Contribution of Entrepreneurship to Economic Growth: A Comparative Analysis of South-East Transition and Developed European Countries

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Abstract. We explore the contribution of entrepreneurship to economic growth in South-East European (SEE) transition countries and higher developed European countries. We also investigate the role of specific types of entrepreneurship, in particular opportunity, necessity and high-growth-expectation entrepreneurship. Using data for 21 European countries, we find the contribution of entrepreneurship to economic growth to be considerably smaller in SEE transition countries compared to higher developed European countries. We also find the contribution of high-growth-expectation entrepreneurship to be relatively strong, thereby confirming earlier research. Moreover, the contribution of opportunity entrepreneurship was found to be bigger than that of necessity entrepreneurship, as expected. Nevertheless, the impact of necessity entrepreneurship was found to be significantly positive and only one third smaller in magnitude compared to opportunity entrepreneurship. This suggests that, at least in developed countries, the role of necessity entrepreneurs in the economy may be bigger than previously assumed.

Keywords: entrepreneurship, economic growth, South-East Europe, opportunity entrepreneurship, necessity entrepreneurship, high-growth-expectation entrepreneurship, Global Entrepreneurship Monitor.

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1. Introduction

The rising share of SMEEs (small and medium-sized enterprises and entrepreneurs) in the economic activity of many highly-developed countries has led to a change of economists' perception regarding the drivers of economic growth. They started devoting considerable attention to analyzing the phenomenon of entrepreneurship and its links with economic growth (Carree and Thurik, 2003). What is more, there is a number of empirical studies demonstrating a positive impact of entrepreneurship on economic growth in developed countries (Valliere and Peterson, 2009; Van Stel, 2005).

Unlike developed countries, in developing (i.e. less developed) countries, there is a number of contradictions and dilemmas regarding the relationship between entrepreneurship and economic growth. Although theorists emphasize that the contribution of entrepreneurship to economic growth in developing countries should also be large, there is no empirical evidence to confirm these theoretical assumptions. In other words, Schumpeter's view that entrepreneurship is the main driver of economic growth has not been empirically proven in developing countries. As Koster and Rai (2008, p. 132) say: "It is still very much an open question whether entrepreneurship has the same positive role in developing countries as it has in the developed world". Empirically, the impact of entrepreneurship on the development of less developed countries still remains to be determined (Sautet, 2013).

A number of scholars explain a possibly different impact of entrepreneurship on economic growth in developed and developing countries by the characteristics of the macroeconomic environment in less developed countries, the presence of the gray economy and informal entrepreneurship, etc. Furthermore, some studies suggest that a different impact of entrepreneurship on economic growth in developing countries may, to some extent, be caused by the participation of various types of entrepreneurial activity that are present in the above groups of countries (Wong, Ho and Autio, 2005; Valliere and Peterson, 2009).

Given these and other dilemmas, the impact of entrepreneurship on economic growth in developing and transition countries is still a mute point that requires further investigation. The subject of this paper will be an empirical study of the relationship between total entrepreneurial activity and economic growth in transition countries of South-East Europe (SEE), as well as in a selected group of developed European countries. Moreover, the connection between different types of entrepreneurial activity and economic growth will be the subject of analysis in the study, taking into account the two groups of countries. The aim of the study is thus to identify the impact of (types of) entrepreneurial activity on economic growth in selected groups of countries, and to propose measures related to entrepreneurship development in order to increase the economic growth rate in transition countries of South-East Europe. The SEE region has been chosen because it involves (with the exception of Slovenia and Greece) relatively less

developed (i.e. upper-middle-income, by World Bank classification) European countries. It is also the region where most of the countries passed or are passing through a period of transition from state planned to market economy. A comparative analysis of the countries of South-East Europe with selected higher developed European countries will be carried out. Our starting hypothesis is that entrepreneurship development, taking into account participation of different types of entrepreneurial activity, can significantly contribute to economic growth of SEE transition countries.

The paper will first give an overview of the literature that links entrepreneurship with economic growth. The third part of the paper will present the hypotheses. The fourth part will explain the methodology and describe the data. The fifth section will present the results of our regression model. The final part of the paper will present conclusions.

2. Literature Overview

Entrepreneurship significantly contributes to sustainable economic development, by means of job creation, GDP increase, poverty reduction, and whole society welfare in the long term (Belka et al., 1995; Berkowitz and DeJong, 2011; Burke, 2011; Ivanović-Djukić and Lepojević, 2015). At the same time, economic growth has a great influence on the development of entrepreneurship (Carree et al., 2002, 2007; Koster and Rai, 2008; Sabella et al., 2014; Casares and Khan, 2016). Moreover, the correlation between entrepreneurship and economic growth may not be the same in countries with different levels of development (Van Stel, Carree and Thurik, 2005).

2.1. Relationship Between Entrepreneurship and Economic Growth in Developed Countries

In developed countries, a number of studies have been conducted on the relationship between entrepreneurship and economic growth. Thus, for example, a study of thirteen developed European countries, conducted by Carree and Thurik (1998), points to the fact that economies with greater shares of small firm activity have higher growth rates, compared to the ones with a smaller share of small firm activity. Acs and Varga (2005), based on a sample of 9 developed European countries and 7 industrial sectors, found that entrepreneurship has a positive and statistically significant impact on technological change, due to the role of entrepreneurs in stimulating knowledge spillovers. Wong, Ho, and Autio (2005) point to similar conclusions, claiming that business creativity and innovation –characteristics of SMEEs– have great significance for economic growth in developed countries. Naudé (2013) argues that entrepreneurship has a

positive impact on the economy, because it contributes to increasing employment and intensifying competition. Valliere and Peterson (2009) use methods of regression and correlation analysis, and, based on a sample of 24 developed countries, show that there is a positive and statistically significant correlation between entrepreneurship and economic growth rates in developed countries. It should be noted here that several studies show that the largest contribution to economic growth in developed countries comes from fast growing companies, the so-called "gazelles", and high-growth expectation entrepreneurship (Harrison, 1994; Wong, Ho and Autio, 2005; Moreno and Casillas, 2007; Henrekson and Johansson, 2010). Koster and Van Stel (2014) investigate the impact of start-up rates on regional economic development in the Netherlands. They argue that start-ups initiate a process of "creative destruction", as elaborated by Schumpeter. The emergence of start-up firms with new products and services that compete with existing businesses contributes to a process of competition in which only the most competitive companies survive and grow. At the aggregate level, this selection process ultimately leads to regional economic development. The authors show empirically that new-firm start-ups contribute to economic growth via two mechanisms. First, the most successful start-ups achieve high rates of growth and become high-growth firms, and second, the entry of new firms stimulates existing firms to do business better (Koster and Van Stel, 2014).

2.2. Relationship Between Entrepreneurship and Economic Growth in Developing Countries

There are also some scholarly articles pointing to the importance of entrepreneurship for economic growth in developing countries and transition economies (Stefanović et al., 2013). Entrepreneurship is important for transition economies because it encourages economic development by creating an open competitive market (Megginson and Netter, 2001), and contributes to limiting the market power of public enterprises (McMillan and Woodruff, 2002). The particular importance of small enterprises and entrepreneurs in developing countries lies in the fact that they are very dynamic, quick to learn, and prone to rapid change (Cuckovic and Bartlett, 2007), which increases their competitiveness, as well as the competitiveness of the entire economy (Carlin et al., 2001). However, although there is a large number of papers, which, based on substantiated theoretical explanations, argue the importance of entrepreneurship for economic growth, solid empirical evidence that this link is present and significant is still missing. What is more, there are several claims that there is no connection or that there is even a negative correlation between entrepreneurship and economic growth. Thus, for example, a study by Tang and Koveos (2004), which examines two different types of entrepreneurship, "venture" entrepreneurship and "innovative" entrepreneurship, points to the fact that, in

countries with low levels of development, there is a negative correlation between entrepreneurship and economic growth. The regression analysis conducted in Palestine by Sabella et al. (2014), confirms that entrepreneurship (measured by the rate of business start-ups) has a non-significant relationship with the GDP growth rate. Furthermore, research conducted by Valliere and Peterson (2009), based on a sample of 20 developing countries, does not confirm that entrepreneurship significantly affects economic growth, and they conclude that developing countries need to reach a certain level of development so that entrepreneurship could make its full contribution to economic growth.

Therefore, previous research shows that entrepreneurial activity and its contribution to economic growth varies among countries with respect to GDP, as well as in accordance with the stages of economic development in the regions *within* the country. The relationship between the total early-stage entrepreneurial activity rate in certain countries and their national per capita income level usually appears as a curve in the shape of the letter U. The countries with low income per capita have high total early-stage entrepreneurial activity rate, as well as countries with high income per capita, whereas countries between them have lower total early-stage entrepreneurial activity rates (Wennekers et al., 2010). What is more, in less developed countries, the contribution of entrepreneurship to economic growth significantly differs, compared to the contribution of entrepreneurship to economic growth in countries with higher levels of development (Van Stel et al., 2005; Valliere and Peterson, 2009).

One of the possible explanations for a different impact of entrepreneurship on economic growth lies in the institutional context (Bartlett and Popovski, 2015). The environment shaping the economy affects the dynamics of entrepreneurship within any given country (Petković and Tešić, 2013). This environment is marked by interdependencies between economic development and institutions, which affect other characteristics, such as the quality of governance, access to capital and other resources, and the perceptions of entrepreneurs (Acs et al., 2008). In countries with high levels of economic development, consumers and investors spend more money and these are good circumstances to start a business, hence more start-ups can be expected (Carree et al., 2002). Also, these countries established favourable conditions for knowledge transfer, including adequate intellectual property protection, a well-functioning venture capital market and the presence of clusters (Valliere and Peterson, 2009). Unlike high-income countries with their developed markets and regulated legal environments, the situation is completely different in developing and transition countries. For example, many countries in transition face a large number of problems (presence of gray economy, corruption, unfair competition, non-incentive tax system, and so on), an unstable legal and political system, and underdeveloped market economy mechanisms, which hinder the development of entrepreneurship and produce different effects on economic growth, compared to developed countries (Bartlett and Bukvic, 2001; Cuckovic and Bartlett, 2007). At the same time, developing

countries are characterized by the dominance of entrepreneurship in low-productive activities, so that it does not produce adequate returns, commensurate with those achieved in developed countries (Acs, Desai and Klapper, 2008). This, on the one hand, results in lower contribution to economic growth, while at the same time it discourages potential entrepreneurs to start their own business. If one adds to this the fact that the mortality rate of business start-ups is higher in developing countries, and that even businesses that survive the initial problems, grow much slower than businesses in developed countries, it is comprehensible that the effects on economic growth are lower (Sautet, 2013).

2.3. Relationship Between Different Types of Entrepreneurship and Economic Growth

In addition to the macroeconomic environment, the differences in the contribution of entrepreneurship to economic growth may be affected by different types of entrepreneurship. Literature has given rise to a number of classifications of entrepreneurship, based on existing theoretical approaches. Carree and Thurik (2003) provide an interesting classification of entrepreneurship, distinguishing among entrepreneurship in Schumpeter's (innovative), Kirzner's (entrepreneurship based on opportunities), and Knight's (entrepreneurship based on different growth expectations and associated risks) sense. A commonly cited classification of the types of entrepreneurship is the one based on the motives that drive people to start a business, where there are two dominant reasons or motives that drive individuals into start-ups: opportunity and necessity. This classification has been introduced by the Global Entrepreneurship Monitor (GEM) research (Reynolds et al., 2002). In this regard, there are two different types of entrepreneurship. Opportunity-driven early-stage entrepreneurship activity (OEA) includes all start-ups and newly established businesses (younger than 42 months), which emerge as a result of perceived business market opportunities. Necessity-driven early-stage entrepreneurship activity (NEA) occurs in a situation where individuals perceive entrepreneurship as a last resort and start a business because they either do not have other employment options, or such options are unsatisfactory (Reynolds et al., 2002).

This distinction has been made to explain the paradoxically high levels of entrepreneurship in developing countries, defined under the GEM project. It has been shown that the greater the poverty, the greater the level of necessity-based early-stage entrepreneurship. A higher number of entrepreneurs entering into business out of necessity results in high rates of entrepreneurial activity. As the level of development of a country increases, the share of necessity entrepreneurship decreases and opportunity entrepreneurship increases (Wennekers et al., 2010).

If one starts from the assumption that entrepreneurship contributes to economic development (as is the case in developed countries), and bears in mind a large number of new businesses in developing countries, at first sight it seems logical to expect that entrepreneurial activity has a significant impact on the GDP growth rate. However, this has not been proven empirically yet. This can be explained by the fact that necessity entrepreneurship may have a lower contribution to economic growth, compared to other forms of entrepreneurship (Acs and Varga, 2005; Poschke, 2013). Possibly, necessity entrepreneurship does not create knowledge that leads to the development of the business, so that it has a much lower contribution to economic growth, compared to other types of entrepreneurship (Acs and Varga, 2005). Moreover, Acs et al. (2008) argue that higher levels of necessity entrepreneurship may have a negative effect on the economic growth of a country, while opportunity driven entrepreneurship should have a significant, positive effect on economic performance.

Despite the fact that a number of papers and empirical studies point to this conclusion, it faces a certain amount of criticism. First of all, some authors suggest that this view is too simplistic (Rosa et al., 2006), because there is a variety of motives that drive individuals to start a business, i.e. necessity and opportunities are only part of a broader debate about what motivates business start-ups. Furthermore, GEM notes some other classifications of entrepreneurial activity as well. Thus, for example, there is the classification of entrepreneurial activity on the basis of growth expectations, where entrepreneurs are divided into three groups: entrepreneurs with low, medium, and high growth expectations (Singer, Amoros and Moska, 2015). Previous research suggests that companies established by entrepreneurs with high growth expectations (HEA) make the greatest contribution to economic growth in developed countries (Autio, 2005). HEA can have a very significant impact on economic growth, by improving the dissemination of knowledge (Autio, 2005; Wong, Ho and Autio, 2005). Valliere and Peterson (2009) point to similar conclusions, claiming that a great part of the contribution of early-stage entrepreneurship to economic growth can be attributed to the high prevalence of entrepreneurs with high growth expectations. This suggests that, when analyzing the impact of types of entrepreneurship on economic growth, one must take into consideration the impact of high-growth expectation early-stage entrepreneurial activity (HEA).

Therefore, based on previous research, a picture emerges that the significant contribution of early-stage entrepreneurship to economic growth in developed countries is affected by a large share of high-growth-expectation-entrepreneurship, while the lower contribution of entrepreneurship to economic growth in developing countries results from the dominance of necessity-driven early-stage entrepreneurial activity (Autio, 2005; McDonald et al., 2006; Moreno and Casillas, 2007; Valliere and Peterson 2009).

In contrast to the conclusion that HEA has a significant impact on economic growth in developed countries, which is shown by several empirical studies

(Wong et al., 2005; Stam et al., 2009; Valliere and Peterson, 2009), the dominance of necessity-driven early-stage entrepreneurial activity (NEA), as the reason for the lower contribution of entrepreneurial activity to economic growth in less developed countries, is an unproven assumption. Its relativity is affected by a number of other assumptions, which have been proven to be inaccurate. Thus, for example, companies run by entrepreneurs out of necessity, which are on average smaller and have lower growth expectations, are assumed to exist shorter. However, it has been found that necessity entrepreneurs actually tend to stay in the market (Poschke, 2013). The average age of the firms run by entrepreneurs out of necessity is not statistically significantly different in comparison to other firms. This suggests that, although some entrepreneurs start their business out of necessity as a temporary solution, and reject it as soon as they find a better chance, a larger number of them remain in business as long as other companies do, which may have a significant contribution to employment and addressing social problems (if the share of these entrepreneurs is high).

The impact of entrepreneurship on economic growth should be seen in the long run. Limitations of the majority of previously conducted studies are related to the short observation period (usually 1, 2, or 3 years). Short-term analysis may set aside the consideration of the effects of "lag", which only occur over a longer period of time (Carree et al., 2002). For these reasons, we will analyse the impact of different types of early-stage entrepreneurial activity on economic growth over a relatively long observation period of 12 years (2003-2014), while implementing lags of four years to account for the delayed impact of entrepreneurship on growth.

3. The Hypotheses

Accordingly, previous research suggests that entrepreneurial activity can have different effects on economic growth in developed and developing countries. The reason for this lies in the fact that economic growth can be driven by varying factors in developing and developed countries, and that it may be influenced by the conditions that affect the development and the participation of various types of entrepreneurial activity at the national and regional level. In the countries of South-East Europe (as well as in developing and transition countries in general), entrepreneurs largely depend on the development-oriented international financial institutions, which provide them with legitimacy on the international market and risk-sharing, although this dependence carries the risk of excessive bureaucracy and political interference (Bartlett and Bukvic, 2001). What is more, entrepreneurship in the countries of the SEE region can be distinguished from entrepreneurship in developed countries due to the effects of privatization and market liberalization. Privatization and the resulting transformation of state-owned enterprises are a significant component of entrepreneurial activity in many

countries of the region (Belka et al., 1995; Carlin et al., 2001), which is particularly susceptible to the agency problem, with pronounced differences between entrepreneurs and managers. However, despite all the problems which entrepreneurship in South-East Europe faces, an enormous share of SMEEs in total economic activity points to the potential that entrepreneurship has to positively affect economic growth in this group of countries.

Based on what has been noted so far, the starting hypothesis of this paper is that entrepreneurship has a positive impact on economic growth in the countries of South-East Europe, but that this impact is lower in comparison with the selected more highly developed European countries, given the different participation of various types of entrepreneurial activity (i.e. a higher share of necessity entrepreneurship and a lower share of high-growth-expectation entrepreneurship in SEE countries).We formulate the following hypotheses:

H1: Entrepreneurial activity contributes positively to economic growth.

H2: The contribution of entrepreneurship to economic growth in transition countries of South-East Europe is lower, compared to developed European countries.

H3: The impact of Opportunity-driven early-stage Entrepreneurial Activity (OEA) on economic growth is higher than the impact of Necessity-driven early-stage Entrepreneurial Activity (NEA).

H4: High-growth-expectation early-stage Entrepreneurial Activity (HEA) makes the largest contribution to economic growth.

4. Model, Methods and Data

We explore the impact of entrepreneurship on medium-term economic growth by employing a regression model that is adapted from Van Stel, Carree and Thurik (2005). The average annual growth rate of real GDP over a four-year period is explained by measures of entrepreneurship and various control variables. Entrepreneurship is measured as GEM's Total early-stage Entrepreneurial Activity rate, defined as the percentage of individuals aged 18-64 who are either a nascent entrepreneur or an owner-manager of a new business (younger than 42 months). We also employ GEM's indicators of high-growth-expectation early-stage entrepreneurial activity – HEA, i.e. the percentage of early-stage entrepreneurs who expect to employ at least 20 people five years from now (Singer et al., 2015, p. 24), opportunity-driven entrepreneurship activity (OEA), and necessity-driven entrepreneurship activity (NEA). As these GEM indicators are expressed as a percentage of TEA, we multiply them by TEA, so that our

independent variables are expressed as percentages of the adult population, similar to TEA itself.

As control variables we include the lagged level of GDP per capita —to capture catching-up effects— and a lagged dependent variable (i.e. lagged growth) to limit the potential impact of reversed causality (Van Stel et al., 2005). Data on real GDP growth and GDP per capita are taken from World Bank. Moreover, we include characteristics of the macroeconomic environment in transition countries of South-East Europe and selected developed European countries using data of GEM's entrepreneurial framework conditions (Singer et al., 2015). More details on these variables will be given in Section 4.1. All independent variables in the model are included with a four year lag. Finally, we include year dummies to capture business cycle effects.

The European countries included in the regression sample were selected on the basis of data availability in the Global Entrepreneurship Monitor. To test Hypothesis 2, we created a dummy for South-East European transition countries in our data sample versus higher developed European countries. SEE transition countries are defined as belonging to the group of upper-middle-income economies (whose Gross National Income – GNI per capita is between US$3,965 to US$12,235 in 2016), by the World Bank classification of country incomes. There were only six of these countries (Table 1). We put Greece and Slovenia in the group of developed countries because their GNI per capita is greater than US$12,235, and they are belonging to the group of high-income economies by the same World Bank classification. The research does not take into consideration Montenegro, Albania, and Bulgaria, since GEM does not contain data from these countries. At the same time, 15 developed European countries are also observed (with GNI per capita in 2016 greater than US$12,235).

Our regressions employ data from the period 2003-2014. However, to limit autocorrelation in the dependent variable, we do not include data for each year but rather for every two years. Specifically, our sample consists of three sample years (2010, 2012 and 2014) so that our dependent variable refers to average annual growth of real GDP over the periods 2007-2010, 2009-2012 and 2011-2014 for the respective sample years (and hence, lagged growth refers to periods 2003-2006, 2005-2008 and 2007-2010, respectively). Our estimation sample therefore consists of a balanced panel of 21 European countries for three periods, i.e. 63 observations. Missing values for some of the indicators are estimated on the basis of the values of these indicators in previous years, or based on the value of a given indicator in similar countries in the region to which the particular country belongs. Countries included in the study are given in Table 1.

Table 1. Countries included in the study and their GNIPC[1]

Country	GNIPC in US$
Transition (upper-middle-income) South-East European Countries	
Bosnia and Herzegovina	4,880
Macedonia	4,980
Serbia	5,280
Romania	9,470
Turkey	11,180
Croatia	12,110
Developed (high-income) European Countries	
Greece	18,960
Portugal	19,850
Slovenia	21,660
Spain	27,520
Italy	31,590
France	38,950
Belgium	41,860
Netherland	43,310
Germany	43,660
Finland	44,730
Ireland	52,560
Sweden	54,630
Denmark	56,730
Iceland	56,990
Norway	82,330

[1] GNI per capita in 2016, Atlas Method (current US$)
Source: World Bank

4.1. Principal Component Analysis

To study the influence of the macroeconomic environment on economic growth, we considered many control variables. Since we had too many control variables given our limited number of observations (63), principal component analysis was performed to reduce the number of variables capturing the macroeconomic environment. By using this method, 12 indicators that evaluate the characteristics of the macroeconomic environment (reflecting GEM's entrepreneurial framework conditions; Singer et al., 2015) are grouped and reduced to 3

components. These three components explain over 70% of data variability. These are shown in Table 2.

The first component refers to the general characteristics of the macroeconomic environment, which may indirectly affect entrepreneurial activity and its impact on economic growth. These include the degree of involvement of knowledge and practices related to entrepreneurship in general education programs of a country, the possible transfer of ideas and knowledge – obtained through scientific research in the country – to the SMEE sector, the characteristics of the national culture, economic dynamics, and legal infrastructure which, through property rights protection, affects the development of entrepreneurship. This component is called the *general characteristics of the macroeconomic environment* (GCME).

The second component is related to institutions and government policies that directly affect the development of entrepreneurship. These include the characteristics of monetary and fiscal policy, which could have a stimulating or limiting impact on the establishment and development of SMEEs, as well as the existence of state bureaucracy (the existence of regulations and procedures, including time and costs), relating to the establishment and development of SMEEs (such as time and costs of registering a new business, time and costs of obtaining various permits required for business development, etc.). This component is called the *characteristics of state institutions and policies* (CSIP).

The third component includes direct measures to support the development of entrepreneurship. They include financial incentives (in the form of favorable sources of financing, subsidies, and other financial incentives) and various programs implemented by the state, aimed at the development of entrepreneurship such as the establishment of clusters, business incubators, technology parks, etc. This component is called *direct measures to support the development of entrepreneurship* (DMSDE).

Table 2. Principal components

Indicators	Components		
	1 GCME	2 CSIP	3 DMSDE
Basic-school entrepreneurial education and training	0.807		
Post-secondary school entrepreneurial education and training	0.638		
R&D transfer	0.711		
Commercial and professional infrastructure	0.765		
Internal market dynamics	0.763		
Cultural and social norms	0.756		
Governmental support and policies		0.849	
Internal market openness		0.743	
Taxes and bureaucracy		0.746	
Physical and services infrastructure		0.592	
Financing for entrepreneurs			0.742
Governmental programs			0.800

4.2. Descriptive Statistics

Table 3 provides descriptive statistics for the variables used in this study. We note that in Europe, opportunity entrepreneurship occurs more often than necessity entrepreneurship (sample means are 3.19 versus 1.54 percent of the adult population). Another 1.9 percent does not have a clear opportunity or necessity motive or may have mixed motives (variable Rest1). We also note that high-expectation entrepreneurship is quite rare, with a sample mean of 1.85 percent of adult population.

Table 3. Descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
Average GDP growth rate	-6.55	4.49	0.24	1.79
log GDPPC	3.60	4.94	4.42	0.38
Lagged 4 year average growth	-4.80	7.50	1.97	2.52
GCME	9.96	14.56	11.99	0.94
CSIP	6.04	10.41	8.16	1.12
DMSDE	2.84	5.26	4.12	0.58
TEA	3.00	14.00	6.63	2.57
OPP (OEA*TEA/100)	0.88	6.29	3.19	1.26
NEC (NEA*TEA/100)	0.19	6.58	1.54	1.51
Rest1 =TEA-OPP-NEC	0.59	6.00	1.90	1.14
HE (HEA*TEA /100)	0.44	5.24	1.85	1.15
Rest2=TEA-HEA	2.07	9.52	4.78	1.77
Number of observations		63		

5. Results

We present results for four regression models in Table 4. All of them include the same control variables (level of GDP per capita, lagged GDP growth, and CSIP), different independent variables related to different types of entrepreneurship, and dummy variables for 2012 and 2014. At first, we included all component variables in the regression, but because of the low number of observations (63) we decided to remove non-significant component variables from our final models (i.e. GCME and DMSDE)[2], and to keep only component *the characteristics of state institutions and policie*s (CSIP).

Model 1 analyses the impact of TEA on GDP growth in general (for all countries in our sample). Model 2 analyses the differences in contribution of TEA to economic growth in South-East European countries versus developed European countries. The model includes a dummy for South-East European countries as well as an interaction term of TEA with the SEE dummy. Model 3 includes OPP (opportunity-driven entrepreneurial activity expressed as percentage of adult population), NEC (necessity-driven entrepreneurial activity expressed as percentage of adult population) and the rest of total early-stage entrepreneural activity (TEA-OPP-NEC). This model tests for possibly different contributions of opportunity versus necessity entrepreneurship. Model 4 includes HE (high-growth-expectation early-stage entrepreneurial activity expressed as percentage of adult population) and the rest of total early-stage entrepreneurial activity (TEA-HE).

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2.   Exclusion of these two components did not influence our results.

Model 1 shows that economic growth increases if total early-stage entrepreneurial activity (TEA) increases. Hypothesis 1 is thus supported. When we include the dummy variable for South-East European countries and its interaction with TEA (Model 2), we nd that the adjusted R^2 increases, indicating that the impact of TEA on economic growth differs across different parts of Europe. The model indicates that during the observation period 2003-2014 GDP growth was on average lower in the countries of South-East Europe compared to selected European countries (coefficient is -2.97). More importantly, the interaction term between the SEE-dummy and TEA is significantly negative (coefficient is -0.565), indicating that the contribution of entrepreneurial activity to economic growth is considerably smaller in the South-East of Europe compared to higher developed parts of Europe. This evidence supports Hypothesis 2.

According to Model 3, both OPP and NEC have a positive and statistically significant impact on economic growth. As expected, the impact of opportunity entrepreneurship is bigger, in line with Hypothesis 3. What is interesting though is that the impact of necessity entrepreneurship is also considerable, and almost two third of the impact of opportunity entrepreneurship (0.283 versus 0.456). This suggests that necessity entrepreneurship may have a bigger contribution than is generally suggested (e.g. Acs, 2006; Poschke, 2013; Margolis, 2014).

Model 4 shows that high-growth-expectation entrepreneurship has by far the strongest impact on economic growth (coefficient 0.710), confirming earlier research and supporting Hypothesis 4.

Finally, regarding control variables, we find a strong positive impact for variable CSIP, showing that institutions are important in facilitating productive entrepreneurship (Stam et al., 2009; Bartlett and Popovski, 2015).

Table 4. Estimation results, period 2003–2014 (63 observations) [a, b]

	Model 1	Model 2	Model 3	Model 4
Constant	0.772	-5.243	-1.739	1.892
	(0.21)	(-1.02)	(-0.30)	(0.55)
log GDPPC	-1.374	0.236	-0.882	-1.235
	(-1.53)	(0.21)	(-0.63)	(-1.51)
Lagged 4 year average growth	0.226*	0.299*	0.219	0.156
	(1.69)	(1.93)	(1.57)	(1.27)
Characteristics of state institutions and policies (CSIP)	0.572**	0.548**	0.607**	0.442**
	(2.48)	(2.49)	(2.57)	(2.08)
Total early-stage Entrepreneurial Activity (TEA)	0.161**	0.183*		
	(2.73)	(1.83)		
South-East countries dummy		-2.970**		
		(-2.83)		
TEA* South-East countries dummy		-0.565**		
		(-3.61)		
OPP: Opportunity-driven entrepreneurship activity (OEA*TEA/100)			0.456**	
			(2.78)	
NEC: Necessity-driven entrepreneurship activity (NEA*TEA/100)			0.283**	
			(2.97)	
Rest1 =TEA-OPP-NEC			0.351	
			(1.29)	
HE: High-expectation (HEA*TEA/100)				0.710**
				(3.60)
Rest2=TEA-HE				0.273
				(1.29)
Dummy 2012	-0.797	-0.621	-0.880	-0.875*
	(-1.51)	(-1.22)	(-1.66)	(-1.82)
Dummy 2014	0.859	1.090	0.629	0.524
	(1.29)	(1.57)	(0.81)	(0.85)
R^2	0.341	0.478	0.364	0.464
Adjusted R^2	0.270	0.401	0.270	0.396

Note: All independent variables are measured with a four year lag.
[a] Dependent variable: Average annual real GDP growth rate measured over four years.
[b] T-values in brackets
* Signicant at 0.10 level
** Signicant at 0.05 level

6. Conclusions

It can be concluded that entrepreneurship is important for economic growth, but its contribution to economic growth varies among countries with different levels of economic development. In this regard, results of the present paper confirm earlier research (e.g. Van Stel et al., 2005; Valliere and Peterson, 2009). Also, the contribution of certain types of entrepreneurship to economic development is significantly different. Using data for 21 European countries, the present paper confirms earlier research in that high-growth expectation early-stage entrepreneurial activity seems to be the most promising form of entrepreneurship. As expected, we also found that opportunity-driven entrepreneurial activity has a bigger contribution to economic growth than necessity entrepreneurship. However, the impact of necessity entrepreneurship is also found to be significantly positive and only one third smaller in magnitude compared to opportunity entrepreneurship. This suggests that the role of necessity entrepreneurs in the economy may be bigger than previously assumed, at least in European countries. Possibly, in developed countries the difference between the two motivational types may not be as clear-cut as in developing countries. As Shane (2009, p. 142, footnote 1) puts it: "People can build high-growth, job-creating, wealth-generating companies even if their motivation for starting a business was necessity. Moreover, the majority of ''opportunity'' entrepreneurs are not interested in growing their businesses, and fewer still manage to do so." Future research should look deeper into the role of necessity entrepreneurs in developed economies.

Our research has shown that the contribution of total early-stage entrepreneurial activity in transition countries of South-East Europe is significantly lower compared to higher developed European countries. This can be explained by the fact that in the SEE transition countries, the positive effects of entrepreneurship are limited due to a lower standard of living and the presence of a large number of macroeconomic problems, such as: presence of grey economy, corruption, unfair competition, non-incentive tax system, discriminatory legislation, an unstable legal and political system, and underdeveloped market economy mechanisms. It is necessary to substantially improve the macroeconomic environment in these countries as it largely affects the development of entrepreneurship. First of all, theoretical knowledge and entrepreneurial practice should, to a greater extent, be included in general education programs in the above-mentioned countries and a greater number of ideas and knowledge obtained by scientific research should be transferred to SMEEs, because this can contribute to easier identification of market opportunities and their exploitation in order to start up new businesses. Moreover, the legal and regulatory infrastructure should be improved as well, particularly in the area of property rights, and government bureaucracy reduction, because this can have a stimulating effect on the development of entrepreneurial activity.

A limitation of our research is the small number of observations (63) used in our regression analysis. Future research should ideally use data for more countries and longer time series. As a final remark, we conclude that increases in entrepreneurial activity generally should not be regarded as a universal solution to achieve higher levels of economic development. Instead, both transition and higher developed countries may be well advised to focus their policies of economic development on the increase of certain types of entrepreneurs, notably high-growth-expectation entrepreneurs.

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