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The Impact of Economic Growth on the Dynamics of Enterprises: Empirical Evidence for Slovenia's Non-agricultural Sector

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The aim of this paper was to test the hypothesized U-shaped relationship between economic development and dynamics of enterprises. The dynamics of enterprises is influenced by the achieved economic development. This paper first analyzed the association between the regional gross value added (GVA) growth rate and different measures of enterprises dynamics from Slovenian data from 2000 to 2005. Our graphical analyses indicated that 1) the rate of gross entry and GVA growth rate were linearly and negatively associated; 2) the association between the rate of gross exit and GVA growth rate is best represented by the downward U-shape function (Ç); and 3) a U-shaped association exists between the rate of net entry and GVA growth rate. The size of the impact was estimated using the regression analysis between the net entries as dependent variable and GVA growth as independent variable that showed the best fit. According to the results, 1) economic growth significantly impacts net entries; 2) the hypothesized U-shaped relationship between net entries and economic growth was confirmed as the Slovenian net entries decrease until the GVA growth rate reaches 10% yet increase when the growth in GVA is higher than 10%; and 3) a 'natural rate' of entrepreneurship is to some extent governed by 'laws' related to the economic growth rate. The results further indicate that the average net entry rate should be increased by 0.787 units (%) as a result of a region's specific environmental factors. This research confirms the theoretical assumptions that have previously been sparsely tested empirically and even rarely supported by results. Therefore, our results represent a contribution to the robustness of the theoretical as well as empirical clarification of the relationship between entrepreneurship and economic development.

Keywords: dynamics of enterprises, firm entries, firm exits, net entries, economic growth, regression analysis

1 Introduction

The determinants of new firm formations (entries) have been extensively examined. These studies used different determinants, were carried out for different sectors and in different countries using different units of analysis. But there was the problem with these studies: they produced contradictory results regarding the impact of determinants on new firm formation. For example, Reynolds, Storey, and Westhead (1994), Guesnier (1994) and Acs and Armington (2002) found significant and positive impact while Audretsch and Fritsch (1994) and Garofoli (1994) found no impact of a change in population on new firm formations. For change in unemployment rate, Higfield and Smiley (1987) and Audretsch and Fritsch (1994) found significant and positive impact on new firm formations while Guesnier (1994) and Garofoli (1994) found that relationship to be significant but negative. For mean establishment size, Audretch and Fritsch (1994) found no significant impact while Acs and Armington (2002) found significant and negative impact on new firm formations. According to Sutaria and Hicks (2004) these results not only created confusion among scholars about the true nature of impacts of contextual factors on new firm formations, but also made it more difficult for policy makers to implement them. There are many reasons for such a state of research on determinants of new firm formations, particularly the research that is based on quantitative methods? It is common knowledge that entrepreneurship research, particularly the research involving utilization of quantitative methods, is at pre-paradigmatic phase. This phase is identified with lack of theories, data and clear understanding of definitions and concepts, lack of common starting points and unconsciousness of selection of rational research problems and quantitative methods (Sutaria and Hicks, 2004).

The fact is that the subject of determinants of new firm formations is very complex, with multiple independent factors

and interactions between them playing a key role in influencing new firm formations (Dejardin, 2000). In this paper, in trying to fill the deficiency of previous studies, we propose and utilize a new approach. Instead of separately analyzing which of the numerous unrelated and related factors impact annual rate of entries, we substitute them with economic growth. An analysis of the relationship between economic development and enterprises' dynamics was carried out by Wennekers, van Stel, Thurik, and Reynolds (2005) on a sample of 36 countries. However, the variables they used were different. They expressed the level of economic development by per capita income and by an index for innovative capacity, whereas we used the gross value added growth rate. Their variable of entrepreneurial dynamics was expressed according to new entries into business registries, whereas we used the rate of net entry. In addition, as we conducted our analysis for one country only, we did not have the problem of harmonization of the data, which was – according to Wennekers et al. (2005) – the main defficiency of their research.

It has long been known that the level of entrepreneurship differs strongly across countries. This variance relates to differences in levels of economic development and the diverging demographic, cultural, and institutional characteristics (Blanchflower, 2000, in Wennekers et al., 2005; Dejardin, 2000). Existing evidence suggests that an underlying U-shaped relationship exists between the level of business ownership (self-employment) and per capita income (Blau, 1987, in Wennekers et al., 2005; Acs et al. 1994 and Carree et al., 2002, in Norderhaven et al., 2005). Therefore, the aim of this paper was to find out whether the extent of the Slovenian enterprises' dynamics was also determined by economic development. The proven existence of a 'natural rate' of dynamics of enterprises based on the level of regional economic growth implies that this level has to be considered when deciding whether regional dynamics of enterprises is low or high. We empirically analyze if 1) a relationship exists between enterprises' dynamics and economic growth in Slovenian regions and 2) if the relationship between the economic growth and enterprises dynamics is U-shaped, as is assumed for more developed countries, including Slovenia.

The paper is organized as follows. The next section examines theoretical and empirical literature addressing the relationship between entrepreneurship and economic development. Chapter 3 discusses the regional dynamics of Slovenian businesses while Chapter 4 presents the functional form of the relationship between different measures of enterprises dynamics and economic growth, the research hypothesis, and the model for estimation. The results obtained are given in Chapter 5. The conclusion follows in the last chapter.

2 Enterprises dynamics and economic development

Entrepreneurship is increasingly becoming recognized as a key factor related to economic development, expressed by different measures (i.e., economic growth or per capita income) (Dejardin, 2000). As argued by Minniti (1999), entrepreneurs are the catalysts for economic development because they create a networking externality that promotes the creation of new ideas and new market formations. The finding that enterprises' increased dynamics leads to greater economic growth has been well founded at both the national and local levels. For example, Reynolds, Hay, and Camp (1999) demonstrated that one third of the differences in national economic growth rates can be attributed to the level of entrepreneurship in each country. Supporting these findings, Zacharakis, Bygrave, and Sheperd (2000, in Kreft and Sobel, 2005) studied sixteen developed economies and found that enterprises' dynamics explains approximately one half of the differences in GDP growth between countries. More recently, Henderson (2002) argued that entrepreneurs significantly impact economic activity at a more local level by fostering localized job creation, increasing wealth and local incomes, and connecting local economies to the larger, global economy.

The model that we use for explaining the diversity in enterprises' dynamics across Slovenian regions for aggregate activities is based on literature related to entrepreneurship as well as economic development. We estimate the model using Slovenian regional data for the aggregated activities from 2000 to 2005.[1] In the model, the economic growth, expressed by the gross value added (GVA) growth rate, was used as a measure for economic development impacting enterprises' dynamics. In the model for estimation of the size of the underlying impact, we express the enterprises' dynamics (the dependent variable) by the rate of net entry. The rate of net entry is calculated as the difference between the rate of gross entry (the ratio of the number of new firms to the existing number of firms) and the rate of gross exit (the ratio of the number of firms that end their activity to the number of all existing firms). As such, we consider the operational notion of economic development interrelated with the processes of structural change, of which enterprises dynamics is a part (Syrquin, 1988, in Wennekers et al., 2005). Enterprises' dynamics arises from the process of the accumulation of physical and human capital as well as shifts in the sector composition of economic activity (production, employment, consumption) (Wennekers et al., 2005). Society eventually develops into a knowledge-based economy in which the number of businesses (gross and net changes) is the effect of the industrial structure of the economy (Audretsch and Thurik, 2001, in Wennekers et al., 2005, Audretsch and

1 The analysis covers companies included in the Standard Classification of Activities (SKD) in C - K activities: C - Mining and quarrying, D - Manufacturing, E - Electricity, gas and water; F - Construction; G - Trade, repair of motor vehicles and household goods, H - Hotels and restaurants; I - Transport, storage and communication; J - Financial intermediation; and K - Real estate, renting and business activities. These are the SKD before January 1, 2008, when the initiation of new regulations on the standard classification of economic activities occurred.

Thurik, 2004). Thus, in this paper we empirically test whether the Slovenian dynamics of enterprises confirms the hypothesized U-shaped relationship between economic development and enterprises' dynamics in developed nations.[2] Indeed, we tested if the declining entrepreneurial activity continues until a certain level of economic growth before starting to rise again.

The expectation of the U-shaped relationship between the Slovenian rate of enterprises' dynamics and its level of GVA growth is governed by the theory of an occupational or a behavioral view of entrepreneurship (Wennekers, 2006). According to this view, more businesses can be established in more developed countries where the service sector continues to increase GDP (Wennekers et al., 2005) and enhances consumer demand for variety, creating new market niches attainable for small businesses (Jackson, 1984, in Wennekers et al., 2005). In addition, in more developed societies, people wish to satisfy their growing need for self-realization, which can be realized by starting their own businesses (Maslow, 1970, in Wennekers et al., 2005).

3 Enterprises dynamics in the Slovenian economy from 2000 to 2005

We start this empirical study with an analysis of entries and exits in Slovenia from 2000 to 2005. Data on gross entries (start-ups), gross exits, active companies, and the growth rates of gross value added (GVA) and gross domestic product per capita (GDP p.c.) were obtained from the Statistical Office of the Republic of Slovenia (SURS). Most data were available on the Internet. The main source of information for SURS is the Statistical Business Register (SPR), maintained by the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES).

The most commonly used methods for calculating the rate of gross entry (start-ups) are the ecological and labor market approaches. The ecological approach, which is used in the current study, standardizes the number of new firms to the number of firms in existence. It is the relation between the absolute number of establishments that begin their activity with the total number of enterprises (in a year and region). Thus, our calculated rate of gross entry measures the ability of local enterprises to adapt to changing environmental conditions. It can also be regarded as a measure of the replacement of old with new businesses (Sutaria and Hicks, 2004; Callejón and Segarra, 1999). In contrast, the labor market approach standardizes the number of new firm formations to the size of a region's labor force, thereby directing attention to the entrepreneurial potential present in a region. Such a criterion for measuring the rate of entry was used in studies by Reynolds, Storey and Westhead (1994) and Baldwin and Gorecki (1991) (in Callejón and Segarra, 1999). The rate of gross exit was calculated by dividing the absolute number of firms that end their activity by the number of all existing enterprises. The rate of net entry is the difference between the rate of gross entry and rate of gross exit. The quotients of all measures were then multiplied by 100 in order to determine the respective percentages. Similar so-called criteria of entrepreneurial dynamics have been used in other related research (e.g., Callejón and Segarra, 1999 and Sutaria and Hicks, 2004).

Data on rates of gross entry, exit, net entry, and economic growth across years and regions are in Appendix. The descriptive statistics are presented in Table 1. The average regional rate of gross entry from 2000 to 2005 is higher than that of exit by 0.6 percentage points. The highest regional rate of gross entry is 12.2% (Obalno-kraška region in 2005), while the smallest is 5.0% (Jugovzhodna region in 2000); the average rate of gross entry amounts to 7.0%. The highest regional rate of exit is 8.5% (Pomurska region in 2004), while the smallest is 3.6% (Goriška region in 2005); the average is 6.4%. The highest regional rate of net entry is 7.2% (Obalno-kraška region in 2005), while the lowest is -1.95% (Jugovzhodna region in 2002); the average is 0.6%. Finally, the highest regional GVA growth rate is 15.4% (Koroška region in 2000), while the lowest is 3.19% (Spodnjeposavska region in 2003); the average is 9.1%.

Table 1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The rate of gross entry	72	5.00	12.23	6.9836	1.30337
The rate of gross exit	72	3.62	8.50	6.3940	1.16422
The rate of net entry	72	-1.95	7.20	.5897	1.80965
The rate of GVA growth	72	3.19	15.38	9.0995	2.77103
GDP per capital in €	72	7.622	20.364	11.066	2.523
N	72				

2 Based on the achieved per capita GDP, Slovenia ranges among high-income countries, for which the U-shaped relationship between enterprises' dynamics and economic growth is expected. High income group countries in 2005 include those with $10,726 or higher gross national income per capita (World Bank). For all the observed years, Slovenia surpassed this value: 2000 $11,090; 2001 $10,740; 2002 $10,750; 2003 $ 12,420; 2004 $15,340; and 2005 $18,060 (SURS).

4 Functional form, research hypothesis, and model estimation

4.1 Functional association between the rate of net entry and economic growth

The appropriate functional forms links among the rates of gross entry, exit, net entry, and GVA growth were graphically presented by scatterplots and analyzed. Figure 1 shows the quadratic relationship (U form) between the rate of net entry and GVA growth rate. Figure 2 shows the linear relationship between the rate of gross entry and GVA growth. In Figure 3, the quadratic association (downward U shape, Ç) between the rate of gross exit and GVA growth rate is presented. In all three cases, the adequate functional form is assessed using F statistics, which demonstrated that square models have greater explanatory power than linear ones when it comes to the association between GVA growth rate and the rate of net entry and the rate of gross exit. Finally, the model was determined to be the best fit model for estimation, with the dependent variable being the rate of net entry. Such a decision was made using R^2, which demonstrates the highest explanation of the variability in dependent variable by using the independent variable (0.21, see Figure 1).

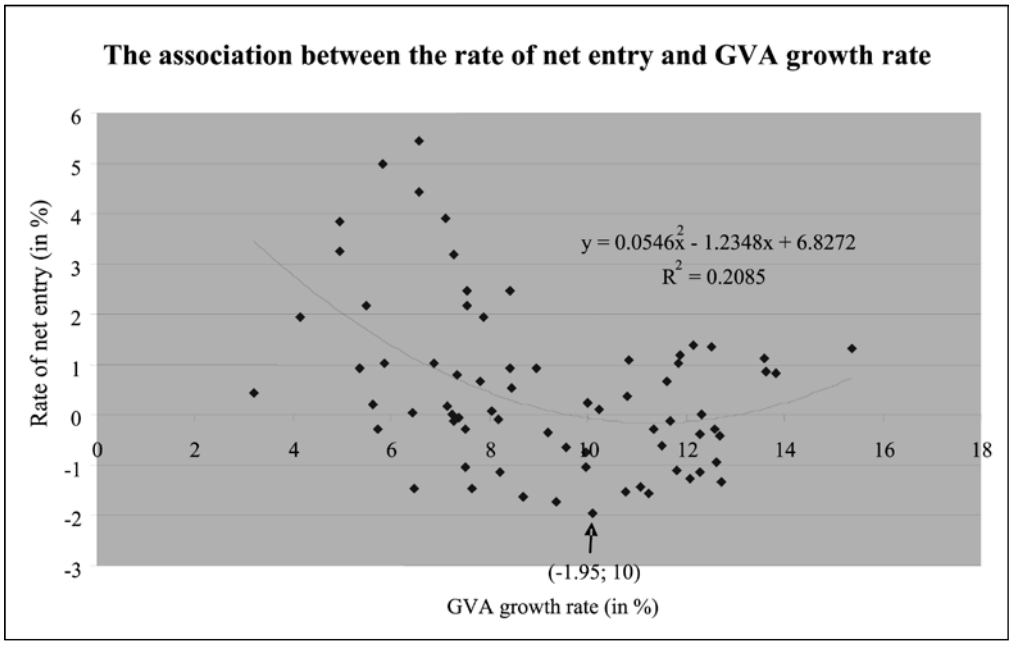

Figure 1: U relationship between the rate of net entry and GVA growth rate

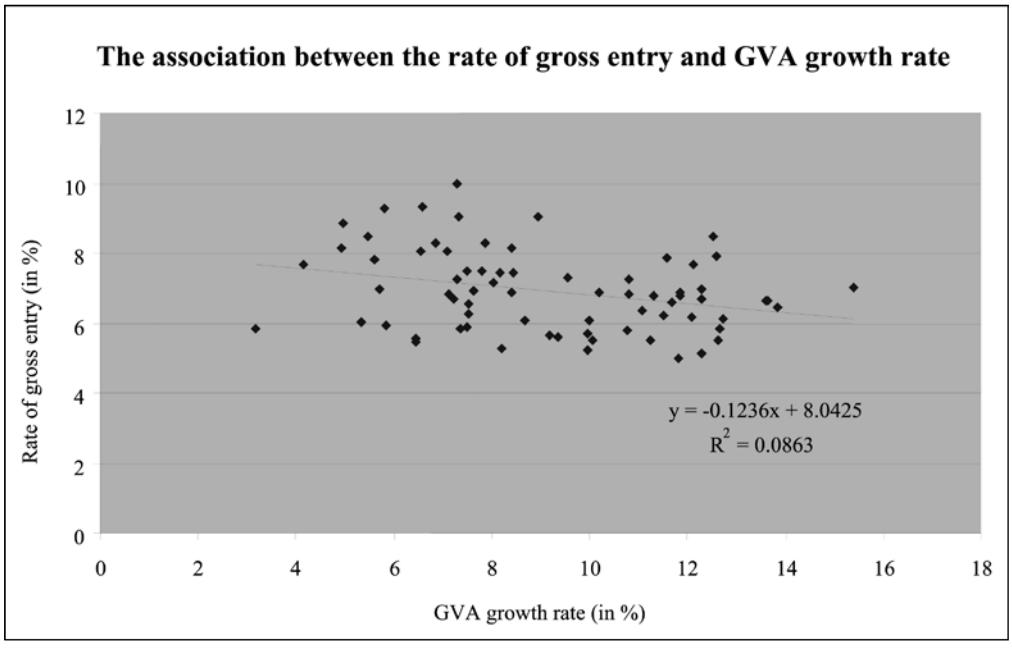

Figure 2: The rate of gross entry and GVA growth rate

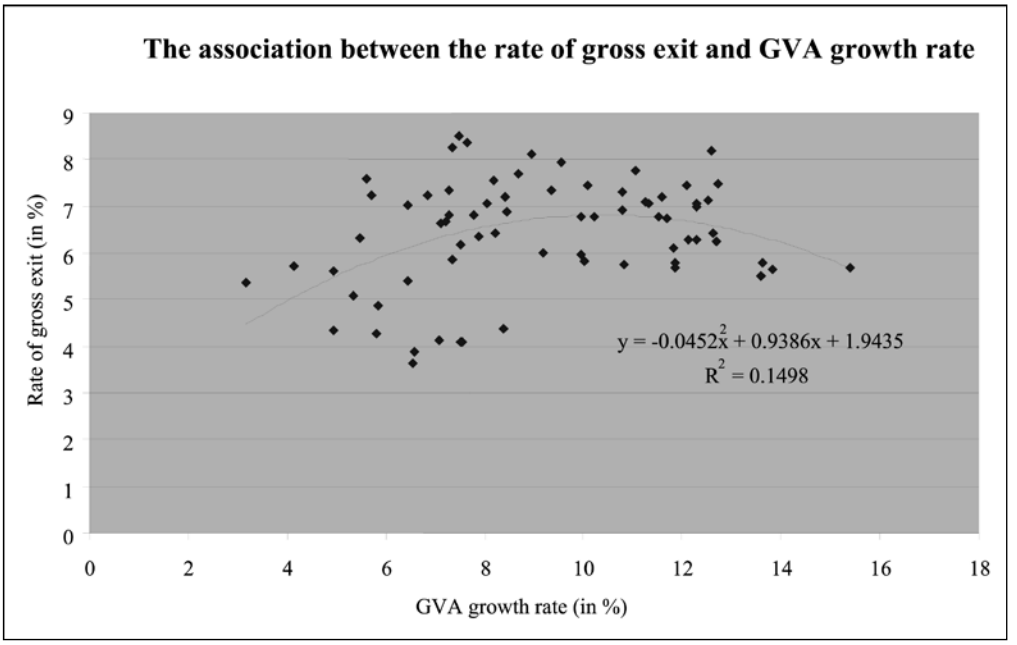

Figure 3: The downward U shape relationship between the rate of gross exit and GVA growth rate

In Figure 1 we can see that the association between the rate of net entry and the rate of GVA growth is U shaped. The rate of net entry reached the minimum at -1.95, when the GVA growth rate was 10%. When the GVA growth rate was less than 10% and increasing, the positive rate of net entry started declining, whereas negative rates of net entry were increasing (toward -∞). When the GVA growth rate was greater than 10% and increasing, the negative rate of net entry was decreasing (toward 0), while positive rates of net entry was increasing. As the rate of net entry represents a difference between the rates of gross entry and exit, it is directly conditioned by the entries and exits. In Figure 2, we can see that the increasing GVA growth rates correspond to linear decreases in the rate of gross entry. The rate of gross exit increased at a square rate with the increasing GVA growth rates, when the latter was smaller than 10%, while decreased at a square rate when the GVA growth rate exceeded 10% (Figure 3).

4.2 The research hypothesis

Our research hypothesis, which we tested empirically, states:

H1: *A U-shaped relationship exists between the economic growth rate and the rate of net entry.*

The U-shaped relationship between the level of entrepreneurship and economic development for more advanced countries was previously confirmed in the study by Wennekers, van Stel, Thurik and Reynolds (2005). We empirically tested the hypothesis that the relationship between economic growth and the rate of net entry is U-shaped.

4.3 The model for estimation

Estimation of the models was done by the least square dummy variable (LSDV; also called fixed effects) regression, as presented below. The calculations were made using SPSS 16.0.

We empirically estimated the relationship between the rate of net entry (dependent variable) and GVA growth rate (independent variable) using model (1), which reads

$$Net\ entries_i = a + b_1\ GVA\ growth_i + b_2\ GVA\ growth_i^2 + e_i \quad (1)$$

where Net entries are represented by the difference between the regional rate of gross entry and exit, GVA growth rate is the percent change in regional gross value added at basic prices of all NACE activities (in the note 1), a is a constant (intercept), b_k is regression coefficients (k = 1, 2), e_i is the error term, and i is an index of the number of observations (12 regions multiplied by 6 years = 72).

The analysis of the results of model (1) showed the presence of multicollinearity, which is a common problem if the regression model is expressed in a polynomial form. Multicollinearity was removed by expressing the independent variable as a deviation from its average value (the 6-year Slovenian average, which is 9.1). The association between the rate of net entry and deviation of GVA growth rate is shown in Figure 4, which indicates that the function intersects the x-axis at +0.9 as the Slovenian average GVA growth rate is 9.1%. The minimum of the U shape function, which illustrates the relationship between the rate of net entry and GVA growth rate, is 10% (see Figure 1). Therefore, a positive deviation of GVA growth rate occurs in below-average regions, whereas the negative deviation occurs in above-average regions.

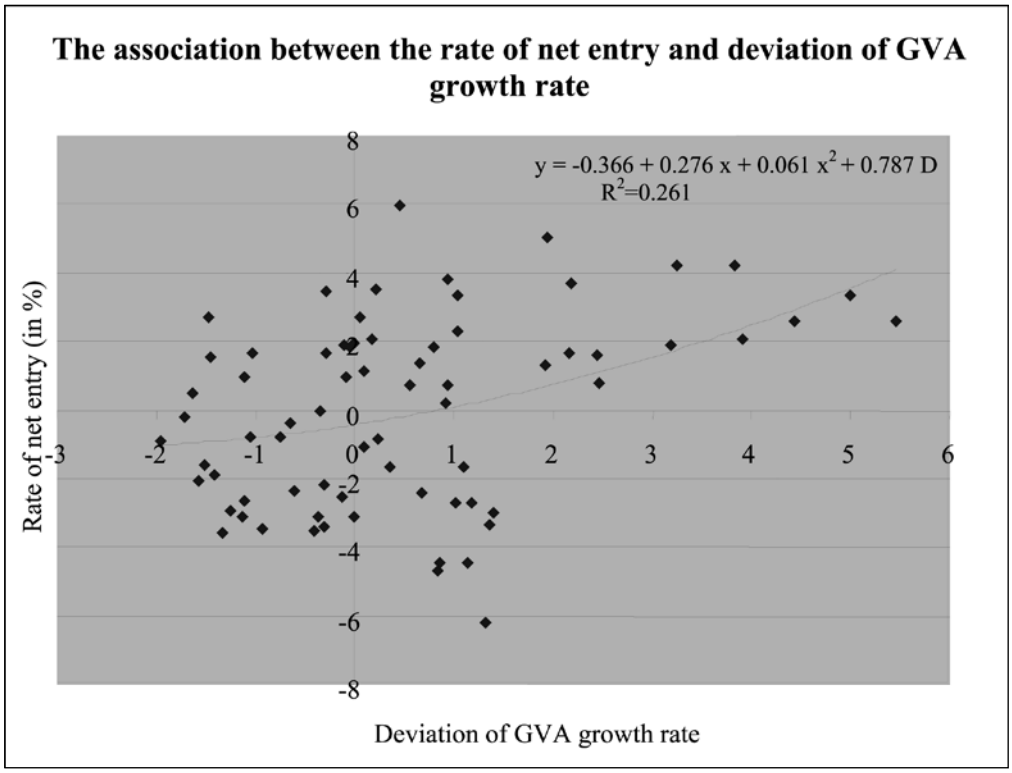

Figure 4: The association between the rate of net entry and deviation of GVA growth rate

After replacing the GVA growth rate with the deviation from the 6-year Slovenian average, we form the following quadratic model (2):

$$Net\ entries_i = a + b_1\ Dev\ GVA\ growth_i + b_2\ Dev\ GVA\ growth_i^2 + e_i \quad (2)$$

where Dev GVA growth represents the deviation of a regional GVA growth rate from the Slovenian 6-year annual average GVA growth rate, a is a constant (intercept), b_k is regression coefficients (k = 1, 2), e_i is the error term, and i is an index of the number of observations (12 regions multiplied by 6 years = 72).

Using model (2), we calculated the impact of deviations of GVA growth rate on the rate of net entry. In order to assess the impact of a region's development level on the rate of net entry, we also incorporated a dummy variable. The dummy variable comprises such factors as for example: the size of population, per capita personal income, unemployment rate, local financial capital to name just a few (some of these factors are used as independent variables in Sutaria and Hicks, 2004). If a particular region in a given year exceeded the yearly median per capita GDP in this region, the value of the dummy variable is 1; otherwise, it is 0. The model for estimation is as follows:

$$Net\ entries_i = a + b_1\ Dev\ GVA\ growth_i + b_2\ Dev\ GVA\ growth_i^2 + d\ Regional\ development_i + e_i \quad (3)$$

where d is a differential coefficient of a model constant, taking into account the impact of development of the region on the rate of net entry. If the coefficient d is statistically significant, it changes the value of the a constant for the d value.

5 Results

The correlation coefficients between the variables of the model are included in Table 2. The net entries and gross entries (correlation coefficient 0.767, $p < 0.01$) and gross exits (correlation coefficient -0.695, $p < 0.01$) are strongly interrelated. However, the gross entries and exits are statistically unrelated (-0.071), which means that entries did not impact exits. Thus, new established enterprises were not the reason that some existing firms had to end their activity, and vice-versa exiting firms did not create less competitive environment stimulated for new firm formation.

We analyzed the results of model (3) because its explanatory power is statistically significantly higher (by 5%). In other words, the R^2 in model (3) significantly increased compared to model (2) by more than 5 percentage points, which means that the specification of model (3) is correct. The better fit of model (3) was further verified by calculating the F restricted, which proved to be significant; therefore, the results of model (2) are invalid. Model (3) indicates that the impact of development level of the region on net entries is significant. The relationship between the rate of net entry and deviation of GVA growth rate is shown in Figure 4. The results are presented in Table 3.

The b_1 coefficient is 0.276 (t = 4.196, sig. 0.000), while b_2 is 0.061 (t = 2.784, sig. 0.008). Thus, if the deviation of the GVA growth rate is positive (> 1), indicating that the regional GVA growth rate is less than the Slovenian average (and also

Table 2: Correlation coefficients

	The rate of gross entry	The rate of exit	The rate of net entry	The rate of GVA growth
The rate of gross entry	1.000			
The rate of gross exit	-.071	1.000		
The rate of net entry	.767**	-.695**	1.000	
The rate of GVA growth	-.348**	.261*	-.418**	1.000

** p < 0,05 (2-tailed); ** p < 0,01 (2-tailed)*

less than minimum of the U-shaped net entries function, 10%), the positive (negative) net entries are decreasing (increasing) because at these GVA growth values the gross entries are decreasing while exits are increasing. An analysis of the gross exits clearly demonstrated that they increase until the GVA growth rate reaches 10% (see Figure 3).

When the deviation of growth is negative (<1), meaning that the GVA growth rate in a specific region is greater than the Slovenian average (and more than the 10% break point), the negative (positive) net entries are reducing (increasing). This happens because the exits are falling faster than gross entries when the GVA growth rate is higher than 10% (see Figure 2 and 3).

Since the d coefficient is statistically significant, the constant in model (3) increased by 0.787 (t = 2.187, sig. 0.032) due to favorable development factors in the region. Estimates of model (3) may be accepted as credible (i.e., BLUE: best linear unbiased estimators) because the model satisfies the requirements for linearity, uncorrelated independent variables, and the random relationships of the error therm. The linearity of the model was tested using the Reset test, which indicated that the model for estimation has the proper specification (Gujarati, 2004). The calculated VIF statistics demonstrated that multicollinearity is not present in the model, and the calculated Durbin-Watson statistics revealed the absence of autocorrelation (see Table 3).

Table 3: Net Entries and the Deviation of GVA Growth Rate (Dependent variable: Net entries; Period 2000-2005; Method of estimation: OLS in LSDV - fixed-effects)

	Model (2) OLS	Model (3) LSDV (Fixed-effects)
a	0.094	-0.366
Constant	(0.388)	(-1.158)
b_1	0.235**	0.276**
Dev GVA growth$_i$	(3.623)	(4.196)
VIF	1.004	1.096
b_2	0.055*	0.061**
Dev GVA growth$_i^2$	(2.402)	(2.784)
VIF	1.004	1.023
d		0.787*
Regional development$_i$		(2.187)
VIF		1.107
R^2	0.209	0.261
R^2 Adjusted	0.185	0.228
Number of observations	71	71
F statistics	8.958**	7.898**
Durbin-Watson (DW)	1.470	1.556
Breusch-Godfrey test[1]		3.45

*Notes: Numbers in parentheses are t-values; * p < 0.05; ** p < 0.01;[1] There is no positive autocorrelation since (n-p)´R^2 or (70-1)´0.05=3.45 does not exceed the critical chi-square value of 51.74 at the 0.05 level of significance,[3]*

We found that economic growth significantly affected the net entries in a U-shaped form, indicating that the positive (negative) rate of net entry decreases (increases) until a 10% growth in GVA is achieved. If GVA growth exceeds 10%, the negative (positive) value of the rate of net entry decreases (increases). Thus, it is evident that the net creation of new firms decline until a revival occurs after the 10% growth rate. Only after the 10% growth rate is achieved do the gross entries surpass gross exits. Such a growth rate is decisive for starting a firm and can be viewed as high enough for entrepreneurs to accept anxiety related to the possible future failure and/or to leave the present employment security—unless the 10%

3 Breusch-Godfrey test was made by using, according to the Akaike or Schwarz information criterion, one-lagged residuals that proved to be statistically insignificant (Gujarati 2004, 664).

growth rate individuals are not prepared to become risk-taking entrepreneurs, which impacts the reduced rate of net entry (= supply of entrepreneurs). According to the results, we argue that Slovenia falls within the uncertainty-avoiding cultures that value predictability and certainty over ambiguity and risk until minimum growth rate is achieved. In other words, the higher the growth, the less uncertain the future is. Our conclusion is in accordance with Wennekers et al.'s (2005) finding that a U-shaped relationship exists between the GDP per capita and the level of business ownership. The conclusion also conforms to Kihlstrom and Laffont's (1979) argument that, in the equilibrium (the minimum of the U function), less risk averse individuals become entrepreneurs, thereby increasing the number of newly established enterprises. Thus, we confirmed research hypothesis H1.

We also determined that, in more developed Slovenian regions, the average rate of net entry was greater by 0.787 units during the observed period. This result confirms that the decision to start a business is also influenced by the geographical characteristics of the regions. According to Bygrave and Hofer (1991, in Russell, 1997), the decision to become an entrepreneur is easier in better economic, social, and political conditions of the environment.

6 Conclusion

The creation of new businesses (firm entries) is influenced by many factors. In this paper, we studied the impact of regional economic growth on Slovenian entries from 2000 to 2005. Economic growth was used as a proxy for many unrelated and related factors. Using such a systems perspective enabled us to examine the complex, interactive forces that influence entrepreneurs' behaviors. We first presented the relevant theoretical and empirical literature, addressing the association between entrepreneurship and economic growth. We then analyzed the process of gross entry, gross exit, and net entry in relation to the rate of GVA growth in Slovenia.

Our graphical analyses indicated that 1) the rate of gross entry and GVA growth rate were linearly and negatively associated; 2) the association between the rate of gross exit and GVA growth rate is best represented by the downward U-shape function (Ç); and 3) a U-shaped association exists between the rate of net entry and GVA growth rate. The size of the impact was estimated using the regression analysis between the net entries as dependent variable and GVA growth as independent variable as these variables demonstrated the best mutual fit when represented by the quadratic equation. Given the present multicollinearity in the regression with the required squared independent variable, we expressed the GVA growth rate as a deviation from the country's average GVA growth rate. This transformation of the independent variable eliminated the problem of multicollinearity. In the final regression model for estimation, we added a dummy variable to the squared independent variable in order to measure the specific regional factors. The inclusion of the dummy variable considerably improved the model's explanatory power.

The regression results of the estimated model 1) indicate that economic growth significantly impacts net entries; 2) confirm the hypothesized U-shaped relationship between the net entries and economic growth while demonstrating that the Slovenian net entries decrease until the GVA growth rate reaches 10%, whereas they increase when the growth in GVA is higher than 10%; and 3) suggest that a 'natural rate' of entrepreneurship is to some extent governed by 'laws' related to the economic growth rate. The results also show that the average net entry rate should be increased by 0.787 units (%) as a result of specific environmental factors of a more developed region.

More developed regions include those with a GDP per capita that exceeded the Slovenian median value in a specific year. For example, in 2005, the median GDP per capita amounted to €12,000, which was reached or exceeded in Savinjska, Jugovzhodna, Osrednjeslovenska (with the highest GDP per capita at €20,000), Gorenjska, Goriška, and Obalno-kraška regions. According to our results, Slovenian entrepreneurs were prepared to create their businesses when economic growth was higher than 10%—that is, high enough that risk-taking behavior was tolerated. Thus, according to the high GVA growth at which people are prepared to become entrepreneurs, Slovenian entrepreneurs are considered to be relatively reluctant to change, to have a low tolerance for risk-taking behavior, and to prefer employment security. These results further suggest that a natural rate of entrepreneurship is to some extent governed by laws related to the economic growth rate. Consequently, economic growth has to be considered when evaluating whether enterprises' dynamics is high or low.

Our study has several limitations that should be kept in mind when interpreting the results. First, the analysis was conducted on a relatively short time series as the only available at the time of doing the research. Second, the measure used for enterprises' dynamics is the indicator of entrepreneurship aggregated for all the industries; thus, disaggregating by sector may lead to different results. Third, the use of more independent variables will make the results more robust. However, by adding more independent variables, interaction effects may occur among them as in economics it is very hard to isolate the impact of differing factors, which was the primary reason that we used only the GVA growth rate to explain entrepreneurial dynamics. In such a way, the thorough analysis of the nature of the relationship between entrepreneurship and economic development was evident. Therefore, the results of the research represent a contribution to the robustness of the theoretical as well as empirical recognition of the significant relationship between entrepreneurship and economic development.

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Appendix

Entrepreneurial dynamics in the Slovenian regions, 2000-2005

Region	Year	The rate of gross entry (in %)	The rate of gross exit (in %)	The rate of net entry (in %)	The rate of GVA growth (in %)
SLOVENIA	2000	6.36	6.15	0.21	11.41
	2001	6.51	6.34	0.17	12.24
	2002	7.20	7.14	0.06	11.54
	2003	6.54	6.07	0.47	8.81
	2004	8.29	7.17	1.12	8.05
	2005	8.97	4.40	4.56	6.23
Pomurska	2000	5.65	5.99	-0.34	9.18
	2001	6.60	6.73	-0.13	11.68
	2002	7.28	7.93	-0.64	9.57
	2003	6.66	6.66	0.00	7.22
	2004	7.47	8.50	-1.03	7.49
	2005	7.66	5.71	1.95	4.14
Podravska	2000	6.98	6.98	0.00	12.30
	2001	7.86	7.19	0.67	11.60
	2002	7.89	8.19	-0.30	12.59
	2003	7.48	6.82	0.66	7.80
	2004	9.05	8.13	0.92	8.94
	2005	8.86	5.62	3.24	4.95
Koroška	2000	7.02	5.70	1.32	15.38
	2001	6.19	6.79	-0.60	11.52
	2002	6.05	7.68	-1.63	8.70
	2003	6.04	5.10	0.94	5.33
	2004	7.23	7.33	-0.11	7.28
	2005	6.24	4.08	2.16	7.52
Savinjska	2000	6.07	5.84	0.23	10.01
	2001	5.71	6.76	-1.05	9.95
	2002	6.14	7.48	-1.34	12.72
	2003	5.88	6.18	-0.29	7.51
	2004	7.45	7.54	-0.09	8.18
	2005	8.04	4.13	3.91	7.08
Zasavska	2000	5.57	7.03	-1.47	6.45
	2001	6.95	7.24	-0.29	5.72
	2002	6.94	8.38	-1.45	7.64
	2003	7.80	7.59	0.22	5.62
	2004	9.99	6.80	3.19	7.28
	2005	8.49	6.32	2.18	5.48
Spodnjeposavska	2000	5.82	6.23	-0.41	12.68
	2001	6.18	7.44	-1.26	12.08
	2002	5.77	7.29	-1.52	10.78
	2003	5.84	5.38	0.45	3.19
	2004	7.42	6.87	0.55	8.46
	2005	6.85	4.39	2.47	8.40
Jugovzhodna	2000	5.00	6.10	-1.11	11.82
	2001	5.50	6.42	-0.93	12.62
	2002	5.50	7.45	-1.95	10.08

	2003	5.29	6.41	-1.12	8.21
	2004	6.89	6.79	0.10	10.21
	2005	6.54	4.09	2.45	7.54
Osrednjeslovenska	2000	6.80	5.78	1.02	11.85
	2001	6.64	5.51	1.14	13.60
	2002	7.69	6.30	1.40	12.13
	2003	6.88	5.70	1.18	11.87
	2004	8.30	6.37	1.93	7.88
	2005	9.33	3.88	5.45	6.57
Gorenjska	2000	6.84	5.75	1.09	10.82
	2001	6.64	5.78	0.86	13.64
	2002	7.27	6.91	0.36	10.80
	2003	5.83	5.87	-0.04	7.35
	2004	8.27	7.23	1.03	6.85
	2005	9.26	4.27	4.99	5.82
Notranjsko-Kraška	2000	6.47	5.63	0.84	13.84
	2001	5.52	7.10	-1.57	11.25
	2002	6.69	7.07	-0.37	12.30
	2003	5.92	4.87	1.04	5.84
	2004	6.84	6.65	0.18	7.13
	2005	8.15	4.33	3.83	4.94
Goriška	2000	5.21	5.95	-0.74	9.95
	2001	5.15	6.28	-1.13	12.28
	2002	5.61	7.33	-1.72	9.36
	2003	5.44	5.39	0.05	6.44
	2004	7.16	7.06	0.09	8.04
	2005	8.05	3.62	4.44	6.56
Obalno-Kraška	2000	6.35	7.77	-1.42	11.07
	2001	6.76	7.06	-0.30	11.33
	2002	8.49	7.14	1.35	12.51
	2003	8.15	7.21	0.94	8.41
	2004	9.04	8.25	0.79	7.34
	2005	12.23	5.03	7.20	4.51

**The rate of GVA growth is the measure of economic growth*

Source: The author's calculations from the available SURS data

Vpliv gospodarske rasti na dinamiko podjetij: empirična raziskava v slovenskem nekmetijskem sektorju gospodarstva

Cilj prispevka je testiranje predpostavke o U obliki povezave med gospodarskim razvojem in dinamiko podjetij. Na dinamiko podjetij vpliva doseženi gospodarski razvoj. V prispevku najprej analiziramo povezavo med regionalno stopnjo rasti bruto dodane vrednosti (BDV) in različnimi merili dinamike podjetij na osnovi slovenskih podatkov v obdobju od leta 2000 do 2005. Grafične analize so pokazale 1) linearno in negativno povezanost med stopnjo vstopov podjetij in stopnjo rasti BDV; 2) da je povezava med stopnjo izstopov podjetij in rastjo BDV najbolje ponazorjena z navzdol obrnjeno funkcijo U oblike (Ç); in 3) da je funkcijska oblika povezanosti med stopnjo neto vstopov podjetij in rastjo BDV U oblike. Obseg vpliva smo ocenili s pomočjo regresijske analize med stopnjo neto vstopov podjetij kot odvisno spremenljivko in rastjo BDV kot neodvisno spremenljivko, ker je bila odvisna spremenljivka s slednjo najbolje pojasnjena. Rezultati kažejo, 1) gospodarska rast statistično značilno vpliva na neto vstope podjetij; 2) pričakovana U oblika povezave med neto vstopi in gospodarsko rastjo je bila potrjena, saj so slovenski neto vstopi padali, dokler ni bila dosežena 10-odstotna rast BDV, in naraščali, ko je bila rast BDV večja od 10%; in 3) 'naravno stopnjo' podjetništva do neke mere določa gospodarska rast. Rezultati tudi kažejo, da je bila povprečna stopnja neto vstopov podjetij večja za 0,787 enote (%) in je posledica specifičnih okoljskih dejavnikov regije. Rezultati raziskave potrjujejo teoretične predpostavke, ki so bile doslej empirično testirane le v redkih primerih in še redkeje podprte z rezultati. Zato rezultati pričujoče raziskave prispevajo k boljšemu razumevanju teoretičnih in empiričnih povezav med podjetništvom in gospodarskim razvojem.

Ključne besede: dinamika podjetij, vstopi podjetij, izstopi podjetij, neto vstopi podjetij, gospodarska rast, regresijska analiza