as an encouragement to start a new venture, and lower income seniors were more likely to start a new venture. Since the impact of education on senior entrepreneurship is significant, we suggest that the difference in education systems under former regimes in Eastern Europe can be one of the reasons behind the different propensity of seniors towards entrepreneurship in Eastern and Western Europe.

Results for the variables that influence entrepreneurial potential reveal that factors such as opportunity recognition and belief in own skills and experience are equally significant for seniors and the general population. Seniors in Eastern Europe however, are significantly less able to recognize opportunities as their counterparts from Western Europe and have a slightly lower belief in their own skills. Fear of failure has a slightly lower effect on seniors compared with the population, which can be caused by various factors such as the fact that they are taken care of by social security or pensions. Even though seniors in Eastern Europe have on average comparatively higher fear of failure, there was not a statistically significant difference between Western an Eastern Europe in this variable. We argue that despite the fact that the difference between Eastern and Western Europe in some cases is not statistically significant, fear of failure in combination with low perception of own skills and the inability to recognize opportunities of Eastern European seniors plays a key role in the lower entrepreneurial propensity of this cohort, since the influence on the seniors is in the case of these variables notable. Due to these findings, relevant forms of entrepreneurial education for seniors and government programs which would support their entrepreneurial initiatives would be more than welcome in this region. Our results confirm that social capital, or network effect is an important factor both for seniors and general population, but likely isn't a reason behind the difference between Western and Eastern Europe.

Adequate financial opportunities constitute a negative influencing factor for senior entrepreneurs. This factor is significantly higher in Western European countries. A lower score in Eastern Europe asks for a further investigation of its impact on senior entrepreneurship in Eastern Europe. Government support programs for new firms play equally important role for seniors and general population. In Eastern Europe, however, they are not as wide-spread according to our findings. Adequate banking services, on the other hand, are very important for senior entrepreneurs and are well developed both in Eastern and Western Europe. Our results suggest that cultural norms are comparatively more important for senior entrepreneurs. Western European countries have slightly higher inclination to self-reliance, perhaps due to historical effect of communism and

totalitarian regimes in the Eastern European countries, but since the difference between Eastern and Western Europe does not show significant results, we believe that the cultural heritage might not be the decisive force. Interestingly intellectual property law enforcement has a significant negative effect on both seniors and general population, with stronger effect on seniors. We suggest that lower accessibility of entrepreneurial support programs in Eastern Europe as well as lower cultural support of self-reliance constitute important factors that can be partially responsible for the lower levels of senior entrepreneurship in Eastern European countries.

Conclusion

In conclusion, based on our results we were able to identify various determinants of senior entrepreneurship, identify the differences in effect of these determinants on seniors and general population, and determine the importance of these factors regarding the difference in senior entrepreneurship levels between Eastern and Western Europe. Among the factors that we analyzed were individual determinants divided into demographic variables, social capital and variables influencing entrepreneurial potential (fear of failure, believe in own skills, opportunity recognition).

Our results suggest that demographic characteristics such as age, gender, occupation as well as income are important factors influencing senior entrepreneurship, while education and income have a particularly strong positive effect on seniors compared to general population. Both social capital and entrepreneurial potential variables influence seniors to become entrepreneurial to a great extent. The impact of entrepreneurial framework conditions on senior entrepreneurship was particularly significant in terms of government programs, availability of good banking services cultural and social norms and intellectual property rights (IPR) laws enforcement. In later analysis we discovered a significant difference between Western and Eastern Europe in terms of inclusivity of senior entrepreneurs, where Western European countries had a prevalence of senior entrepreneurship. Based on the results we suggest that the key factors explaining this disparity might be the capacity to discover proper entrepreneurial opportunities of Eastern European seniors on an individual level, and the insufficiency of government support programs on an institutional level. We believe that both these factors can be enhanced through a dedicated educational programs focused on senior entrepreneurs, since the education also plays an important role for seniors to become entrepreneurial. However, the need for a deeper understanding of some of these key determinants leaves room for further research of this topic.

References

BAUCUS, D. A. – HUMAN, S. E. (1994): Second-Career Entrepreneurs: A Multiple Case Study Analysis of Entrepreneurial Processes and Antecedent Variables. [Online.] Entrepreneurship Theory and Practice, *19*, No. 2, pp. 41 – 71. [Cit. 25. 1. 2015.] Available at: <http://www.questia.com/library/1G1-18259841/second-career-entrepreneurs-a-multiple-case-study>.

BOTHAM, R. – GRAVES, A. (2009): The Grey Economy: How Third Age Entrepreneurs are Contributing to Growth. [Online.] [Research Report.] London: NESTA. [Cit. 15. 2. 2015.] Available at: <http://www.nesta.org.uk/library/documents/third-age-entrepreneurs-report.pdf>.

BOSMA, N. – SCHUTJENS, V. (2011): Understanding Regional Variation in Entrepreneurial Activity and Entrepreneurial Attitude in Europe. The Annals of Regional Science, *47*, No. 3, pp. 711 – 742.

BRUTON, G. D. – AHLSTROM, D. – LI, H. (2010): Institutional Theory and Entrepreneurship: Where are We Now and Where We Do Need to Move in the Future?. Entrepreneurship Theory and Practice, *34*, No. 3, pp. 421 – 440.

CURRAN, J. – BLACKBURN, R. (2001): Notes and Issues, Older People and the Enterprise Society: Age and Self-Employment Propensities. [Online.] Work, Employment and Society, *15*, No. 4, pp. 889 – 902. [Cit. 23. 2. 2015.] Available at: <http://wes.sagepub.com/content/15/4/889>.

De BRUIN, A. – FIRKIN, P. (2001): Self-Employment and The Older Worker. [Online.] Auckland: Massey University of New Zealand. [Cit. 25. 10. 2015.] Available at: <http://lmd.massey.ac.nz/publications/Working%20Paper%20No4.pdf>.

BIS (2011): Phasing out the Default Retirement Age: Government Response to Consultation. [Online.] London: Department for Business Innovation and Skills. [Cit. 23. 2. 2015.] Available at: <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31485/10-1047-default-retirement-age-consultation.pdf>.

ESTRIN, S. – MICKIEWICZ, T. (2011): Entrepreneurship in Transition Economies: The Role of Institutions and Generational Change. In: MINNITI, M. (ed.): The Dynamics of Entrepreneurship, Oxford: Oxford University Press. ISBN 978-0-19-967244-8.

EUROPEAN UNION (2012): Taxation Trends in European Union. Luxembourg: Publications Office of the European Union. ISBN 978-92-79-21209-3.

HART, M. – ANYADIKE-DANES, M. – BLACKBURN, R. (2004): Spatial Differences in Entrepreneurship: A Comparison of Prime Age and Third Age Cohorts. [Online.] Belfast: Economic Research Institute of Northern Ireland. [Cit. 23. 2. 2013.] Available at: <http://eservices.afbini.gov.uk/erini/pdf/ERINIConf6.pdf>.

HOLIENKA, M. (2013): Evaluation of Entrepreneurial Environment in Slovakia: Comparison of Selected Initiatives. Comenius Management Review, *7*, No. 1, pp. 31 – 45.

KAUTONEN, T. (2008): Understanding the Older Entrepreneur: Comparing Third Age and Prime Age Entrepreneurs in Finland. [Online.] Journal of Business Science and Applied Management, *3*, No. 3, pp. 3 – 13. [Cit. 23. 2. 2015.] Available at: <http://www.business-and-management.org/paper.php?id=30>.

KAUTONEN, T. – DOWN, S. – SOUTH, L. (2008): Enterprise Support for Older Entrepreneurs: The Case of PRIME in the UK. [Online.] Emerald Group Publishing Limited, International Journal of Entrepreneurial Behaviour and Research, 14, No. 2, pp. 85 – 101. [Cit. 20. 1. 2015.] Available at: <http://www.emeraldinsight.com/journals.htm?articleid=1714792>.

KAUTONEN, T. – LUOTO, S. (2008): Entrepreneurial Intentions in the Third Age: The Impact of Career History. [Online.] Vaasa: University of Vaasa. [Cit. 20. 1. 2015.] Available at: <http://www.swinburne.edu.au/lib/ir/onlineconferences/agse2008/000020.pdf>.

KAUTONEN, T. – TORNIKOSKI, E. – KIBLER, E. (2011): Entrepreneurial Intentions in the Third Age: The Impact of Perceived Age Norms. Springer: Small Business Economics, *37*, No. 2, pp. 219 – 234. DOI 10.1007/s11187-009-9238-y.

KIBLER, E. – WAINWRIGHT, T. – KAUTONEN, T. – BLACKBURN, R. (2011): (Work) Life After Work: Understanding Barriers to Older Entrepreneurship in London. [Online.] [Paper Presented at the 56th Annual ICBS World Conference, 15 – 18 June 2011.] Stockholm. [Cit. 20. 1. 2015.] Available at: <http://sbaer.uca.edu/research/icsb/2011/263.pdf>.

KPMG (2015): Corporate Tax Rates Table Interactive Tool. [Online.] Available at: <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>

LEVESQUE, M. – MINNITI, M. (2006): The Effect of Aging on Entrepreneurial Behavior. [Online.] Journal of Business Venturing, *21*, No. 2, pp. 177 – 194. [Cit. 14. 2. 2015.] Available at: <http://argo.cvtisr.sk:2190/full_record.do?product=CCC&search_mode=GeneralSearch&qid=3&SID=X1gPfOHef5E7i9Ki7OA&page=1&doc=5>.

NORTH, D. C. (1990): Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press. ISBN 978-05-213-9734-6.

OECD/THE EUROPEAN COMMISSION (2013): The Missing Entrepreneurs: Policies for Inclusive Entrepreneurship in Europe. Paris: OECD Publishing. ISBN 978-92-64-18815-0.

PILKOVÁ, A. – HOLIENKA, M. – KOVAČIČOVÁ, Z. – REHÁK, J. (2014): Entrepreneurship in Slovakia: Activity, Inclusivity, Environment. Bratislava: Comenius University in Bratislava, Faculty of Management. ISBN 978-80-223-3756-4.

RABE-HESKETH, S. – SKRONDAL, A. – PICKLES, A. (2005): Maximum Likelihood Estimation of Limited and Discrete Dependent Variable Models with Nested Random Effects. Journal of Econometrics, *128*, No. 2, pp. 301 – 323.

SINGH, G. – DeNOBLE, A. (2003): Early Retirees as the Next Generation of Entrepreneurs. [Online.] Entrepreneurship Theory and Practice, *27*, No. 3, pp. 207 – 226. [Cit. 24. 10. 2015.] Available at: <http://onlinelibrary.wiley.com/doi/10.1111/1540-8520.t01-1-00001/pdf>.

STENHOLM, P. – ACS, Z. J. – WUEBKER, R. (2013): Exploring Country-level Institutional Arrangements on the Rate and Type of Entrepreneurial Activity. Journal of Business Venturing, *28*, No. 1, pp. 176 – 193.

TING ZHANG (2008): Elderly Entrepreneurship in an Aging US Economy. Singapore: World Scientific Publishing Co. Pte. Ltd. ISBN 978-981-281-449-4.

WAINWRIGHT, T. – KIBLER, E. (2014): Beyond Financialization: Older Entrepreneurship and Retirement Planning. Journal of Economic Geography, *14*, No. 4, pp. 849 – 864. doi:10.1093/jeg/lbt023.

WEBER, P. – SCHAPER, M. (2004): Understanding the Grey Entrepreneur. [Online.] Journal of Enterprising Culture, *12*, No. 2, pp. 147 – 164. [Cit. 20. 10. 2015.] Available at: <http://www.worldscientific.com/doi/abs/10.1142/S0218495804000087>.

WEBSTER, B. – WALKER, B. (2005): Smart Training for Older Entrepreneur. [Online.] [Annual Conference of the International Council for Small Business.] [Cit. 14. 2. 2015.] Available at: <http://www.sbaer.uca.edu/research/icsb/2005/paper206.pdf>.

WYRWICH, M. (2013): Can Socioeconomic Heritage Produce a Lost Generation with Regard to Entrepreneurship? Elsevier, Journal of Business Venturing, *28*, No. 5, pp. 667 – 682.

Appendix A

Descriptive Statistics

Variable name	Mean	SD	Min	Max
Involved in TEA	0.052	0.223	0	1
Male	0.464	0.499	0	1
Age	44.407	15.043	18	99
Occupation	2.258	1.697	1	7
Education	980.055	584.025	0	1 720
Household income category	22,982.275	30 993.675	33	68 100
You know someone personally who started a business in the past 2 years	0.433	0.936	0	8
In the next six months there will be good opportunities for starting a business	1.634	2.93	0	8
You have the knowledge, skill and experience required to start a new business	0.716	1.469	0	8
Fear of failure would prevent you from starting a business	0.673	1.488	0	8
NES indicators				
Enough govt. subsidies for new firms	2.882	0.514	1.6	4.2
Adequate govt. programs for new firms	3.036	0.500	1.8	4.3
Adequate financial opportunities	2.642	0.413	1.6	3.8
Govt. policy favors new firms	2.167	0.375	1.3	3.5
New firms get permits in 1 week	2.114	0.542	1.1	4.5
Tax amount not burden for new firms	2.575	0.493	1.5	4.0
Govt. taxes/regulations predictable	2.818	0.483	1.4	4.0
New firms get good legal/acct. service	3.569	0.297	2.7	4.2
New firms get good banking service	3.370	0.500	2.0	4.4
Culture encourages self-reliance	2.754	0.408	1.5	3.9
IPR legislation comprehensive	3.507	0.526	1.9	4.7
IPR laws enforced	3.100	0.564	1.7	4.5
Additional variables				
Effective retirement age	62.087	2.046	56.0	69.9
Corporate tax rate	28.345	6.455	8.5	40.3
N	1,005.269			

Source: Authors.

Appendix B

Data Availability*

Country	Years included	Country	Years included
Austria	2005, 2007, 2012		
Belgium	2001 – 2012	Lithuania	2011 – 2012
Bosnia and Herzegovina	2008 – 2012	Macedonia	2008, 2010, 2012
Croatia	2002 – 2012	Netherlands	2001 – 2012
Czech Republic	2006, 2011	Norway	2001 – 2012
Denmark	2001 – 2012	Poland	2001 – 2002, 2004, 2011 – 2012
Estonia	2012	Portugal	2001, 2004, 2007, 2010 – 2012
Finland	2001 – 2012	Romania	2007 – 2012
France	2001 – 2012	Russia	2001 – 2002, 2006 – 2012
Germany	2001 – 2006, 2008 – 2012	Serbia	2007 – 2009
Greece	2003 – 2006	Slovakia	2011 – 2012
Hungary	2001 – 2012	Slovenia	2002 – 2012
Iceland	2002 – 2010	Spain	2001 – 2012
Ireland	2001 – 2012	Sweden	2001 – 2007, 2010 – 2012
Italy	2001 – 2010, 2012	Switzerland	2002 – 2003, 2005 – 2006, 2009 – 2012
Latvia	2005 – 2012	UK	2001 – 2012

* Datasets of countries in GEM research are generally taking into account population of 18 – 64 years old, the exceptions are France, Netherlands, Romania, Sweden and Switzerland who implement the survey on a population of 18 – 99 years old, and the UK that implements the research on a population of 18 – 80 years old.

Source: Global Entrepreneurship Monitor data 2001 – 2012.

Appendix C

Corporate Tax Rates 2001 – 2012

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Austria	34.0	34.0	34.0	34.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Belgium	40.2	40.2	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0	34.0
Bosnia and Hercegovina	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Bulgaria	28.0	23.5	23.5	19.5	15.0	15.0	10.0	10.0	10.0	10.0	10.0	10.0
Croatia	20.0	20.0	20.3	20.3	20.3	20.3	20.0	20.0	20.0	20.0	20.0	20.0
Czech Republic	31.0	31.0	31.0	28.0	26.0	24.0	24.0	21.0	20.0	19.0	19.0	19.0
Denmark	30.0	30.0	30.0	30.0	28.0	28.0	25.0	25.0	25.0	25.0	25.0	25.0
Estonia	26.0	26.0	26.0	26.0	24.0	23.0	22.0	21.0	21.0	21.0	21.0	21.0
Finland	29.0	29.0	29.0	29.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	24.5
France	36.4	35.4	35.4	35.4	35.0	34.4	34.4	34.4	34.4	34.4	34.4	36.1
Germany	38.3	38.3	39.6	38.3	38.7	38.7	38.7	29.8	29.8	29.8	29.8	29.8
Great Britain	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	28.0	28.0	26.0	24.0
Greece	37.5	35.0	35.0	35.0	32.0	29.0	25.0	35.0	35.0	24.0	20.0	20.0
Hungary	19.6	19.6	19.6	17.6	17.5	17.5	21.3	21.3	21.3	20.6	20.6	20.6
Iceland	30.0	18.0	18.0	18.0	18.0	18.0	18.0	15.0	15.0	18.0	20.0	20.0
Ireland	20.0	16.0	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Italy	40.3	40.3	38.3	37.3	37.3	37.3	37.3	31.4	31.4	31.4	31.4	31.4
Latvia	25.0	22.0	19.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Lithuania	24.0	15.0	15.0	15.0	15.0	19.0	18.0	15.0	20.0	15.0	15.0	15.0
Macedonia	–	–	–	–	–	15.0	12.0	10.0	10.0	10.0	10.0	10.0
Netherlands	35.0	34.5	34.5	34.5	31.5	29.6	25.5	25.5	25.5	25.5	25.0	25.0
Norway	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Poland	28.0	28.0	27.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Portugal	35.2	33.0	33.0	27.5	27.5	27.5	26.5	26.5	26.5	29.0	29.0	31.5
Romania	25.0	25.0	25.0	25.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Russia	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.0	20.0	20.0	20.0
Serbia	–	–	14.0	12.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Slovakia	29.0	25.0	25.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Slovenia	25.0	25.0	25.0	25.0	25.0	25.0	23.0	22.0	21.0	20.0	20.0	18.0
Spain	35.0	35.0	35.0	35.0	35.0	35.0	30.5	30.0	30.0	30.0	30.0	30.0
Sweden	28.0	28.0	28.0	28.0	28.0	28.0	28.0	26.3	26.3	26.3	26.3	26.3
Switzerland	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5

Source: Eurostat (2012); KPMG (2015).