



International Journal of Business and Economic Sciences Applied Research

Does Business Cycle Have an Impact on Entrants and Exits?

Nikolay Sterev, Diana Kopeva, Dimitar Blagoev

pp. 49-54

VOLUME 10, ISSUE 1

EASTERN MACEDONIA & THRACE INSTITUTE OF TECHNOLOGY PRESS

Does Business Cycle Have an Impact on Entrants and Exits?

Nikolay Sterev¹, Diana Kopeva², Dimitar Blagoev¹

¹ Industrial Business Department, Business Faculty, UNWE, Sofia, Bulgaria

² Economics of Natural Resources Department, Business Faculty, UNWE, Sofia, Bulgaria

ARTICLE INFO

Article History

Received 14th February 2017

Accepted 7th March 2017

JEL Classifications

O47, M13,

Keywords:

Start-up companies,
entrants, exits, economic
growth, Bulgaria

ABSTRACT

Purpose:

The role of entrants and exits has enlarged indisputably over recent years. The basic explanation is connected to the deepening of innovation's influence on industrial growth. Furthermore, new businesses have to be more effective, and based on products, technological or organizational innovations, and exits have to be ineffective (respectively unprofitable), based on denoted products or technology.

Design/methodology/approach:

According to the above-mentioned prerequisites, policymakers need to manage the role (respectively the impact) that entrants (new start-up companies) and exits play in industrial growth. Nevertheless, this impact is not a cornerstone of the Bulgarian National Strategy, or the Europe 2020 Strategy.

Findings:

The paper tries to answer the following two questions: 1) Do new start-up companies and exits have any role and influence on economic growth in Bulgaria?, and 2) Does the role (respectively the impact) of entrants and exits in industrial growth change according to economic cycle?

Research limitations/implications:

In addition, according to the Lisbon Strategy, as well as the European Union's (EU) Strategy 2020, the current economic policy supports entrepreneurship and innovations. Thus, the establishment of innovative companies, as well as the development of innovative, incumbent business are core issues of EU economic policy for the past decade.

Originality/value:

The paper builds on the industrial dynamic methodology and on the understanding of how business decisions (entrepreneurship, innovations, and R&D) on micro level correspond to macro level (GDP growth and innovation policy).

©Eastern Macedonia and Thrace Institute of Technology

1. Introduction

Over the past 70 years, various methods have been utilised in understanding the economic impact of entrepreneurship. However, the answer to the question: *Do new start-up companies and exits have any role and influence on economic growth?* is still unanswered because of the ever-changing economic conditions.

Understanding start-ups has recently been based on the concepts of innovation and competitiveness, and focused on start-up companies with growth potential.

Thus, start-ups were identified recently as one of the effective pillars supporting the growth and development of a modern economic system. Not surprisingly, such companies receive special status; they have been placed at the centre of developed EU countries' strategic objectives via appropriate economic and social policy mechanisms in the EU's 'Europe 2020' growth strategy.

Moreover, these companies are nowadays defined as

those entering the 21st century's highly competitive globalized market. Investigations so far indicate that over 90% of these companies went bankrupt in the first year of their operation. So, *what is the relationship between start-ups and real economic growth?*

Answering this question could help establish the role (respectively, the impact) start-ups play in economic growth. Some preliminary observations show insufficient evidence of real impact on economic growth in Europe, and Bulgaria. Additionally, the effect of start-ups on the growth of the Bulgarian economy is slightly exaggerated.

Our preliminary considerations are based on some characteristics of the economic environment in Bulgaria that make it difficult for start-ups entering the economy:

- it is difficult for new start-ups to access financing, especially for innovation;
- they also encounter very high initial insurance premiums;
- they enter into a highly competitive EU market, and

*Corresponding Author: Nikolay Sterev

Email: sterev@abv.bg

DOI: 10.25103/ijbesar.101.06

a declining domestic market;

- many Bulgarian start-ups lack specialization as a result of ongoing educational reform.

2. State-of-the-art

Our analysis is based on three key problems:

- How do we inspire **economic growth**?
- What role do **entrants** and **exits** play in economic growth?
- How do we **measure the impact of entrants** on economic growth and respectively, **understand the role of the start-up**?

2.1. Start-ups and Economic Growth

Start-up companies are part of the contemporary economic system that contribute to economic growth. Recently, they have become of increased economic importance because of their growing participation and influence in the gross domestic product. This is a result of the specificity of start-ups, since part of their core function is to produce innovative and, in most cases, high-technology products and services with high added-value, which in turn leads to growth in gross domestic product.

Analysis of the role start-ups and their ability to innovate leads to the following preliminary findings:

- In **developing countries**, industrial growth is linked to shifts in the factors of production (resp. labour, capital, materials, and resources) from low- to high-productivity sectors. So, growth and development are **limited by the economy's capacity** to generate new dynamic production activities (Ocampo, 2005).
- **Free-market economies** attempt to develop industries that are expected to offer better prospects for economic growth (Pack H. and K. Saggi, 2003) by **encouraging investments**, especially in R&D, education and training (Sharp M., 2003)
- Industrial growth is **blocked by "entrepreneurial governance"** that attempts to change the industry from the inside (Krafft 2006). However, in this approach, entrepreneurial behaviour collides with government institutions (March and Olsen, 1989).

A large number of publications on existing economic studies that explore the influence (resp. Effects) of participants (start-ups) and economic growth give different answers to the posed problems. In general, these studies primarily evaluated economic growth based

3. Methodology

Preliminary methodological preview shows the next three effects that explain the mechanism of impact of start-ups on economic growth:

- entrepreneurs are not sufficient enough for short-term growth but they are key to sustaining long-term growth;
- new businesses are procyclical, as they have a positive short-term economic impact;

on the total output growth (resp. Productivity growth). In summary, the state-of-the-art Sekkat K. (2010) describes three types of effect, as follows (see also: Foster, Haltiwanger and Krizan (1998), Aw, Chen and Roberts (1997), Hahn (2000), Griliches and Regev (1995), Baily, Hulten, and Campbell (1992)):

- **the structural effect** between productivity factors, which is expressed by changing the intensity of labour and capital;
- **the innovative effect** is expressed by the proportion of surviving entrepreneurial business;
- **the market effect**, which results in a change in market shares.

These effects are not of equal impact on the different economic sectors; Scarpetta, Phillip, Thierry, and Jaejoon (2002) found that high-tech entrepreneurial companies contribute between 20% and 40% of overall productivity growth. In addition, these effects depend on the stage of economic business cycle (Disney, Haskel, and Heden, 2003).

2.2. Newcomers vs. Existing Business

Since the effect of start-ups on growth is explained well enough, we could summarize their basic advantages:

- Existing businesses **are known for their goals, strategies, and policies**. From this perspective, a new start-up is an unknown quantity, which makes it an **extremely quiet and invisible competitor**. Undoubtedly, very rarely an established company retains its market position upon the emergence of a successful start-up business.
- For existing companies, failure would be painful and for start-up companies, success would be painful.
- A start-up business focuses on the medium of a new idea, and does everything to realize it. It delivers extra added-value for the user. In contrast, existing companies are focused on their existence: end revenue, financial results and growth potential. This makes them less-responsive to changes in values and attitudes of consumers.

$$TFP = Y = A.K^{\alpha}.L^{\beta}, \text{ where } (\alpha + \beta = 1)$$

- start-up entities aid in employment and competition networking.

However, these do not explain why highly-innovative entrants really have a direct link to economic growth. Our analysis shows three reasons for the impact:

- New start-up companies represent a high-risk profile, chasing rapid initial growth of profit and quick return on investment.
- When the growth rate, which defines them as start-up companies, and expectations of a quick return on the initial investment are not

achieved in the planned short timeframe, the company is restructured.

- The goal of the investor is an increase in profit in the first months/years of activity, and return on investment within 2-3 years from the start of operations.

In addition, to measure the impact of start-up on economic growth, we propose the following methodological steps of improvement:

1. Traditionally, industrial growth is presented by the following indicators: Total factor productivity (TFP) or labour productivity (LP) measured by labour (L) and Capital (K).
2. Solow-Swan's model enriched the classical Cobb-Douglas function, adding two new elements: inputs (R) and additional factors (M). To measure the impact of innovations, additional factors could be given by Innovation costs (see Kopeva et al., 2011 and 2012):

$$Y = A \cdot K \cdot L \cdot R \cdot e^M$$

3. The TPF model could be transformed by expanding additional factors and adding: a number of entrants (EN), a number of exits (EX), and competition (CON) measured by the Herfindahl-Hirschman Index (HHI), as follows:

- $Y = A \cdot K \cdot L \cdot R \cdot E_{EN} \cdot E_{EX} \cdot CON$

1. The impact of any of the single factors, resp. entrants and exits role, the change of the TFP function is measured by its log-transformation (Sekkat 2010):

$$\log Y_t = a_0 + a_1 \cdot \log K_t + a_2 \cdot \log L_t + a_3 \cdot \log R_t + a_4 \cdot \log CON_t + a_5 \cdot E_{EN_t} + a_6 \cdot E_{EX_t} + \varepsilon$$

2. Further transformation could help understand the dynamic change of productivity function via the second derivate:

$$\begin{aligned} \ln \Delta Y \\ = \frac{\sum_{i \in C} \theta_{it-1} (y_{it-k} - \bar{Y}) + \sum_{i \in E} \theta_{it} (y_{it} - \bar{Y})}{\sum_{i \in C} \theta_{it} (y_{it} - \bar{Y}) - \sum_{i \in X} \theta_{it-k} (y_{it-k} - \bar{Y})} \end{aligned}$$

4. Analysis of Bulgarian case

The data used and represented in the analysis are given by the figures that aggregate micro data at mezzo (resp. Sectoral) level. The EUROSTAT database on SBS is the main source of data.

The main indicators are: value of sales, number of active (current) companies, number of start-ups, and number of closed companies. The figures for Bulgaria are provided for the period 2004-2013.

The database covers the following statistics available on the Eurostat website section SBS:

- Production value (P) (code "V12120"): this is defined as turnover, plus or minus the changes in stocks of finished products, work in progress, and goods and services purchased for resale, minus the purchases of goods and services for resale, plus capitalized production, plus other operating income (excluding subsidies).
- Number of economically-active companies (ACT) (code "V11910"): this determines the number of companies that are active in terms of employment of staff and/or turnover in the year of their creation and the following year/s.
- Number of entrants (EN) (code "V11920"): determines the number of start-up and covers mergers, acquisitions, separation, and restructuring of groups of companies.
- Number of exits (EX) (code "V11930"): determines the number of businesses that were not economically active in two consecutive years. To activate them in terms of economic activity is not recognized as their re-establishment.

The analysis is based on the consistent implementation of these steps that are given in the methodology, and the results represent the key moments explaining Formulae 4 and 5.

Step 1, identification of the dependency ratio between the dependent (production value) and its variables (business demography factors). (Table 1)

Table 1: Correlation parameters between demographic factors and the production function

| | | Y_t | y_t^C | y_{t-1}^C | y_t^E | y_{t-1}^X |
|-------------|---------------------|--------|---------|-------------|---------|-------------|
| Y_t | Pearson Correlation | 1,000 | ,964** | ,955** | ,829** | ,871** |
| | Sig. (2-tailed) | | 0,000 | 0,000 | 0,000 | 0,000 |
| y_t^C | Pearson Correlation | ,964** | 1,000 | ,988** | ,788** | ,902** |
| | Sig. (2-tailed) | 0,000 | | 0,000 | 0,000 | 0,000 |
| y_{t-1}^C | Pearson Correlation | ,955** | ,988** | 1,000 | ,777** | ,895** |
| | Sig. (2-tailed) | 0,000 | 0,000 | | 0,000 | 0,000 |
| y_t^E | Pearson Correlation | ,829** | ,788** | ,777** | 1,000 | ,717** |
| | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | | 0,000 |
| y_{t-1}^X | Pearson Correlation | ,871** | ,902** | ,895** | ,717** | 1,000 |

| | | | | | | |
|--|-----------------|-------|-------|-------|-------|--|
| | Sig. (2-tailed) | 0,000 | 0,000 | 0,000 | 0,000 | |
|--|-----------------|-------|-------|-------|-------|--|

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own calculations

The correlation test proves that all demographic parameters were significantly correlated with the dependent (resp. Production function). The degree of correlation is remarkably high (between 0.717 and 0.993), confirming the relationship between all production variables.

Step 2 is to estimate the dependency ratio between the effects of new start-up business and TFP. For the elucidation of these effects, two additional calculations are undertaken.

3. Calculating the influence of the surviving companies (y_{SRV}) and start-ups (y_{BRD}) on the production function:

$$\Delta Y_t = \sum_t y_{SRV} + \sum_t y_{BRD}$$

Where, $y_{SRV} = y_t^C + y_{t-1}^C$ and $y_{BRD} = y_t^E - y_{t-1}^X$

4. Calculating the expected effect of start-ups (\hat{y}_{BRD}) and exits (\hat{y}_{EX}) on the production function:

$$\ln \Delta Y_t = \frac{\sum_t \hat{y}_{BRD}}{\sum_t \hat{y}_{EX}}$$

Where, $\hat{y}_{BRD} = y_{t-1}^C + y_t^E$ and $\hat{y}_{EX} = y_t^C + y_{t-1}^X$

Table 2: Correlation coefficients of parametric correlation test the impact of new businesses on the production function

| | | ΔY_t | y_{SRV} | y_{BRD} | $\ln \Delta Y_t$ | \hat{y}_{BRD} | \hat{y}_{EX} |
|------------------|---------------------|---------------|-----------|-----------|------------------|-----------------|----------------|
| ΔY_t | Pearson Correlation | 1 | ,213** | -0,063 | | | |
| | Sig. (2-tailed) | | 0,009 | 0,451 | | | |
| y_{SRV} | Pearson Correlation | ,213** | 1 | -0,059 | | | |
| | Sig. (2-tailed) | 0,009 | | 0,477 | | | |
| y_{BRD} | Pearson Correlation | -0,063 | -0,059 | 1 | | | |
| | Sig. (2-tailed) | 0,451 | 0,477 | | | | |
| $\ln \Delta Y_t$ | Pearson Correlation | | | | 1 | ,582** | ,588** |
| | Sig. (2-tailed) | | | | | 0,000 | 0,000 |
| \hat{y}_{BRD} | Pearson Correlation | | | | ,582** | 1 | ,988** |
| | Sig. (2-tailed) | | | | 0,000 | | 0,000 |
| \hat{y}_{EX} | Pearson Correlation | | | | ,588** | ,988** | 1 |
| | Sig. (2-tailed) | | | | 0,000 | 0,000 | |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Own calculations

Data from table confirm two important theses:

- The role of newly established companies in the growth of production function is relatively weak, but is significant for its growth expressed in dynamics.
- Although the effect of start-ups on the production function is not important, the

important thing is that the degree of correlation is negative (-0.063).

Step 3 is to estimate the impact of demographic variables on the growth of TFP. A regression analysis is applied (Figure 1):

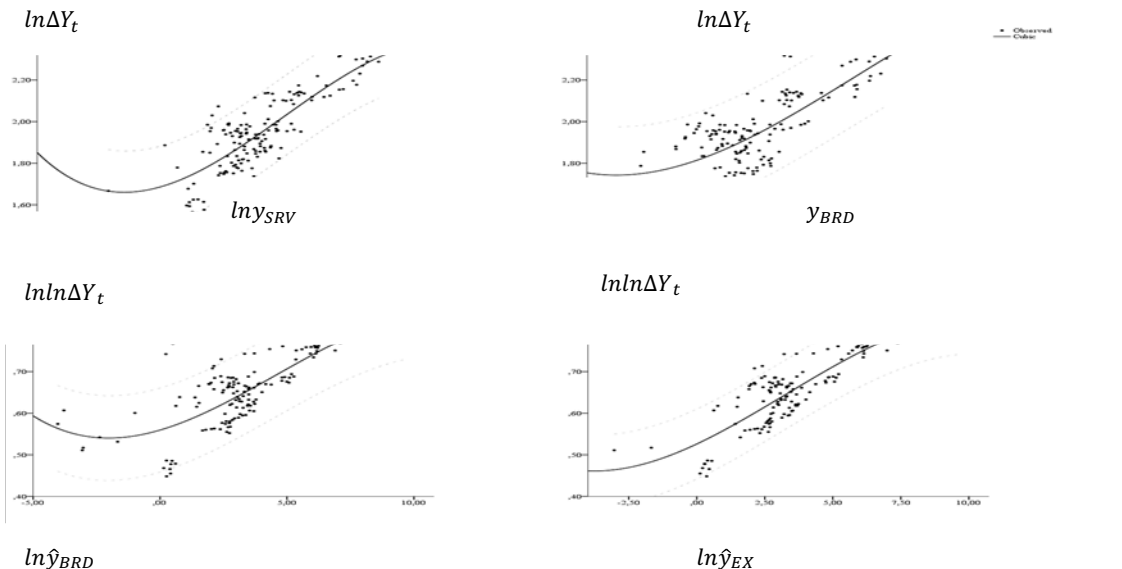


Figure 1. Graphic expression of cubic regression of change in the production function and demographic parameters

Data from Figure confirm that:

- The model explains the S-curve and introduces the need of start-ups to affect growth, additionally, there is a point after which the start-up business is not effective enough.

- The impact (effect) of start-up companies on growth is insufficient and this impact is lower than the effect of the survival and exits on growth.

Step 4, to find out the parameter estimates of the production function and its derivate, we use a two-stage least squares analysis as an extension of the OLS method (Figure 2):

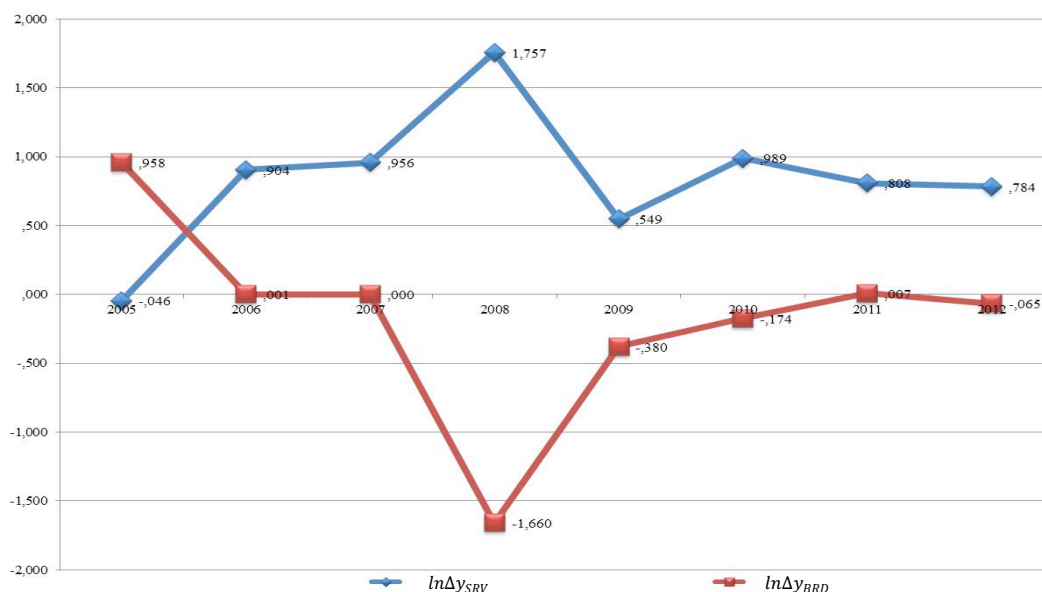


Figure 2. Annual change of the evaluated parameters of the business demographics that affect the production function

Figure 2 confirms that increasing the number of newly-established companies does not lead to significant industrial growth in Bulgaria; growth however is achieved due to an increase in the number and importance of existing companies.

Moreover, the contribution of new businesses to the growth of the production function is 5 to 10 times lower than the contribution of existing and already-established

companies. In addition, the number of exits negatively affects economic growth in Bulgaria for the analyzed period.

An additional conclusion is that the effect of start-ups is positive in the years of economic growth, and opposite - strongly negative - in the years of economic recession (2008-2010).

5. Conclusions

Finally, economic growth in Bulgaria, based on the establishment and development of high-tech start-up business should be based on the use of appropriate industrial policy. The main reasons are summarized in the next three paragraphs:

1. The importance of new businesses is undoubtable for Bulgarian economic growth. However, nowadays Bulgaria does not make best use of these opportunities. Problems, basically, are summarized as; a range of key constraints and barriers to the creation of businesses by innovative and creative people.
2. Considering the importance of new-established businesses, as well as the barriers to their creation, contemporary industrial policy could use a mix of measurements that offers finance and provide help to businesses in the form of advice and vocational training.
3. Industrial policy should not be standardized, but appropriate support of new start-ups should be provided by existing institutional and regional structure, and based on established science and production support.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Licence



References

- Aw BY, Chen X, Roberts MJ, 1997, Firm-level evidence on productivity differentials, turnover, and exports in Taiwanese manufacturing, NBER working paper 6235, October 1997
- Baily, M., C.Hulten, and D.Campbell, 1992, Productivity Dynamics in Manufacturing Plants, Brookings Papers on Economic Activity: Microeconomics, 187-249.
- Disney R, Haskel J, Heden Y (2003) Restructuring and productivity growth in UK manufacturing. *Econ J* 113(489):666–694
- Foster L, Haltiwanger J, Krizan C, 1998, Aggregate productivity growth: lessons from microeconomic evidence. NBER working paper 6803
- Griliches, Zvi, Haim Regev, 1995, Firm Productivity in Israeli Industry 1979-1988, *Journal of Econometrics*, Vol. 65, 175-203
- Hahn C., 2000, Entry, exit, and aggregate productivity growth: micro evidence on Korean manufacturing, Korea Development Institute, Seoul
- Kopeva D., N.Stereov, D.Blagoev, 2011, Industrial growth investment behavior and innovation in Bulgaria, *Journal of Regional and Business Studies*, Vol. 3 No1 (2011), Kaposvar, Hungary, pp. 683-697
- Kopeva D., N.Stereov, D.Blagoev, 2012, Industrial dynamics in Bulgaria – the connection between past and future: the case of food and beverage industry, *Review of Applied Socio-Economic Research*, Volume 3, Issue 1/2012, pp.113-121,
- Kopeva D., N.Stereov, D.Blagoev, 2013, INDUSTRIAL DYNAMICS OF FOOD AND BEVERAGE INDUSTRY (BULGARIAN EXAMPLE), *Review of Applied Socio-Economic Research*, Volume 5, Issue 1/2013, pp.121-129
- Ocampo A., 2005, The Quest for Dynamic efficiency: Structural Dynamics and Economic Growth in Developing Countries, World Bank
- Olley, G. S., and A. Pakes, 1996, The Dynamics of Productivity in the Telecommunications Equipment Industry, *Econometrica*, Vol. 64(6), 1263-1297, November 1996
- Pack H. and K. Saggi, 2003, The case for industrial policy: a critical survey, Working paper
- Scarpetta S, Phillip H, Thierry T, Jaejoon W, 2002, The role of policy and institutions for productivity and firm dynamics: evidence from micro and industry data, Working paper No. 329, Economics department, OECD
- Sekkat K. (edd.), 2010, Market Dynamics and Productivity in Developing Countries, International Development Research Centre, Springer Science+ Business Media, LLC 2010
- Solow, R.M., 1957, Technological change and the aggregate production function, *Review of Economics and Statistics*, Vol. 39, No. 3, pp. 312–320.