Supporting Economic Growth with Innovation-oriented Entrepreneurship

*Katja CRNOGAJ – Miroslav REBERNIK – Barbara BRADAČ HOJNIK**

Abstract

This article aims to examine whether any causal relationships exist among different types of entrepreneurial activity and economic growth. The theory and some empirical evidence proved positive outcomes of entrepreneurial activity, but mixed evidence on the role of entrepreneurship in economic growth. For the purposes of empirical testing, a longitudinal analysis was employed for 24 differently developed countries to estimate the relationship between different types of entrepreneurial activity and GDP growth rate, controlling for the impact of countries' developmental stage and time. The data were obtained from the Global Entrepreneurship Monitor database and complemented with data from other international sources. The results confirmed that entrepreneurship activity, especially innovation-oriented one, is correlated with economic growth, but this relationship is influenced by the economy's developmental stage as well as by specific characteristics of certain years included in the analysis. Our results indicate that governmental interventions cannot be the same for all countries; rather, they have to be adjusted to the specific developmental stage of the national economy and type of entrepreneurship.

Keywords: *entrepreneurial activity, economic growth, developmental stage, economic policy, longitudinal study*

JEL Classification*:* L26, M13

Introduction

Entrepreneurship has been recognized as a complex phenomenon involving individuals, companies, and the environment in which it occurs (Wennekers and Thurik, 1999); as a result, measuring and comparing entrepreneurship on the international level and over time are challenging endeavours. In light of the increased

* Katja CRNOGAJ – Miroslav REBERNIK – Barbara BRADAČ HOJNIK, University of Maribor, Faculty of Economics and Business, Institute for Entrepreneurship and Small Business Management, Razlagova 14, 2000 Maribor, Slovenia; e-mail: katja.crnogaj@um.si; miroslav.rebernik@um.si; barbara.bradac@um.si

globalization, entrepreneurship not only plays a more important role, but also generates growth because, according to Caree and Thurik (2003), it serves as a vehicle for innovation and change and as a conduit for knowledge spill-overs which generate economic growth. As Audretsch (2007, p. 65) pointed out, entrepreneurship is the missing link between investments in new knowledge and economic growth, making it an important mechanism that permeates the knowledge filter, facilitating the spill-over of knowledge, and ultimately generating economic growth. Governments increasingly consider entrepreneurship and innovativeness as the cornerstones of a competitiveness of national economies, because it can be pursued in two ways (Rebernik and Bradač, 2011; van der Zwan et al., 2011): (1) by engaging creative individuals in entrepreneurial activities to create new companies because it increases dynamism in the national economy and (2) by enabling established companies to achieve their growth and development.

Economic policy co-designs the business environment, which requires an entire set of goal-oriented measures. The outcomes of various policies for entrepreneurship have caused mixed results. In addition, the literature reveals that the fundamental and general question of how-and if-governments are able to influence entrepreneurial activity in a positive manner is far from resolved (Capelleras et al., 2008, in Minniti, 2008, p. 780) and needs further empirical examination.

Therefore, when forming the relevant empirical evidence base for policymakers, we should consider the multidimensional framework of entrepreneurship and use appropriate data sets that allow for a longitudinal comparison between different groups of countries while contributing to the existing knowledge base (Crnogaj, 2012). To provide additional insights into interdependence between entrepreneurship and economic growth, particular types of entrepreneurship (e.g., innovation-oriented entrepreneurship) at countries' different developmental stages should be analysed.

The main objective of this paper is to provide additional empirical evidence on the role of entrepreneurship in economic growth. It is structured as follows. First, the theoretical foundation on entrepreneurship and its connection with economic growth are explained and hypotheses developed. Second, the methodology of the empirical examination is presented, including the data and research model development. Third, the results of the empirical analysis are explained. The article ends with conclusions and policy implications.

1. Theory Background and Hypothesis Development

Various studies have confirmed the positive outcomes of entrepreneurial activity, leading national policymakers to become increasingly aware of the importance of promoting innovation and entrepreneurship and improving the business

environment in order to confront economic, social, and environmental challenges (e.g., Hart, 2003; Lundström and Stevenson, 2005). It is not only the number of entrepreneurs and the number of businesses that determine economic prosperity, but also the entrepreneurs who have both the desire and the capacity to develop their businesses and create jobs. In this way, it is possible to develop foundations for policymakers regarding entrepreneurship as their measures can either encourage or hinder entrepreneurship. These measures can apply to individuals, businesses, and national economies.

Government policies develop institutional structures for entrepreneurial action and, therefore, have the power to influence entrepreneurial activity (Minniti, 2008, p. 781). The extent to which the government will intervene in the economy depends on its perception of the existence of market failures and distortions and on beliefs concerning the leeway to correct these market failures (Audretsch, Grilo and Thurik, 2007). Insights into the relationship between entrepreneurship and economic development across countries are therefore especially important for policymakers. Hence, although it is important to support entrepreneurship, it is even more important to encourage it on both the supply and demand sides to attain sustainable economic growth. Intentionally influencing the entrepreneurship reality demands accurate knowledge of this reality and the motives that drive it; due to the influence of the policy on the formation of entrepreneurial behaviour, the resulting outcome must be carefully considered and enhanced to the greatest extent possible (Rebernik et al., 2013). The importance of entrepreneurship is also seen by observing empirical research and projects implemented by the World Bank (WB), the Organization for Economic Cooperation and Development (OECD), and the Global Entrepreneurship Research Association to measure business-formation processes across countries (Acs and Szerb 2011, p. 2). Such research demonstrates the importance of the subject.

Our understanding of the specific role of entrepreneurship and its connections with economic growth is limited by the various existing entrepreneurship measures. Measures of entrepreneurship reflect different types of activities and, thus, should be selected carefully (Desai, 2009). The search for indicators and even the articulation of specific statistics has become crucial in order to make progress in the applied research as well as to design, implement, and assess the various measurements of public intervention (Congregado, 2008). We should also consider the fact that entrepreneurship exhibits different stages of development among national economies.

Every country and geographic area has its own features that define entrepreneurship. Understanding entrepreneurship in one's own country means comparing it with others while being aware of the fact that entrepreneurship has different

effects with regard to national economic development phases (Rebernik, 2002). Such an approach makes it possible to learn from one another and, in an effort to support entrepreneurship, implement those measures that have proven to be efficient in similar circumstances or developmental phases. When comparing the development of economies on a global level, it is suitable to classify the countries based on the economic theory of stages of development provided by Porter, Sachs and McArthur (2002). Porter divided economies according to their development stage measured by GDP per capita on factor-driven, efficiency-driven, and innovation-driven economies. The economy is factor driven in the first development stage, when it competes based on its basic factor capabilities-primarily, unskilled labour and natural resources (WEF, 2013, p. 10). In the efficiency--driven stage, a country has become more competitive than in the factor-driven stage, and the development of the economy is accompanied by industrialization and an increased reliance on economies of scale, with large, capital-intensive organizations being dominant. In the market, more efficient production processes and improved product quality are required. As development advances into the innovation-driven stage, businesses become more knowledge intensive, and the service sector expands. Wages and the standard of living increase as well so that businesses are able to sustain such development. At this stage, companies must compete by introducing and producing new and unique goods using the most advanced production processes and by innovating new processes and products (WEF, 2013; Tominc et al., 2015). Porter's classification of national economies according to their achieved developmental stage was embraced by the Global Entrepreneurship Monitor (GEM) and included into its basic research model (Bosma et al., 2009). GEM is an extensive international research project dedicated to understanding the relationship between entrepreneurship and national economic development across a wide range of countries.

The variety in the development of national economies has brought about numerous characteristics with regard to reaching decisions about entering an entrepreneurship career, entrepreneurship development, and competition among companies in different environments. Equally important are the differences regarding the necessary economic policy measures to be taken. Different stages of countries' socio-economic development mean different requirements; therefore, it is impossible to give unified suggestions on how to encourage entrepreneurship in particular (groups of) countries. In addition, empirical evidence from several global studies, such as GEM, as well as measures such as the Global Entrepreneurship and Development Index proved that connections exist between entrepreneurship and economic growth and that the support to encourage positive effects has to be adjusted to the developmental stage of particular economies.

According to previous empirical research examining entrepreneurship at different stages of economic development, entrepreneurship in different forms is positively correlated with economic growth, but this relationship differs according to the phase of economic development (e.g., Audretsch et al., 2002; Caree et al., 2002; van Stel et al., 2005; Acs and Varga, 2005; Wennekers et al., 2005; Acs and Amoros, 2008; Wennekers et al., 2010; Stam et al., 2011). Theoretical advances and empirical research seem to support the view that, at higher levels of development, when institutions become stronger, more and more entrepreneurial activity is shifted towards innovative entrepreneurship, thereby strengthening economic development (Acemoglu and Johnson, 2005). Similarly, other researchers have shown that entrepreneurship unlocks economic development only if appropriate institutional backgrounds are in place (Baumol, 1990; Boettke and Coyne, 2003; Powell, 2008, in Stam et al., 2011). As empirical studies examining the relationship among different types of entrepreneurship and economic growth often show mixed results, further research on this topic is warranted. Despite this growing interest in comparative research, the understanding of these variations in entrepreneurship at the country level remains limited (Grilo and Thurik, 2008). This is not surprising given the heterogeneity characterizing both the kinds of entrepreneurship and the economic contexts in which economic growth takes place (Stam et al., 2011, p. 231).

Based on the literature review, it appears that economic growth is affected by entrepreneurial activity over time and that the relationship varies according to the developmental stage of the country. Thus, the theoretical and empirical evidence leads us to investigate the following hypothesis:

H1: Early stage entrepreneurial activity is related to economic growth, and the correlation is influenced by the developmental stage and time period.

Within this context, entrepreneurship might be expected to always be important as it ensures and enables development; however, its importance and influence differ according to the economy's developmental stages. In such an analysis, it is also important to consider specific characteristics of certain years included in the analysis and their impact on economic growth. In addition, economic policy instruments have to be adapted to stimulate a dynamic, innovative, and growth-oriented entrepreneurship, which contributes the most to economic development. As this type of entrepreneurship is important, it is necessary to investigate both innovativeness and innovation-oriented companies, among other factors. Innovation orientation is vital as it provides a framework through which the company's competitive potential and opportunity can be exploited to compete with other companies from different environments, which is particularly important when increasing business globalization. Holcombe (1998) argued that

an entrepreneurial multiplier effect exists in the sense that entrepreneurship leads to more entrepreneurial opportunities through innovation. Innovative entrepreneurship is more likely to lead to a greater number of value-added jobs and more wealth creation as innovative entrepreneurs perhaps feel more compelled toward growth by the opportunity of the venture and its innovativeness. In addition, innovative companies appear to have higher growth rates (Stevenson, 2002, p. 60). It has been argued that entrepreneurship and innovation are linked to economic growth (e.g., Galindo and Méndez-Picaz, 2013) and, according to Drucker (1998), create a feedback effect-namely, an economic growth process would also promote innovations, and the latter would encourage entrepreneurship activity, which leads us to the next hypothesis:

H2: Innovation-oriented entrepreneurship contributes to economic growth more than entrepreneurship in general.

Innovation-oriented entrepreneurship is especially important for economic development due to its capability to provide new jobs and contribute to meeting customers' needs as well as achieving competitiveness. Innovation-oriented entrepreneurship is generally managed by educated and highly competent individuals whose motivation is not making ends meet, but rather taking advantage of promising business opportunities. Therefore, the level of innovation-oriented entrepreneurship in a country is expected to be a more relevant driver of economic growth and will contribute more to it compared to entrepreneurship in general.

2. Methodology

Data and Variables

The empirical analysis was conducted on panel data from 24 countries participating in the GEM project between 2006 and 2010 (120 observations). The database is constructed from the adult population survey that is annually administered in countries participating in GEM.

For the *type of economy* variable, we included countries for which data for selected variables were available in all studied years, allowing for a balanced panel database and in line with the already mentioned Porter, Sachs and McArthur's (2002) typology of economies grouped into resource-driven, efficiency-driven, and innovation-driven. In our study, innovation-driven economies were represented by Belgium, Denmark, Finland, France, Greece, Iceland, Italy, Japan, Latvia, the Netherlands, Norway, Slovenia, Spain, the United Kingdom, and the United States. Efficiency-driven economies were represented by Argentina,

Brazil, Chile, Columbia, Croatia, Hungary, Peru, Russia, and Uruguay. Countries falling within the factor-driven economies were not included in the research as no sufficient time series exists for these countries. None of the included countries changed their developmental stage during the analysed time period (2006 to 2010).

For the entrepreneurial activity measure, the *total early stage entrepreneurial activity index* (TEA) variable was used. It is one of the main indicators introduced by GEM and measures the percentage of adult individuals (18 to 64 years old) who are in the process of starting a new venture or are already the owners/managers of a business that is less than 42 months old. The TEA index thus shows the early stages of entrepreneurial activity, which are particularly vulnerable to factors in the environment that either encourage entrepreneurship or obstruct it. GEM's concentration on individuals instead of statistical company data enables a detailed insight into the perception of entrepreneurship by the adult population, the national entrepreneurship profile, involvement of adults in entrepreneurial activities, and aspirations of entrepreneurs.

The *TEA innovation-driven* variable is the total early stage entrepreneurial activity index in countries that belong to innovation-driven economies. The *TEA efficiency-driven* variable refers to the total early stage entrepreneurial activity index in countries that belong to efficiency-driven economies.

To measure innovation-oriented entrepreneurship, the *innovation-oriented entrepreneurship* (TEANPM) variable was used as a subset of total early stage entrepreneurial activity. Innovation-oriented entrepreneurship (TEANPM) is defined as the percentage of early stage entrepreneurs. Innovation-oriented entrepreneurs are those who consider their product or service to be new to the market and, consequently, some or all potential buyers are still unfamiliar with it; furthermore, this product or service is only provided by a few or even no companies on the market.

The *GDP growth* variable was measured as real GDP, and the data were taken from the World Economic Outlook database (September 2011).

Model Development

We developed two models that were empirically tested using ordinary least squares (OLS) regression. Given the cross-sectional and time series nature of the data developed for this study, the model was gradually refined by controlling the specific characteristics of a country's development level and time using the stepwise least square dummy variable (LSDV) regression model (Gujarati 2004). The LSDV regression is able to specify relationships between dependent and independent variables in a more precise manner while controlling the development

level of a country and time in our analysis. If an individual country exceeds the median of the GDP per capita created in a certain year, the value of the dummy variable is 1 (innovation-driven countries); otherwise, it is 0 (efficiency-driven countries). The model also included four dummy variables for the years 2007 to 2010. Each dummy variable for the particular year has a value of 1 for the observations (cases) that refer to that year and 0 otherwise. The base regression refers to the year 2006.

In Model 1, the relationship between early stage entrepreneurial activity and economic growth is controlled for by the impact of the country's developmental stage and by the additional characteristics of certain years included in the analysis.

As advised by Stam et al. (2011), we performed a similar regression using a balanced panel data set based on the TEA index from 2006 to 2010 (t = 2010).

$$\begin{aligned} GDP\ growth_{i,((t+4)-(t-4))} &= a_1 + b_1\, TEA_{i,((t-(t-4))} + c_1\, Type\ of\ economy_i + \\ &+ d_1\, log\,(GDPpc_{i,(t-(t-4))}) + e_1\, GCI_{i,((t-(t-4))} + f_1\, GDP\ growth_{i,((t-1)-(t-9))} + \\ &+ g_1\, Year\ 2007_i + \ldots + g_4\, Year\ 2010_i + \varepsilon_{it} \end{aligned} \quad (1)$$

where *GDP growth* is the dependent variable of the i^{th} observation, calculated as the average growth rate of GDP (over a 5-year period); i is the index of observations (24 countries by 5 years: i = 1, 2, … 120); t is the index for the years (t = 1, 2, … 5; t = 1 for the year 2006, … t = 5 for the year 2010); a is a regression constant; b through g are regression coefficients of the variables; *TEA* is the total early stage entrepreneurial activity index of the i^{th} observation, and *GDPpc* is per capita income. Following van Stel, Carree and Thurik (2005) and Stam et al. (2011), we used (the log of) countries' initial income level to correct for catch-up effects and *GCI* (growth competitiveness index) to capture other determinants of economic growth. To limit the potential impact of reversed causality, we added the lagged growth of GDP, which refers to the 5 years prior to the dependent variable's measurement period (average growth rates in 5 years), as an additional control variable. We also included dummy variables for countries' developmental stages and time in years. The ε is an error term of the regression.

In Model 2, we compared entrepreneurship effects separately in innovation--driven and efficiency-driven economies. TEA rates reflect different types of entrepreneurship depending on the stage of economic development. To avoid the possible negative impact of the empirical results being strongly influenced by the global economic crisis, we used a data set for 24 countries from 2006 to 2007 (t = 2007).

$$\begin{aligned} GDP\ growth_{i,((t+1)-(t-1))} &= a_1 + b_1\, TEA^{efficiency\ driven}{}_{i\,((t-(t-1))} + c_1\, TEA^{innovation\ driven}{}_{i,((t-(t-1))} \\ &+ b_2\, TEANPM^{efficiency\ driven}{}_{i\,((t-(t-1))} + c_2\, TEANPM^{innovation\ driven}{}_{i\,((t-(t-1))} \\ &+ d_1\, log\,(GDPpc_{i,(t-(t-1))}) + e_1\, GCI_{i,((t-(t-1))} + f_1\, GDP\ growth_{i,((t-1)-(t-3))} + \varepsilon_{it} \end{aligned} \quad (2)$$

where *GDP growth* is the dependent variable of the i^{th} observation, calculated as the average growth rate of GDP (over a 2-year period); i is the index of observations (24 countries by 2 years: $i = 1, 2, \ldots 48$); t is the index for the years ($t = 1$ for the year 2006, $t = 2$ for the year 2007); a is a regression constant; b through f are regression coefficients of the variables; *TEA* is the total early stage entrepreneurial activity index of the i^{th} observation; *TEANPM* is the early stage innovation-oriented entrepreneurship of the i^{th} observation; and *GDPpc* is per capita income. We used (the log of) countries' initial income level to correct for catch-up effects and *GCI* to capture other determinants of economic growth. To limit the potential impact of reversed causality, we added lagged growth of GDP as an additional control variable; ε is an error term of the regression.

3. Results

Table 1 presents the estimation results from Model 1. The tests demonstrated that per capita income had an expected negative effect, which is consistent with the conditional convergence effect (Abramovitz, 1986, in Stam et al., 2011). Moreover, *GCI* was significantly positive and the impact of lagged growth significantly negative, which is likely due to the global crisis that occurred between the GDP's lagged and expected growth. In the second model, *TEA* is positive but has no significant impact on *GDP growth*. The addition of a linear *TEA* term decreases the adjusted R^2 so we can assume, as van Stel, Carree and Thurik (2005) do, that the link between *TEA* rates and *GDP growth* is not linear. When we added *TEANPM* to the model, *TEA* became non-significantly negative, but the effect of innovation-oriented entrepreneurship on *GDP growth* was positive at the 5% significance level.

When we included dummies for the type of national economy and time (Model 1(4) in Table 1), the coefficient c_1 was not statistically significant. Therefore, we could not confirm the development level's impact on *GDP growth*. However, the regression coefficients g_2 and g_3 (representing the specific characteristics of the years 2008 and 2009) negatively affected national economic growth. Based on these results, we repeated the analysis with data referring to the time period before the global economic crisis. We used 2006 and 2007 data, with the economic growth dependent variable calculated as the average growth rate of GDP (over a 2-year period). *GCI* was not significant, which we assume is a result of the shorter time series. The impact of lagged growth was significantly positive, suggesting a considerable degree of path dependency. As the value of the dummy variable for the type of national economy was statistically significant, the constant of some countries increased.

T a b l e 1

Early Entrepreneurship Activity and Economic Growth, 2006 – 2010 (dependent variable: GDP growth)

	Model 1(1)	Model 1(2)	Model 1(3)	Model 1(4)
a_1	12.408	11.676	11.948	8.980
Constant	(8.733)[c]	(6.854)[c]	(7.126)[c]	(4.377)[c]
b_1		0.027	–0.004	0.050
TEA		(0.783)	(–0.111)	(1.472)
c_1				–0.692
Type of economy				(–0.967)
c_3			0.030	
TEANPM			(2.279)[b]	
d_1	–4.198	–3.983	–4.256	–3.040
log (BDPpc)	(–9.755)[c]	(–7.798)[c]	(–8.255)[c]	(–3.768)[c]
e_1	0.992	0.951	0.983	0.917
GCI	(2.630)[c]	(2.494)[b]	(2.623)[c]	(2.378)[b]
f_1	–0.220	–0.216	–0.222	–0.135
Lagged GDP growth	(–3.393)[c]	(–3.321)[c]	(–3.465)[c]	(–1.714)[a]
g_1				–0.221
Year 2007				(–0.538)
g_2				–0.809
Year 2008				(–1.895)[a]
g_3				–1.011
Year 2009				(–2.415)[b]
g_4				0.283
Year 2010				(0.658)
R^2	0.562	0.565	0.584	0.616
R^2 adjusted	0.551	0.549	0.565	0.584
F statistic	48.382[c]	36.315[c]	31.178[c]	19.082[c]
Number of observations	117	117	117	117

Note: t-values are in parentheses; [a] $p \leq 0.10$; [b] $p \leq 0.05$; [c] $p \leq 0.01$. Number of observations is smaller than 120 due to the elimination of those with outliers.

Source: Authors calculation.

Thus, innovation-driven countries contributed to the 2-year average growth rate, which could be the result of the countries' specific economic environment. Therefore, we can assume that the relationship between entrepreneurship and economic growth differs for countries at different developmental stages. By separating *TEA* variables for different groups of countries, we can confirm this assumption (Table 2).

Entrepreneurship in general (*TEA*) had a significantly positive impact on economic growth in innovation-driven economies, but a significantly negative impact on economic growth in efficiency-driven economies. These results are consistent with van Stel, Carree and Thurik's (2005) and Stam et al.'s (2009) findings. As indicated in Model 2(2) in Table 2, we identified the positive effects of the innovation-oriented entrepreneurship (*TEANPM*) for both developed and less developed countries, but the results were not significant. The more positive effect of innovation-oriented entrepreneurship than entrepreneurship in general corresponded to the coefficient c_3 in Model 1(3) in Table 1.

Table 2

Early Entrepreneurship Activity According to the Type of Economy and Economic Growth, 2006 – 2007 (dependent variable: GDP growth)

	Model 2(1)	Model 2(2)
a_1	18.836	10.027
Constant	(3.471)[c]	(2.782)[c]
b_1	–1.210	
TEA efficiency-driven	(–1.674)[a]	
c_1	1.929	
TEA innovation-driven	(2.272)[b]	
b_2		0.001
TEANPM efficiency-driven		(0.025)
c_2		0.034
TEANPM innovation-driven		(0.583)
d_1	–6.197	–2.988
log (BDPpc)	(–3.322)[c]	(–2.260)[b]
e_1	0.714	0.330
GCI	(0.928)	(0.413)
f_1	0.559	0.522
Lagged BDP growth	(4.469)[c]	(3.881)[c]
R^2	0.640	0.601
R^2 adjusted	0.597	0.554
F statistic	14.926[c]	12.656[c]
Number of observations	48	48

Note: t-values are in parentheses; [a] $p \leq 0.10$; [b] $p \leq 0.05$; [c] $p \leq 0.01$. Following van Stel, Carree and Thurik (2005), we assume a constant equal for each of the groups of countries.

Source: Authors calculation.

Hence, we can conclude that innovation-oriented entrepreneurship has a positive correlation with economic growth and contributes more to national economic growth than entrepreneurship in general. Using our primary source data on early stage entrepreneurial activity from the various GEM surveys and based on the results herein, we found support for hypotheses H1 and H2.

4. Conclusions and Policy Implications

This study has revealed that early stage entrepreneurial activity, especially innovation-oriented one, is correlated with economic growth, but that relationship is influenced by an economy's developmental stage and specific characteristics of certain years included in the analysis. In general, the impact of early stage entrepreneurial activity on economic growth was positive in innovation-driven economies but negative in efficiency-driven economies, indicating that the real economic effect can be attributed to the decisions of some people in developed economies to become entrepreneurs. The results confirmed our assumption that involvement in entrepreneurial activity by itself does not equate to higher development, as some other authors demonstrated (Caree et al., 2002; Wennekers et al., 2005). Our findings are in line with some prior studies (van Stel, Carree and

Thurik, 2005; Stam et al., 2009), which found that entrepreneurship (TEA) has a stronger impact in high-income countries than in low-income countries, although Stam et al., (2011) found an opposite pattern. According to GEM, less developed countries show even higher levels of entrepreneurial activity with the prevailing low impact, necessity-driven type of entrepreneurship, whose contribution to economic development is smaller. In other words, some people are forced into entrepreneurship out of necessity as there are no other options for employment; meanwhile, others opt for entrepreneurship in order to improve their position. Necessity entrepreneurship, even though it contributes to higher levels of entrepreneurial activity in a given economy, does not necessarily lead to economic growth as well; entrepreneurs are self-employed, do not possess the required development potential, and partake in activities where added value is minimal. Growth can be attributed primarily to highly motivated entrepreneurs who identify a promising business opportunity that allows for the growth of a company and opens new jobs. Apparently, it is not the quantity of entrepreneurship that makes a decisive contribution to a nation's economic and social development, but its quality.

Our findings also suggest that innovation-oriented entrepreneurship has a greater impact on economic growth than overall entrepreneurial activity. Therefore, introducing new products, technologies, and knowledge transfer into practice remains a crucial task for economic policy. These results support Koellinger's (2008) findings that entrepreneurs in highly developed countries are significantly more likely to engage in innovative start-ups. Innovation-driven entrepreneurship is especially important for national prosperity due to its capability to provide new jobs and contribute to meeting customers' needs and achieving competitiveness. Innovation-driven entrepreneurship is managed by educated and highly competent individuals, whose motivation is not making ends meet, but instead taking advantage of promising business opportunities. Ways to arouse an interest in entrepreneurship in such individuals, of course, differ substantially from other types of entrepreneurship.

The environment is a significant factor influencing both the emergence and development of entrepreneurship; therefore, identifying policies leading to appropriate levels of entrepreneurial activity are a significant challenge (Bosma et al. 2012, p. 35). Based on our results, policy should focus on the level of technological development and product innovativeness, educational level, and entrepreneurial ambitions in order to introduce the necessary dynamics and stability into the economy. Irrespective of the economic development stages, entrepreneurship always remains important. Fundamental entrepreneurship conditions that will attract foreign investments and allow the exploitation of economies of

scale should be developed for efficiency-driven countries. It is also necessary to develop additional frameworks to encourage high impact opportunity-based entrepreneurship. Designing and running such economic policy should rely on empirical evidence, including internationally comparable results, and be built on appropriate models that represent a reliable framework for policy-making debates.

The limitation of the current study is its lack of data regarding various aspects of entrepreneurship, such as different types of entrepreneurship and the level of total entrepreneurial activity, as well as its restriction on early stage entrepreneurial activity. Future research should take into account new and established businesses as well as other international comparable measures of entrepreneurial activity. Further analysis of entrepreneurship's impact on economic growth should also incorporate multi-level analyses that consider the determinants of entrepreneurship focused on the individual, company, and country levels to explain entrepreneurial progress. In addition, the research framework could be expanded by considering the indicators of social progress, rather than maintaining a narrow focus on GDP per capita to create more holistic frameworks for appropriate government policies.

References

ABRAMOVITZ, M. (1986): Catching Up, Forging Ahead, and Falling Behind. Journal of Economic History, *46*, No. 2, pp. 385 – 406.

ACEMOGLU, D. – JOHNSON, S. (2005): Unbundling Institutions. Journal of Political Economy, *113*, No. 5, pp. 943 – 995.

ACS, Z. J. – AMOROS, J. E. (2008): Entrepreneurship and Competitiveness Dynamics in Latin America. Small Business Economics, *31*, No. 3, pp. 305 – 322.

ACS, Z. J. – SZERB, L. (2011): Global Entrepreneurship & Development Index 2011. Northampton, MA: Edward Elgar Publishing.

ACS, Z. J. – VARGA, A. (2005): Agglomeration, Entrepreneurship and Technological Change. Small Business Economics, *24*, No. 3, pp. 323 – 334.

AUDRETSCH, D. B. (2007): Entrepreneurship Capital and Economic Growth. Oxford Review of Economic Policy, *23*, No. 1, pp. 63 – 78.

AUDRETSCH, D. B. – GRILO, I. – THURIK, R. (2007): Explaining Entrepreneurship and the Role of Policy: A Framework. In: AUDRETSCH, D. B., GRILO, I. and THURIK, A. R. (eds): Handbook of Research on Entrepreneurship Policy. Northampton, MA: Edward Elgar Publishing.

AUDRETSCH, D. B. – THURIK, R. – VERHEUL, I. – WENNEKERS, S. (eds) (2002): Entrepreneurship: Determinants and Policy in a European – U.S. Comparison. Boston – Dordrecht – London: Kluwer Academic Publishers.

BAUMOL, W. J. (1990): Entrepreneurship: Productive, Unproductive, and Destructive. Journal of Political Economy, *98*, No. 5, pp. 893 – 921.

BOETTKE, P. – COYNE, C. J. (2003): Entrepreneurship and Development: Cause or Consequence? Advances in Austrian Economics, *6*, pp. 67 – 88.

BOSMA, N. S. – ACS, Z. – AUTIO, E. – CODURAS, A. – LEVIE, J. (2009): Global Entrepreneurship Monitor 2008 Executive Report. London: London Business School; Santiago: Universidad del Desarrollo; Wellesley, MA: Babson College.

BOSMA, N. – CODURAS, A. – LITOVSKI, Y. – SEAMAN, J. (2012): GEM Manual: A Report on the Design, Data and Quality Control of the Global Entrepreneurship Monitor. Babson Park, MA: Babson College.

CAPELLERAS, J. – KEVIN, M. – GREENE, F. – STOREY, D. (2008): Do More Heavily Regulated Economies Have Poorer Performing New Ventures? Evidence from Britain and Spain. Journal of International Business Studies, *39*, No. 4, pp. 688 – 702.

CARREE, M. – Van STEL, A. – THURIK, R. – WENNEKERS, S. (2002): Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976 – 1996. Small Business Economics, *19*, No. 3, pp. 271 – 290.

CARREE, M. A. – THURIK, A. R. (2003): The Impact of Entrepreneurship on Economic Growth. In: ACS, Z. J. and AUDRETSCH, D. B. (eds): Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction. Boston, MA: Kluwer Academic Publishers, pp. 437 – 471.

CONGREGADO, E. (2008): Measuring Entrepreneurship: Building a Statistical System, Preface. New York, USA: Springer.

CRNOGAJ, K. (2012): Vpliv izbranih institucionalnih in individualnih dejavnikov na podjetniško aktivnost ter njihova povezava z gospodarskim in družbenim napredkom. [The Effect of Specific Institutional and Individual Factors on Entrepreneurial Activity and Their Link to Economic and Social Progress.] [Doctoral Dissertation.] Maribor, SLO: Faculty of Economics and Business, University of Maribor.

DESAI, S. (2009): Measuring Entrepreneurship in Developing Countries. [World Institute for Development Economics and Research. Research Paper, No. 2009/10.] Helsinki, FI: United Nations University, World Institute for Development Economics Research.

DRUCKER, P. F. (1998): The Discipline of Innovation. Harvard Business Review, *76*, No. 6, pp. 149 – 157.

GALINDO, M. A. – MÉNDEZ-PICAZO, M. T. (2013): Innovation, Entrepreneurship and Economic Growth. Management Decision, *51*, No. 3, pp. 501 – 514.

GRILO, I. – THURIK, R. A. (2008): Determinants of Entrepreneurship in Europe and the US, Industrial and Corporate Change, *17*, No. 6, pp. 1113 – 1145.

GUJARATI, D. N. (2004): Basic Econometrics. Fourth Editions. New York, USA: The McGraw-Hill Companies.

HART, D. M. (2003): The Emergence of Entrepreneurship Policy. Governance, Start-ups, and Growth in the U.S. Knowledge Economy. Cambridge, UK: Cambridge University Press.

HOLCOMBE, R. G. (1998): Entrepreneurship and Economic Growth. The Quarterly Journal of Austrian Economics, *1*, No. 2, pp. 45 – 62.

KOELLINGER, P. (2008): Why Are Some Entrepreneurs More Innovative Than Others? Small Business Economics, *31*, No. 1, pp. 21 – 37.

LUNDSTRÖM, A. – STEVENSON, L. (2005): Entrepreneurship Policy – Theory and Practices. New York, USA: Springer: ISEN International Studies in Entrepreneurship.

MINNITI, M. (2008): The Role of Government Policy on Entrepreneurial Activity: Productive, Unproductive, or Destructive? Entrepreneurship Theory and Practice, *32*, No. 5, pp. 779 – 790.

PORTER, M. J. – SACHS, J. – MCARTHUR, J. (2002): Executive Summary: Competitiveness and Stages of Economic Development. In: PORTER, M. J., SACHS, P. K., CORNELIUS, J. W., Mc ARTHUR, J. and SCHWAB, K. (eds): The Global Competitiveness Report 2001 – 2002. New York, USA: Oxford University Press, pp. 16 – 25.

POWELL, B. (2008): Making Poor Nations Rich. Entrepreneurship and the Process of Economic Development. Stanford, CA, USA: Stanford University Press.

REBERNIK, M. (2002): Business Economics and Entrepreneurship at the Crossroads. Ekonomický časopis/Journal of Economics, *50*, No. 3, pp. 471 – 488.

REBERNIK, M. – BRADAČ, B. (2011): From Making the State to Institutionalizing Entrepreneurship Policy in Slovenia. In: WELTER, F. and SMALLBONE, D. (eds): Handbook of Research on Entrepreneurship Policies in Central and Eastern Europe. Northampton, MA: Edward Elgar.

REBERNIK, M. – TOMINC, P. – CRNOGAJ, K. – ŠIREC, K. – BRADAČ HOJNIK, B. (2013): Nezaznane poslovne priložnosti, GEM Slovenija 2012. [Undetected Business Opportunities, GEM Slovenia 2012.] Maribor, SLO: Faculty of Economics and Business, University of Maribor.

STAM, E. – HARTLOG, C. – Van STEL, A. – THURIK, R. (2009): Ambitious Entrepreneurship, High-Growth Firms and Macroeconomic Growth. Zoetermeer, NL: EIM Research Reports.

STAM, E. – HARTLOG, C. – Van STEL, A. – THURIK, R. (2011): Ambitious Entrepreneurship, High-Growth Firms, and Macroeconomic Growth. In: MINNITI, M. (ed.): The Dynamics of Entrepreneurship; Evidence from the Global Entrepreneurship Monitor Data. New York, USA: Oxford University Press, pp. 231 – 249.

STEVENSON, L. (2002). Innovation and Entrepreneurship: A Dutch Policy Perspective in an International Context. In: SNIJDERS, J. A. H. (ed.): Entrepreneurship in the Netherlands: Innovative Entrepreneurship. New Policy Challenges, the Hague: EIM Business and Policy Research and Ministry of Economic Affairs, pp. 43 – 66.

TOMINC, P. – REBERNIK, M. – BRADAČ HOJNIK, B. – ŠIREC, K. (2015): Danube Region Entrepreneurship Observatory: Diversity and Potential. London, UK: Pearson Education.

Van der ZWAN, P. – VERHEUL, I. – THURIK, R. – GRILO, I. (2011): Entrepreneurial Progress: Climbing the Entrepreneurial Ladder in Europe and the United States. Regional Studies, *47*, No. 5, pp. 803 – 825.

Van STEL, A. – CARREE, M. – THURIK, R. (2005): The Effect of Entrepreneurial Activity on National Economic Growth. Small Business Economics, *24*, No. 3, pp. 311 – 321.

WEF (2013): The Global Competitiveness Report 2013 – 2014: Full Data Edition. Geneva: World Economic Forum.

WENNEKERS, S. – THURIK, R. (1999): Linking Entrepreneurship to Economic Growth. Small Business Economics, *13*, No. 1, pp. 27 – 55.

WENNEKERS, S. – Van STEL, A. – CARRE, M. – THURIK, R. (2010): The Relationship between Entrepreneurship and Economic Development: Is It U-shaped? Zoetermeer, NL: Scientific Analysis of Entrepreneurship and SMEs.

WENNEKERS, S. – Van STEL, A. – THURIK, R. – REYNOLDS, P. (2005): Nascent Entrepreneurship and the Level of Economic Development. Small Business Economics, *24*, No. 3, pp. 293 – 309.