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Effects of Regional Determinants on New Businesses Formation: The Case of Bulgaria

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Abstract

Regional characteristics appear to be influential on the formation of business start-ups and provide better insights to designing effective policies toward local development. It was in large extent valid for Bulgaria during the process of EU integration as well as full EU membership since 2007. This paper identifies the effects of some regional determinants contributing to new businesses formation in 28 Bulgarian districts. The empirical model includes six regional determinants: firms' density, large firms' growth rate, population density, unemployment rate, wage level, and FDI stock changes. The study provides estimates of their effects by a multiple nonlinear regression model using official data for the period 2005-2013. The study suggests evidence for a significant impact of four determinants – density of existing firms, growth of the number of large firms, wage level, and changes in FDI stock – on the regional variation in new business start-up rates in Bulgarian districts for that period.

1. Introduction

In the last decades both researchers and policy-makers recognize the important role of new businesses in the creation of new jobs either for regional or national economies. The understanding of the importance of new businesses for the employment and for regional development raised the interest for further investigation of the determinants of regional variation of new businesses formation. This interest is fostered by the theoretical and empirical contributions related to the study of spatial factors for the creation and competitiveness of SMEs (Reynolds et al., 1994; Sutaria & Hicks, 2004; Qian et al., 2013). They used data for different countries and gave evidence for new businesses' contribution to economic growth linked to the net new job generation.

The newly established firms play crucial role for regional economic development because of two main reasons: *First*, small firms – having organizational structure conducive to a flexible technology – innovate more and, as "agents of change" (Acs & Audretsch, 2001), directly contribute to economic development. *Second*, start-up firms promote entrepreneurship in the society and as a "seedbed for entrepreneurship" (Fritsch & Mueller, 2004) indirectly contribute to economic growth. Furthermore, each new firm or new market entry represents a challenge for the existing (established) firms and may generate significant incentives for improvements. Since the 1990s the promotion of the formation of new entrepreneurial firms in Bulgaria (especially small and mid-sized) has been considered as the main policy in dealing with the problem of unemployment and uneven regional economic development. For many years during the central-planned economy the concentration of economic activities in highly populated urban areas in

certain Bulgarian regions leaded to systematic migration from rural, particularly agricultural areas, to urban areas, which further increased regional disparity (Alexandrova, 2004). In this respect, the examination of regional characteristics appearing to be influential on the formation of entrepreneurial start-ups certainly would yield better insights to design effective policies stimulating local development. It was in large extent valid during the process of EU integration – having in mind the EU Commission's policy – to foster regional development.

The aim of this paper is to outline some regional determinants contributing to new businesses formation in 28 Bulgarian districts ("oblasti"). The empirical model embraces the following regional determinants: population density, firms' density, large firms' growth rate, wage level, unemployment rate, and foreign direct investments. The paper is organized as follows: *first*, a brief review of specialized literature on regional variation in new businesses formation; *second*, the measurement of new businesses formation as a dependent variable of the estimated model; *third*, the potential explanatory variables (regional determinants of new businesses formation) of the model; *fourth*, the analysis of empirical results; and *finally*, some conclusions and regional policy implications.

2. Literature Review

Studies gathering theoretical and empirical evidence concerning the causal relationship between regional factors and regional development are an expected priority in the specialized literature. Research up-to-date provides evidence for explicit regional variations in new business start-ups. Large-scale studies concerning regional determinants of new firm formation have been carried out in several different countries (Sutaria & Hicks, 2004; Mueller et al., 2008; Brixy & Grotz, 2006; Van Stel & Suddle, 2008). These studies found significant regional variation in new businesses formation and examined a set of regional (spatial) factors concerning social, political, environmental and economic structures of a region to explain this variation. Furthermore, some of the studies have outlined that high rates of firm births are positively associated with regional economic development (Davidsson et al., 1994).

The explanatory variables that were generally found to be most important were various measures of unemployment, population density, urbanization and agglomeration, industrial restructuring, firm size structure, and availability of financing. Regarding the major determinants (factors) there is a high degree of agreement in the results obtained for various countries during the multinational OECD study initiative (Reynolds et al., 1994). This study comprehensively explored the issues of regional variation in new firm formation rates and identified a selection of regional determinants of the new firms' regional birth rates – demand conditions (population growth and immigration), agglomeration conditions (population density, availability of skilled workforce), labor market indicators, personal wealth (income level, home

ownership); industrial characteristics and regional specialization, local politics and public governance, etc.

In this respect, various authors identify alternative determinants or new proxy variables for known regional factors – e.g. Keeble & Walker (1994) derive thirty one regional variables which are argued to explain spatial variation in the rates of new firm formation.

The dynamics of new businesses formation is a complex phenomenon and is likely to indicate the influences of multiple factors independently and also in interaction; moreover, it can easily reflect any idiosyncratic local circumstances (Sutaria & Hicks, 2004). A study in the Netherlands reveals a short term effect of new firms on new job creation as well as significant long-term impact on the regional employment level (van Stel & Suddle, 2008). Armington and Acs (2002) suggest that newly established firms generate positive effects on economic growth and regional development in particular, mostly "through premature structure".

The most complete studies were made for Germany (Audretsch & Frisch, 1994; Brixy & Grotz, 2006; Fritsch & Mueller, 2008), Sweden (Davidsson et al., 1994), Finland (Ritsila & Tervo, 2002), Great Britain (Mueller et al., 2008), the Netherlands (Van Stel & Suddle, 2008), France (Guesnier, 1994), the United States (Armignton & Acs, 2002), Spain (Arauzo-Carod et al., 2008), Portugal (Baptista et al., 2008), Argentina (Cala et al., 2014), The Czech Republic (Hajek et al., 2015), Taiwan (Wang, 2006), and Turkey (Karahasan, 2015). Most of the studies support the hypothesis that new business start-ups in the regions correlate positively with the regional growth rates in a country.

A range of studies suggest a complex of regional demographic and socio-economic characteristics which are theoretically justified to have a significant effect on new firm formation. Such examples are: resources availability e.g. labor and physical capital (Bruno & Tyebjee, 1982), education and human capital (Acs & Armington, 2002), density and growth of regionally allocated population (Reynolds et al., 1995), new economy and knowledge acquisition (Acs et al., 1994), unemployment (Storey 1991), industrial specialization (Acs & Armington, 2002), and industrial diversity (Blasco & Fornielles, 2000).

The study presented in this paper makes an attempt to fill in some extent the existing deficiency of empirical research in the field of new businesses formation and the determinants of its regional variation in Bulgaria during the period of its economic stabilization and EU membership.

3. Measurement of New Businesses Formation Rate

Generally, the regions in a country are not homogeneous regarding their size (both in area and population), resources, administrative capacity, and economic potential. Thus, it is considered as non-informative to measure the absolute

number of new businesses and to compare them across regions. For this reason, it was necessary to consider specific measures for the rates of new firm establishment. According to the literature, two approaches were developed for the definition of rates of new firm formation which are comparable across regions (Armignton & Acs, 2002). The first approach derives a measure for the number of new businesses standardized by the number of firms which are already in operation – this approach is named as "ecological". It emphasizes on the ratio of business start-ups relative to the population of existing firms.

The second approach suggests a measure for the number of new businesses standardized by the number of employed in region – denoted as "labor market" approach. It is based mainly on entrepreneurial choice theory (Evans & Jovanovic, 1989) which postulates that new businesses are started by former workers having entrepreneurial potential and skills. Following this approach, it is assumed that the entrepreneurs establishing new firms are available on the same regional labor market. Therefore, regions may considerably diverge by the average number of employees per one new firm in a region. Studies show that there are substantial differences of the results obtained by the application of these two approaches – e.g. the ecological approach typically estimates relatively higher new firm formation rates in regions where the average size of established firms is relatively high, and *vice versa*.

The current study applies the ecological approach for evaluating the new businesses formation rate. For this purpose we used data provided by the Bulgarian National Statistical Institute (NSI, 2006; NSI, 2015). The basic unit of the study is the new business establishment, having in mind that almost all of the new businesses in Bulgaria start as small ones.
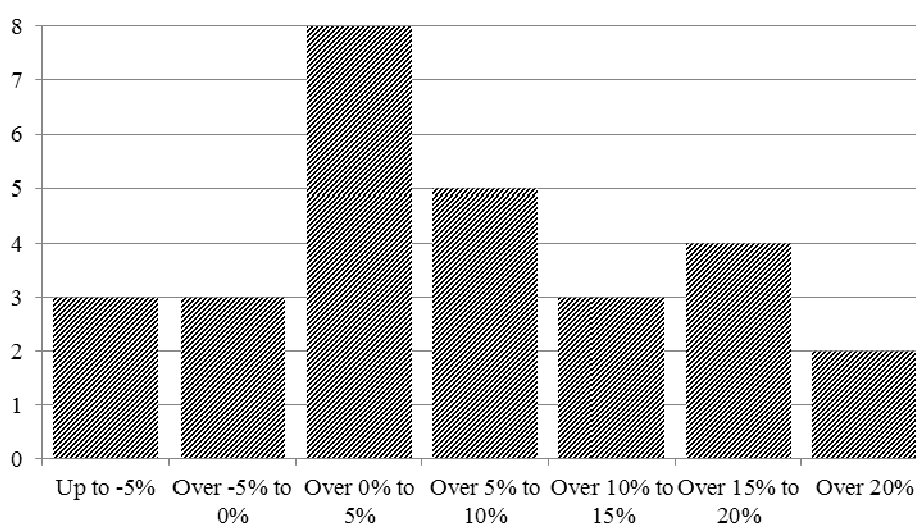

Figure 1. Distribution of Bulgarian districts (NUTS-3 level) by average annual growth rate of new business start-ups, 2005-2013. (Source: Author's calculations based on NSI data).

As a measure of new businesses formation we use *the average rate of growth in the number of new firm establishments* for the years 2005-2013, which is adopted as a dependent variable of the estimated regression model (fig.1). It is assumed that the independent variables had lagged impact on the formation of new businesses during this period. Their most up-to-date values are used only for the demographic/density variables (at year 2013), and average annual levels for the period 2005-2013 are calculated for the macroeconomic variables. The analysis is carried out at NUTS-3 regional level covering all 28 Bulgarian administrative districts.

4. Regional Determinants of New Businesses Formation – A Short Review

On the basis of a literature survey as well as our previous research for Bulgaria a model for the determinants of regional new businesses formation has been developed. It includes several explanatory variables that are assumed to capture the impact of selected regional determinants of new businesses formation rates.

4.1. Regional Density of Existing Enterprises

The general expectation is that the more widely spread enterprises are at regional level, the higher the rate of new businesses formation. The idea is that workers in firms have a higher chance to get familiar with the production process and other important functions within an existing enterprise (such as contacts with customers, suppliers, entrepreneurial skills, etc.) and consequently increase their chances to become entrepreneurs. On the contrary, the rate of new businesses formation tends to be lower in regions specializing in heavy industries, particularly in those regions where a small number of firms dominate the local resource market. In such regions there are no significant opportunities for individual initiative and small businesses development. In this study we use one independent variable capturing the density of existing enterprises evaluated per 1000 economically active population in the district (annual average level, 2005-2013).

The first hypothesis is that new businesses formation is positively related to the degree of availability of existing firms in the region.

4.2. Regional Size of Established Enterprises

It is frequently assumed that if the size of firms in a region increases, the larger firms could become more dependent on the supplies from small and medium sized enterprises. Even more, the outsourcing to SMEs turns to be an efficient strategy for the corporations – they could transfer some of their business processes, even entire projects, to small vendors. Consequently, larger enterprises are expected to provide a stable environment for new born firms to survive through stimulation of the "expansion of the regional supplier base" (Sutaria & Hicks, 2004). Previous studies also emphasize on this possible effect, however, with diverse results (e.g. Audretsch & Fritsch (1994) do not find any relation between the establishment size and entry rates; Armington & Acs (2002) obtain a negative effect which is confirmed by the study of Fritsch & Falck (2003)). In the same time, Sutaria & Hicks (2004) have found a statistically significant positive effect of the firm size on new businesses formation. The authors explain the result by a positive role of corporations for stimulating a region's new firm formation through sourcing supplies to neighboring SMEs.

In this study we introduce an independent variable in order to capture the effect of the size of firms operating in the respective district. The variable is measured by the growth rate of large firms in a district for the period 2005-2013.

The second hypothesis states that new businesses formation is positively related to the expansion of large companies (i.e. higher rate of growth of the number of large firms).

4.3. Regional Unemployment Rate

This variable is traditionally considered as a potential determinant with substantial regional variation which relates to entrepreneurial intentions of the unemployed. The basic proposition is that a higher rate of unemployment may induce workers to create self-employment jobs, thus increasing the new businesses formation rates (Guesnier, 1994; Audretsch & Fritsch, 1994; Reynolds et al., 1994). Another argument leans on the suggestion that higher rates of unemployment could lower the local labor costs for hiring new employees. Nevertheless, higher rates of unemployment may reflect lower local demand level and, consequently, to induce higher risks for potential entrepreneurs when creating new businesses. Moreover, unemployed individuals may not have the capital necessary to start their own business. However, Armington & Acs (2002) indicate that unemployment rate is expected to be negatively related to the overall business start-ups, but is likely to be positively related to new firm formation in industries having low capital requirements and, conversely, negatively related in case of high capital requirements.

The third hypothesis here is that higher regional unemployment rates are positively associated with higher rates of new businesses formation.

4.4. Regional Wage Level

The wage level is a traditional demand side variable involved in similar studies. It is typically assumed that a higher local demand for products should induce an increased need for product supplies. The regional wage level is expected to account for the disparities in regional purchasing power – a higher purchasing power in a district generates higher opportunities for new business star-ups in the district (Lobo & Costa, 2003). Since the rise in the average salaries unambiguously leads to increased consumption, the annual average wage in a district serves as a plausible indicator for the differences in regional aggregate demand.

The fourth hypothesis states that new businesses formation rate is positively related to the average annual district wage level.

4.5. Regional Population Density

This determinant – measured by the number of inhabitants per square kilometer – is often employed to capture the influence of the economies of agglomeration on the creation of new business establishments. In an urban context, concentration of people and firms in a certain area decreases both the cost of access to customers and to suppliers. Also it becomes easy for both the consumers and producers to benefit from certain services that are available in urban areas. Regional population density is related to effects of the availability of skilled labor force, price level of housing estate, and the level of knowledge spillovers (Audretsch & Fritsch, 2002). Therefore, it is assumed that areas with higher levels of population density are more attractive places for younger and better educated adults who generally are the potential entrepreneurs.

The fifth hypothesis is that areas with higher population density are associated with higher new businesses formation rates.

4.6. Foreign Direct Investments

The last variable involved in the model is measured by the average annual change in FDI level (million EUR) in the districts for the period of study. It is widely recognized in market transition studies, especially in Central and Eastern Europe, that FDI are of great importance for the success of market oriented reforms, economic restructuring, and overall economic development. There is much evidence that variety of positive externalities appear in regions with relatively higher influx of FDI (e.g. provision of sustainable employment, higher income level, adoption of modern managerial know-how, etc.). Such regional environment favors the process of new business establishment by providing better infrastructure for the joint ventures and other foreign controlled business units. The increased demand of local supplies is also considered as a special positive externality from regionally allocated foreign companies.

Thus, *the sixth hypothesis* assumes that the change in regional FDI level is positively related to regional rates of new businesses formation.

5. Empirical Results

Empirical results are obtained by a semi-log multiple regression model with the following specification:

$$\ln(NBFI_i) = \beta_0 + \beta_1 \ln(DEE_i) + \beta_2 \ln(LFGI_i) + \beta_3 \ln(UR_i)$$
$$+ \beta_4 W_i + + \beta_6 \ln(PD_i) + \beta_5 FDInv_i + \varepsilon_i$$

where the notation is as follows:

- NBFI is the average index of growth of new businesses for the period;
- DEE is the density of existing enterprises;

- LFGI is the average index of growth of large firms for the period;
- UR is the average unemployment rate for the period;
- W is the average wage for the period;
- PD is the population density;
- FDInv is the average change in FDI stock for the period.

The model parameters are estimated by OLS method using 28 cross-section observations for Bulgarian districts. Table 1 presents the main results for the estimated net effects of each independent variable on the log-indices of rate of growth in the regional number of new firm establishments.

Table 1. OLS estimates of model parameters. Dependent variable: Log- Average index of growth of new businesses for 2005-2013.

Independent variables	Regression coefficients		
	Unstandardized		Standardized
Log- Density of existing firms	-0.156	*	-0.300
Log- Index of growth of large firms	-0.372	**	-0.444
Log- Unemployment rate	0.001		0.003
Annual wage level	0.110	*	0.378
Log- Population density	-0.004		-0.026
Annual change in FDI stock	0.200	**	0.461
Constant	0.446		–
Adjusted R square			0.519**

Notes: * significant at 0.10 level; ** significant at 0.05 level.

The evaluation of each net effect is considered through the statistical significance of coefficients (though, from some point of view the districts should be treated as a random sample with some caution). Standardized (beta) regression coefficients are additionally used as a tool for comparing the relative importance of each determinant of the regional variation in new businesses formation rates.
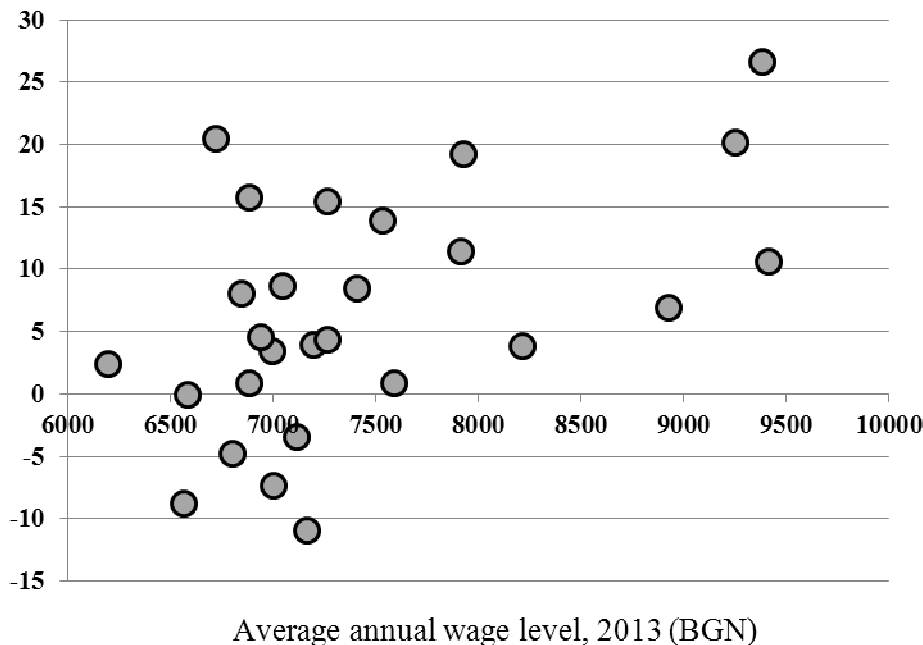

Figure 2. Scatter diagram of the average growth rate of new business start-ups (%) and districts wage level (Source: Author's calculations based on NSI data).

Statistically significant effects are observed regarding four of the involved variables – existing firms' density, growth of large firms' number, wage level, and FDI stock change. However, only hypotheses 4 and 6 are confirmed in light of the estimated positive parameter signs. The expectation about positive effect of the density of existing firms as well as positive effect of large companies was not supported by the empirical results. Even more, the negative signs suggest rather evidence for a "barrier" effect of both variables (i.e. the availability of firms and the growth of large firms' number in the region) than for stimulating the establishment of new

businesses in the districts and targeting in supplies from smaller-scale neighboring firms or outsourcers. The standardized regression coefficients show that the "obstruction" impact of the large companies' expansion is 50% stronger than the effect of the existing firms.

The result regarding the regional wage level is consistent with our hypothesis about its impact on new businesses formation. The positive and statistically significant coefficient of the average wage variable provides evidence for the assertion that the district-level purchasing power favorably influences the regional processes of new business start-ups (fig.2). This result confirms the expected role of the local demand capacity for inducing establishments of new firms.

The estimation results show that changes in FDI stock is the most significant variable that contributes to the explanation of the variation in new businesses formation. Along with the wage level and firm demography variables, FDI demonstrates a major importance for the overall process of new firm births. The expected positive sign of the FDI variable shows that, other things equal, the spatial allocation of foreign investments in Bulgaria for the studied period creates a stimulating regional environment for starting-up new businesses.

The model does not provide any evidence in support of the traditional hypothesis about the effect of agglomeration economies. Other things equal, the more or less densely populated areas do not affect any divergence in the rates of new businesses formation in Bulgarian districts. Similar result is obtained also about the unemployment rate – the estimated coefficient of its variable is also not statistically significant. In light of the small sample size (n=28) and strong significant correlation between the two variables (-0.72) these results can be explained by a multi-collinearity effect. Although the parameter estimate is positive, this specification does not allow any clear statement about the expected impact of this variable, e.g. higher unemployment to translate into a higher rate of firm births.

6. Conclusion

This paper has examined some issues regarding the regional determinants of new businesses formation in light of some recent theoretical developments and data availability. Using the latest official Bulgarian regional data sources, we constructed average annual data on new firm formation for 28 Bulgarian districts for the period 2005-2013. We found considerable variation in the rates of new firm births across districts. The regional variation in the new businesses formation rates is explained mainly by the regional differences in four of the determinants: density of existing firms, growth of the number of large firms, wage level, and changes in FDI stock. The regional diversity in local demand capacity and allocated foreign capital and knowledge appear to be positive drivers for new business start-ups in Bulgarian districts. On the contrary, two other important variables – the availability of already established firms and the expansion of the number of large firms – show significant but negative effects on the

process of new firm births.

It is justified that the entry of new businesses in different regions is decisive for the job creation and local economic restructuring. This process is inevitably related to old firms' closures induced by competitive forces, which leads to the survival and stimulation of the most efficient ones. Further research on regional variation in business start-ups should focus on identifying additional determinants showing significant net impact, e.g. human capital, availability of resources, regional policy-making variables (government expenditures and special programs), entrepreneurial culture, etc. In order to stimulate sustainable economic development through stable rates of new businesses formation both the central and the local governments should make efforts to improve the regional business environment through provision of adequate infrastructure, consultancy and support for developing expertise in EU regional development programs.

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