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*Journal of Entrepreneurship* 2010 19: 23
DOI: 10.1177/097135570901900102

The online version of this article can be found at:
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# The Relationship between Entrepreneurial Activities, National and Regional Development and Firm Efficiency—Global Entrepreneurship Monitor (GEM)-based Evidence from Croatia

**SANJA PFEIFER AND NATASA SARLIJA**

*This study analyses the dynamics, structure and connections between entrepreneurial activity, economic development and firm efficiency. While the usual presumption on the relationship between these variables implies straightforward, linear and positive impacts, empirical evidence shows that those impacts are significant, more complex and less straightforward. The evidence of entrepreneurial activity in Croatia shows that the early stages of entrepreneurship development are very dynamic and volatile. Furthermore, significant inter-regional differences exist in entrepreneurial activity, firm performance and economic development across six Croatian regions. Correlations between entrepreneurial activity, firm performance and economic development are significant but depend on whether the entrepreneurial activity is opportunity or necessity based. This study confirms the theoretical presumption about complex and multilayered connections between different types of entrepreneurship activity and economic development.*

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**Entrepreneurs and entrepreneurial** activity have been considered to be important contributors to economic well-being all over the world. The most important contributions of entrepreneurship comprise job creation, smoothening of the markets by introducing innovation, and enhancing efficiency through more competition and poverty reduction by self-employment options. Due to such impacts, the importance of

*The Journal of Entrepreneurship*, 19, 1 (2010): 23–41
**SAGE Publications** Los Angeles/London/New Delhi/Singapore/Washington DC
DOI: 10.1177/097135570901900102

entrepreneurship for policy makers is well documented in the majority of strategic documents from supranational to firm level. However, the impact of the increasing number of entrepreneurs on economic development is still not supported by substantial empirical data, especially in the context of developing less affluent, transitional economies.

Entrepreneurship in Croatia is perceived as the key driver for competitiveness and economic growth and therefore, it is a significant part of economic policy and national strategy of development. However, the empirical studies confirming entrepreneurship contributions are still rare. In order to gain further insight in the structure, dynamics and correlations between the entrepreneurship and economic development in Croatia, following questions have been investigated:

- How much do entrepreneurial activity, general economic development and firm performance vary through the years and among different regions in the country?
- Are these differences significant and correlated?
- Does entrepreneurial activity enhance the economic efficiency and financial success of Croatian companies?

By answering these questions, we hope to contribute to the increasing body of evidence concerning generalisability of theory deployment in different national settings. Croatia sufficiently well represents a number of countries with a transitional, middle-income economy.



## Conceptual Framework

Theoretical description of entrepreneurship activity and its impact on economic development implies significant but not straightforward connections. The contribution of entrepreneurial activity differs according to the country's stage of development and a number of other conditions (Carree & Thurik, 2003; Wennekers & Thurik, 1999). Both a positive and a negative relationship have been confirmed between economic growth and the rate of entrepreneurship (Audretsch et al., 2002; Carree et al., 2002). A positive correlation between entrepreneurship rates and economic development is detected in high-income countries, while in low and middle-income countries, these correlations tend to be negative (Tang & Koveos, 2004).

Motivation for entrepreneurial behaviour varies and leads to different types of entrepreneurial activity. Not all entrepreneurial activity contributes equally to economic growth (Birch et al., 1997; Kirchhoff, 1994; Storey, 1994). Entrepreneurial activity that is opportunity based and oriented to high growth is more likely to be associated with higher levels of economic growth (Autio, 2007; Reynolds et al., 2004). Longitudinal, multinational consortium called Global Entrepreneurship Monitor (GEM), imply a 'U' shaped relationship between entrepreneurial activity and per capita gross domestic product (GDP) (see Figure 1).

The level of entrepreneurial activity tends to be higher for very affluent and very poor countries, while countries with moderate income levels tend to have less entrepreneurially active people in the adult population. Entrepreneurial activity actually decreases as a country transits from less to more affluent conditions. After some threshold is reached, the entrepreneurial activity rate tends to rise again; however, even countries with the highest GDP do not match the indices of low-income countries. According to Reynolds, et al. (2004) entrepreneurial activity rates vary according to the level of per capita GDP. Therefore, polices and supporting measures should be pertinent to the specific GDP level.

## Entrepreneurship in Developing Countries—Croatia Evidence

Entrepreneurship theory deployment in developing and transitional countries is insufficiently represented in empirical studies. Croatia is a transitional, eastern European country with 4.5 million inhabitants, attractive natural resources (tourism) and an important geopolitical position. The transition from social to private ownership of businesses, from a semi-market to a market economy, coincided with the war in 1991–95 and resulted in a substantial limitation on economic development. Today, Croatia is a middle-income country (GDP per capita—9.000 US$), with high unemployment (16 per cent), high indebtedness (70 per cent of GDP) and a stable growth rate of around 5 per cent. Croatia started to participate in the GEM project in 2002, and from that point on, the total entrepreneurial activity index shows a positive trend, although Croatian entrepreneurial activity is still below the average entrepreneurial activity level of all GEM countries (as shown in the Table 1). The GEM research

**FIGURE 1**

***'U' Shaped Relationship between Entrepreneurial Activity and GDP Per Capita***

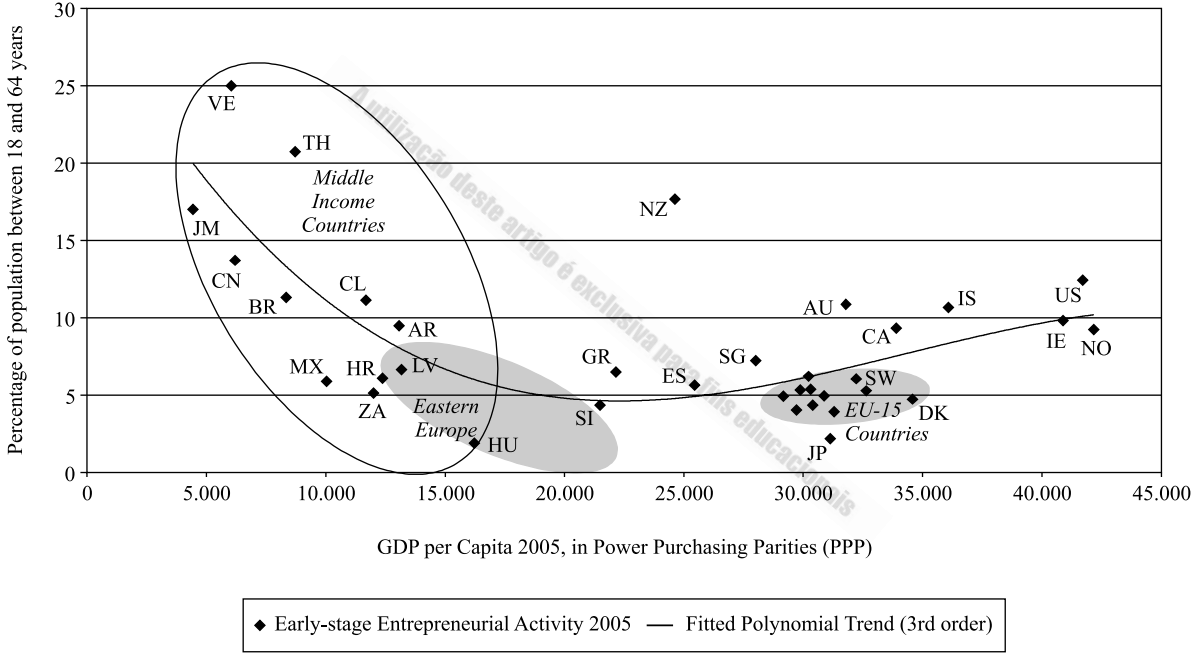


**TABLE 1**
***Entrepreneurial Activity Indices in Croatia Over 2002–06***

| | *2002* | *2003* | *2004* | *2005* | *2006* |
|---|---|---|---|---|---|
| TEA | 3.62 | 2.56 | 3.74 | 6.11 | 8.58 |
| TEA OPP | 2.18 | 1.74 | 2.04 | 2.92 | 4.41 |
| TEA NEC | 0.85 | 0.59 | 1.57 | 3.09 | 3.81 |

enables us to track and differentiate total entrepreneurship activities (TEA), opportunity-based (TEA OPP) activities and necessity-based (TEA NEC) activities.[1]

Although the growth of entrepreneurial activity is encouraging, the type and structure of entrepreneurial activity is less satisfying. Table 2 shows the motivation and maturity indices for Croatian entrepreneurship. The motivation index is the ratio of TEA opportunity to TEA necessity indices. A motivation index below 1 shows that there are more entrepreneurs who have started entrepreneurial activity out of necessity than those who started to seize an opportunity. It has been known that necessity-entrepreneurs stay small (providing self-employment for the owner), enter less attractive business sectors and contribute less to the GDP or market efficiency.

**TABLE 2**
***Motivation and Maturity Indices in Croatia Compared with the GEM Average in 2006***

| | *Croatia* | *GEM* |
|---|---|---|
| Motivation index | 1.16 | 6.06 |
| Maturity index | 0.48 | 0.81 |

On the other hand, entrepreneurial contributions to economic development also depend on the ability of new firms to move from early-stage to mature-stage businesses and to survive more than 42 months. The maturity index is the ratio of early-stage entreprenurial activity (up to 42 months) in established entrepeneurial activity. It speaks about the transition of new businesses in the category of 'established' entrepreneurs who are entrepreneurially active longer than 42 months. This maturity index in Croatia is also low, about one-half of the average maturity rate for GEM countries (Singer et al., 2007).

A slowdown in the rate of opportunity-based new ventures as well as the low level of maturation of the start-ups, presents a specific challenge

for policy makers in Croatia. Hereafter, we present more detailed analysis of the volatility and regional dispersion of entrepreneurial activity and its impact on economic development and firm performances.

## Method and Data

In order to investigate the impact of entrepreneurial activity on the Croatian economy, three constructs were created and tested for significant differences. These main constructs are hereafter referred to as entrepreneurial activity, firm performance and economic development.

### *Entrepreneurial Activity*

The entrepreneurial activity of Croatia was measured using the TEA index, the TEA opportunity index and the TEA necessity index. The TEA index is essentially the percentage of early-stage entrepreneurial activity among the adult population, aged 18–64 years. The TEA opportunity index includes individuals who participate in entrepreneurial activities in order to exploit a perceived business opportunity, while the TEA necessity index includes those individuals who are engaged in entrepreneurial activity because all other employment options are either absent or unsatisfactory (Reynolds et al., 2004).

### *Firm Performance*

Theory suggests that entrepreneurial activity contributes to firm-level performance as well as to the general economic development of the country or region. This effect is rarely investigated; however, it stems from increased market efficiency and innovativeness. In order to measure firm efficiency and success, several standard indicators of firm performance were used: profit margin (PM), as a ratio between net profit and revenue; return on assets (ROA), as a ratio between net profit and total assets; and return on equity (ROE), as a ratio between net profit and equity.

### *National Economic Development*

Numerous studies advocate that economic development is attributable to entrepreneurship activity on the national or regional level, using the growth

rate or the GDP as the indicator of economic growth or development. The overall well-being and capacity of the society to enter a knowledge-based economy was represented by the intellectual capital efficiency (ICE)[2] index. The ICE shows how much value is created by investments in human or intellectual capital. The larger the number, the better the society is at using its intellectual potential, and the better the society is equiped for a knowledge economy.

Data on entrepreneurship activity and firm performance were pooled from several databases and aggregated to describe impact on the national and regional level. Economic development was explored by using the GDP per capita and ICE. Sources of this data are as follows: the GEM cross-national and GEM Croatia database, the Financial Agency of Croatia (FINA) database and the *Statistical Yearbook* of Croatia.

1. Entrepreneurial activity—TEA, TEA NEC and TEA OPP—was derived from 2002 to 2006 annual research database of GEM. For each year, 2,000 respondents in Croatia were interviewed and TEA indices were calculated according to GEM methodology (www.gemconsortium.org).
2. The financial indicators of Croatian companies were calculated for each year, from 2002 to 2006, on the database of Financial Agency (www.fina.hr). In order to accomplish this research, Financial Agency provided us a huge set of official data reported by all Croatian companies operating in the relevant years.[3] Data were aggregated and the financial coefficient calculated according to years and regions in Croatia.
3. Macroeconomic indicators of the Croatian economy used in this research were gathered from *Statistical Yearbooks*, Croatia, 2004–08 (www.dzs.hr).

The comparable data sets cover only the time span of 2002–06 because there is a significant lag in the publication of databases with the aggregate national or even regional data. For instance, the regional level of GDP in Croatia for 2006 is still not published in 2008. We have used two statistical tests for hypothesis testing. Friedman's Analysis of Variance (ANOVA) for multiple dependent variables was used in testing whether there is a statistically significant difference in each of the variables (TEA, TEA OPP, TEA NEC, PM, ROA, ROE, GDP and ICE) over the years. The same test

was used for testing the differences between the regions. In order to test the existence of statistically significant correlation between the variables, Spearman rank R was used.

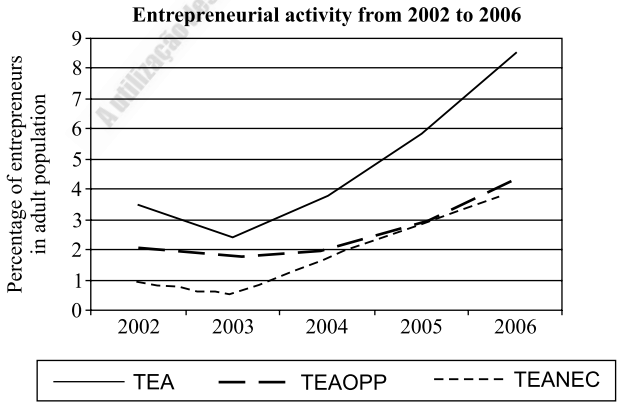
## Results and Discussion

### *How Volatile is Entrepreneurial Activity through Years?*

The question of how volatile Croatian economic conditions were, is approached by analysing changes in entrepreneurial activity, firm performance and GDP level over the 2002–06 time periods. Figure 2 illustrates the upward trends in entrepreneurial activity and economic growth and the relatively stable path of firm performance indicators.

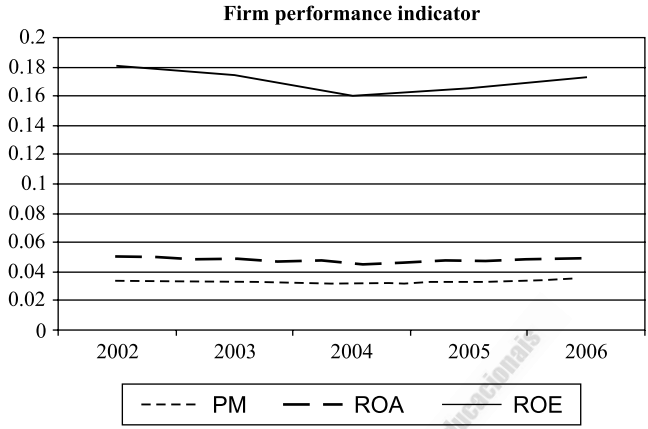
Number of the entrepreneurs among 100 adults (TEA index) rose from three (in 2002) to eight (in 2006). This trend is encouraging. On the other hand, subsets of total entrepreneurial activity (TEA OPP and TEA NEC) call for more attention. The major motivation for entrepreneurial activity in Croatia is still opportunity recognition. However, necessity-based new ventures grow more rapidly than opportunity-based ones. This might have

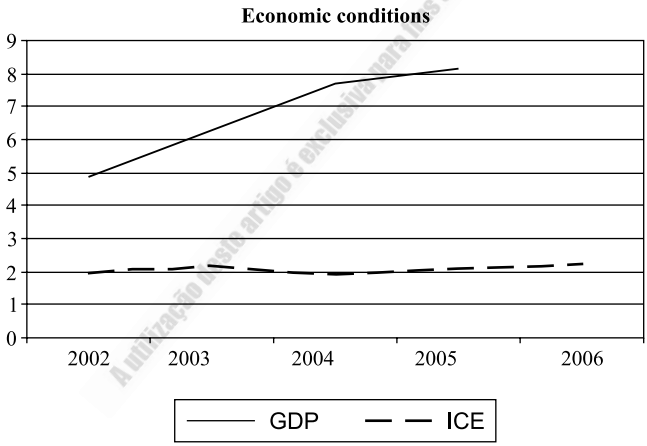
**FIGURE 2**
***Trends in Entrepreneurial Activity, Firm Performance Indicators and Economic Development***




(*Figure 2 continued*)

(*Figure 2 continued*)






a negative impact on the overall contribution of entrepreneurship activity on economic development since necessity-based ventures are more risk-averse and less growth oriented. The firm performance indicators show minor growth during the 2002–06 period (Figure 2), as well as the ICE, while the GDP level seems to follow the trend of entrepreneurial activity indicators. This indicates that an increase in the number of entrepreneurs contributes less to firm performance than to GDP or ICE growth.

### *Changes in the Level of Entrepreneurial Activity, Firm Efficiency and Economic Development*

The annual changes in levels of entrepreneurial activity (TEA, TEA OPP, TEA NEC) are statistically significant from year to year, as well as the indicators of firm performance and economic development (see Table 3). This confirms that there is significant volatility in entrepreneurial activity.

**TABLE 3**
***Significant Differences in Entrepreneurial Activity, Firm Performances and Economic Development from 2002 to 2006***

| *Variable* | *p-value* |
|---|---|
| Entrepreneurial activity | |
| TEA* | 0.00031 |
| TEA opportunity* | 0.02306 |
| TEA necessity* | 0.01124 |
| Firm performance indicators | |
| EUK* | 0.00577 |
| PM* | 0.00033 |
| ROA* | 0.00076 |
| ROE* | 0.00013 |
| Economic development | |
| GDP* | 0.00094 |
| ICE* | 0.00238 |

**Note:** *statistically significant.

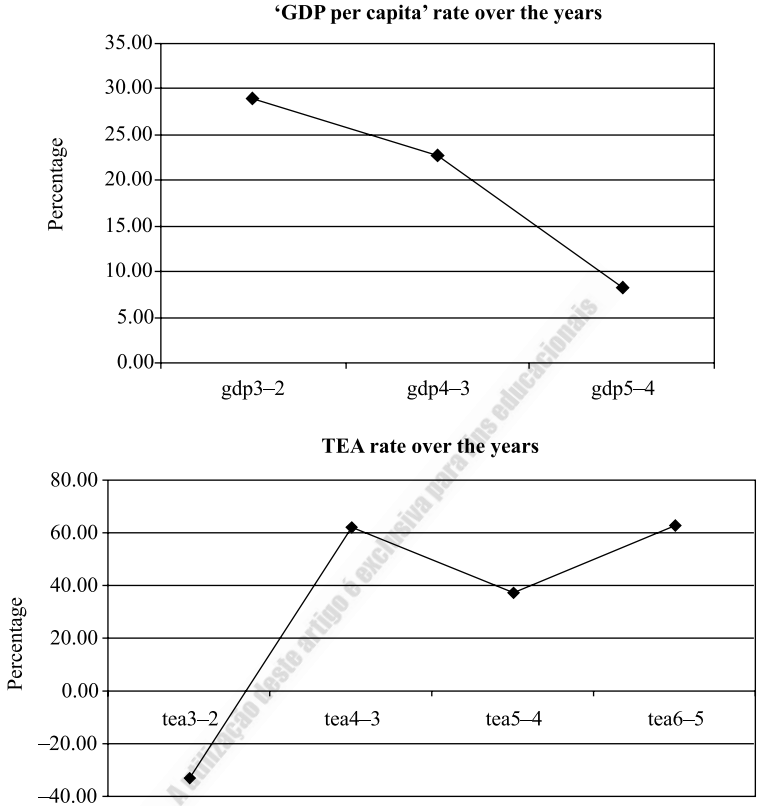


The rate of growth in entrepreneurial activity is increasing, while the growth rate of the GDP is slowing down (Figure 3).

We have tested whether there is a statistically significant difference in TEA growth and GDP growth over the years. The test showed a significant difference in TEA growth over the years ($p = 0.00889$), as well as in GDP rate ($p = 0.00570$). This implies that there is a less predictable and more ambiguous relationship between entrepreneurial activity, firm performance indicators and economic development.

Aggregated indices of Croatian firm performance as well as economic development are not attributable solely to entrepreneurial activity. Furthermore, entrepreneurial activity growth is usually dispersed into the following few years of economic development or aggregated firm performance. Nevertheless, the absence of path similarities between

**FIGURE 3**
***GDP Growth Rate and TEA Growth Rate Over the Years***




entrepreneurial activity, firm performance and economic development indicates that the relationship between these variables is more complex and more volatile than is generally presumed in entrepreneurship theory.

### *Is There Regional Volatility in Entrepreneurial Activity, Firm Performance and Economic Development?*

The impact of the region itself on entrepreneurial activity is also a highly conceptualised, but empirically, not sufficiently supported topic. Though

Croatia is small country, annual regional differences in entrepreneurial activity are evident (see Figure 4)

**FIGURE 4**
***Annual Level of Total Entrepreneurial Activity in Different Regions in Croatia***

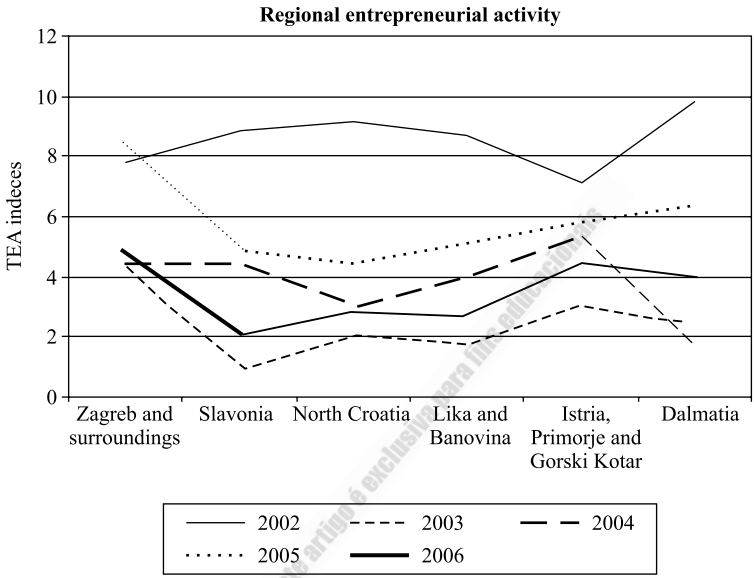



Figure 5 shows a more detailed insight into the dynamics of regional entrepreneurial activity levels.

The TEA has been increasing in regions that had a lagging level of entrepreneurial activity in 2002 (Slavonia, North Croatia, Lika and Banovina regions) due to the variety of government policies for improving the entrepreneurship in lagging areas. However, despite the increase in TEA in the lagging regions, the gap between economic development of different regions is widening (Figure 6).

The gap between the economic growth of leading regions (Zagreb and its surroundings, and Istria, Primorje and Gorski Kotar region) grows larger, despite the fact that these regions experience a decreasing trend in TEA index. One explanation of this trend is offered by disaggregating the TEA—early-stage entrepreneurial activity based on necessity and opportunity-motivated activity. The leading position of the two regions

**FIGURE 5**
***Regional Level of Entrepreneurial Activity Over 2002–06***

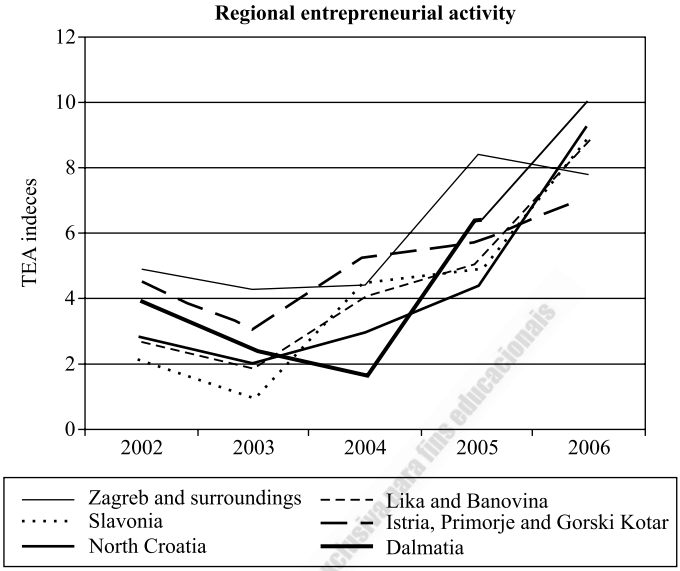
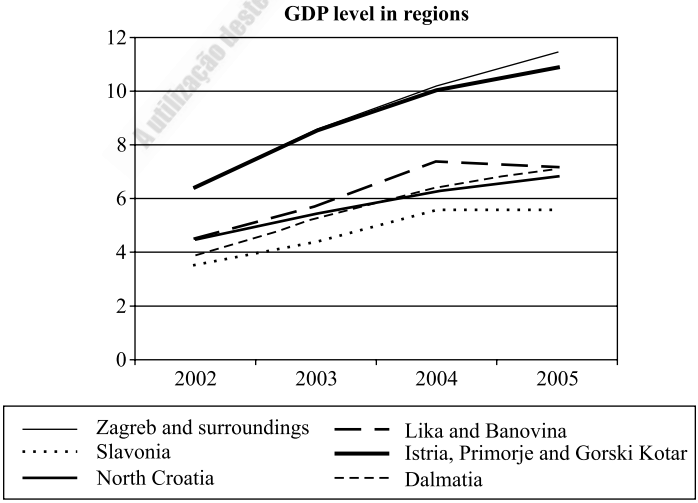
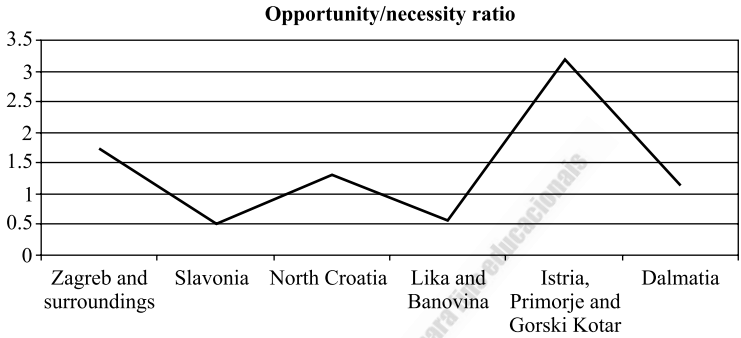



**FIGURE 6**
***Regional Level of GDP Over 2002–06***



(Zagreb region and Istria, Primorje and Gorski Kotar region) is most probably attributable to the favourable opportunity vs necessity-based entrepreneurship ratio (see Figure 7).

**FIGURE 7**
***Opportunity vs Necessity-based Entrepreneurial Activity Ratio for Different Regions***




This corresponds well to the theoretical presumption that not every entrepreneurial activity contributes equally to economic growth. The motivational distribution of opportunity vs necessity-based activity clearly signals that the leading regions have a significantly higher number of opportunity-based entrepreneurs. This is further supported by a test of statistical significance. Table 4 shows that significant differences exist among the regions in TEA opportunity, but not in TEA and TEA necessity. Opportunity-motivated entrepreneurial activity is accountable for the significant differences in regional firm performance and economic development. The theoretical presumption that not every type of entrepreneurship activity contributes equally to the economic growth has been confirmed.

On the other hand, opportunity-based entrepreneurial activity is more dependent on framework conditions such as the starting level of regional economic well-being; the level of the financial, professional or educational infrastructure; etc. Two leading regions in Croatia suffered less war damage, and therefore have had different starting points for the incubation of entrepreneurship. This also confirms the theoretical presumption that level of general and particular entrepreneurship conditions (income level, educational attainment and availability of financial or other support)

**TABLE 4**
***Significant Differences in Entrepreneurial Activity, Firm Performance and Economic Development between Regions***

| *Variable* | *p-value* |
|---|---|
| Entrepreneurial activity | |
| TEA | 0.26178 |
| TEA opportunity* | 0.01473 |
| TEA necessity | 0.74594 |
| Financial condition of the Croatian companies | |
| EUK* | 0.00017 |
| PM* | 0.00023 |
| ROA* | 0.00023 |
| ROE* | 0.00042 |
| Economic growth | |
| GDP* | 0.00066 |
| ICE* | 0.00200 |

**Note:** *statistically significant.



influences the structure and type of the entrepreneurial activity. While regional government policies were designed to compensate for different starting positions, not enough attention was given to different types of entrepreneurial activity (and growth prospects).

### *The Relationship between Entrepreneurial Activity, Firm Performance and Economic Growth*

The relationship of early-stage TEA to PM, ROA, GDP level and the ICE level is significant and positive. Table 5 presents Spearman correlation coefficients. Early-stage entrepreneurial activity based on opportunity (TEA OPP) is significantly and positively correlated with all investigated variables. Entrepreneurial activity based on necessity (TEA NEC) is significantly correlated only with the level of GDP, and the relationship is positive. Profit margin (PM) and ROA are positively correlated with the GDP and ICE. The GDP level is positively correlated with the ICE level.

The most interesting result of the correlation is the one describing the relationship between the TEA necessity index with the usual set of financial indicators. While TEA necessity contributes to GDP growth, the impact on firm performance is low. This might be explained by the

**TABLE 5**
***Correlation Coefficients between Entrepreneurial Activity, Firm Performance Indicators and Economic Development (Pooled Data)***

| | *TEA* | *TEA OPP* | *TEA NEC* | *PM* | *ROA* | *ROE* | *GDP* | *ICE* |
|---|---|---|---|---|---|---|---|---|
| TEA | | | | | | | | |
| TEA OPP | | | | | | | | |
| TEA NEC | | | | | | | | |
| PM | **0.5360** | **0.5323** | 0.2178 | | | | | |
| | **(0.002)** | **(0.002)** | (0.25) | | | | | |
| ROA | **0.3793** | **0.4691** | 0.0073 | | | | | |
| | **(0.039)** | **(0.009)** | (0.96) | | | | | |
| ROE | 0.2393 | **0.3481** | –0.1908 | | | | | |
| | (0.203) | **(0.05)** | (0.31) | | | | | |
| GDP | **0.6547** | 0.5634 | 0.4606 | **0.5113** | **0.4886** | 0.1721 | | |
| | **(0.001)** | (0.004) | (0.02) | **(0.01)** | **(0.02)** | (0.42) | | |
| ICE | **0.4967** | 0.5492 | 0.1867 | **0.5361** | **0.6086** | 0.5548 | **0.6376** | |
| | **(0.005)** | **(0.002)** | (0.32) | **(0.002)** | **(0.000)** | **(0.001)** | **(0.001)** | |

**Note:** Spearman correlation coefficients are bold if significant; the level of significance is in parenthesis.

so-called 'refugee' effect. Necessity-based entrepreneurs usually seek self-employment. Such ventures are oriented to staying small and are controlled by the owner/manager, constrained with the lower level of educational attainment of the owner, risk aversion, low credit rating, etc. This might explain the non-significant impact on the firm performance level. The necessity-based ventures are often established on the low value added end of the industries. Therefore, the significant positive impact of such ventures is absent on the more aggregated level.

Correlations between economic development and entrepreneurial and firm performance show statistical significance and a positive relationship. The greater GDP and ICE levels are related to higher entrepreneurial and firm performance. This corresponds well with the earlier mentioned evidence on institutional and contextual impact on entrepreneurial activities. Guenther and Young (2000) explain the relationship between GDP and ROA. They found that when the GDP is increasing, demand may exceed supply and companies may increase production in order to satisfy the demand. It is more likely they will hire additional labour than increase capital. Thus, earnings will increase at a higher rate than assets, and the ROA is more likley to be higher when GDP is higher rather than

the other way around. In summary, the theoretical presumption that entrepreneurship activities have differentiated relationships and impacts on firm performance and economic development holds true in transitional, middle-income economies such as Croatia's. This justifies a certain level of generalisability and best practices imitation, although they come from a different context. On the national level, these findings imply that policies should be more focused on opportunity-motivated, high-growth ventures. On the regional level, these policies should compensate for lagging framework conditions and should standardise the quality of institutional support.

## Conclusion

Entrepreneurship theory deployment and testing is under-represented in developing countries, and is crucial to advance entrepreneurship and entrepreneurial activity in general and specifically, in national settings. Developing countries, in particular, Central and East European countries (CEE) such as Croatia neglected entrepreneurship after World War II. After the market regime transition during the 1990s, many of these countries turned to renewing whatever entrepreneurial potential they had, usually imitating strategies and deploying best practices from other countries. Croatia represents a transitional, middle-income country, whose entrepreneurial capacity has been going through turbulent times since 1990s. Despite the high priority given to entrepreneurship on the national strategy level, there is a lack of empirical evidence on the impact of entrepreneurship on economic development or firm efficiency on the aggregated national level. This study provides preliminary research on the volatility and regional dispersion of the entrepreneurial contribution to economic development and firm efficiency.

Croatia is experiencing positive trends in entrepreneurial activity and economic development. However, there is still high volatility in the annual levels of entrepreneurial activities. The opportunity-based entrepreneurial activities growth rate is slowing down. Instead of broad support policies and programmes targeted to increasing the number of firms, government programmes might be more focused, selective and sophisticated with support measures that target research and knowledge transfer, export, or high-growth firms.

Regional dispersion and differences in economic development are increasing despite substantial government programmes and policies to support new venture creation in lagging regions. This implies that policies should take more care of lagged impacts as well as the harmonisation of national framework and institutional conditions.

Entrepreneurial activity has a complex and multifold relationship with economic development and firm performance. Entrepreneurial activity shows a significant correlation with national-level economic development and aggregated indicators of firm performance. These findings were further refined by disaggregating entrepreneurial activity on two sub-indicators, describing the motivation behind early-stage entrepreneurial activity. Opportunity-based entrepreneurial activity seems to have wider range of relationship than necessity-based entrepreneurship. It is quite dangerous to presume that entrepreneurship is a magic wand that would smooth the deficiencies of the market system by its sheer presence. Evidence shows that the impact of entrepreneurship is not unidirectional or simple, but a certain level of generalisability is applicable.

These findings have limitations, too. Croatian entrepreneurial activity has not yet stabilised and comparable data exist for only 5 years. Further research should comprise more longitudinal data sets and more sophisticated statistical tests in order to disaggregate complex relationship of entrepreneurship and economic development.

## Notes

1. The TEA index is computed from the number of the individuals among adult population, aged 18–64 years, who are engaged in starting, managing and owning a start-up or a venture not older than 42 months. In addition to TEA, several more detailed and more profiled indices derived from TEA are used to distinguish the motivation and growth potential of new entrepreneurial entries in a national economy. Necessity-based entrepreneurs (TEA NEC) are motivated to start new ventures by unemployment or the absence of other choices, while opportunity-based entrepreneurs (TEA OPP) start a new venture upon the identification of a business opportunity. High expectation–high growth entrepreneurs (HE/HG) are those who expect to employ 20 or more employees in a five year period, or currently have 20 or more employees.
2. A detailed description of the ICE methodology can be viewed on www.vaic-on.net and www.cik-hr.com (accessed 9 July 2008).
3. These data are not publicly available. In 2002, the data set consisted of 66.677 Croatian companies reporting financial data to Financial Agency. The number of companies for the next several years was respectively: 68.884 (in 2003); 71.184 (in 2004); 75.218 (in 2005); and 82.527 (in 2006).

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**Fonte: Journal of Entrepreneurship, v. 19, p. 23-41, January/June 2010. [Base de Dados]. Disponível em: <http://online.sagepub.com>. Acesso em: 26 ago. 2010.**