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The level of entrepreneurship and the business cycle: A case study of Poland at the national and regional level

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Abstract
At present, more attention is paid to the relationship between entrepreneurship and the phase of the business cycle. As there is a certain gap in the knowledge of this problem in Poland, it seemed important to verify the above relationship. The main purpose of this research was to diagnose dependences between the level of entrepreneurship and the business cycle phases on both the national and regional levels (NUTS 2). A correlation analysis was carried out using the entrepreneurship rate and the cyclical component of the real gross domestic product growth rate. The study covered the years 2005 t2018. The results of the analysis did not provide the ground for drawing unambiguous conclusions about the relationships between the analysed variables. However, there is a weak positive correlation on the national level and certain positive relationships also appear on the regional level.

Keywords: Business cycle, entrepreneurship, push and pull, Poland, self-employment;

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1. Introduction

The literature dedicated to this subject reveals diverse approaches to how entrepreneurship is explored and even understood. Regardless of the adopted nomenclature, because of its widespread influence on economic life areas, entrepreneurship is one of the key mechanisms in the socioeconomic development (Schumpeter, 1939; Acs and Audretsch, 1988; Acs et al., 2008). It is, therefore, essential to identify the reasons why a business activity is undertaken. Attempts to clarify these reasons on the ground of economic sciences have been made by Thunen, Alfred Marshall, Max Weber, Jean-Baptiste Say and others who have implicated different conditions stimulating the establishment of new companies.

For years, economists have been striving to diagnose the reasons why companies are set up at a given time and place. Nowadays, increasing attention is paid to the relationship between the level of entrepreneurship and the phase of the business cycle (Koellinger and Thurik, 2012; Aubry et al., 2015). Knowledge of how the level of entrepreneurship is shaped over a business cycle can provide the missing information on the impact of an economic situation on decisions about setting up a company. This aspect is particularly important in the light of fluctuations evoked by the financial crisis of 2007–2008 (Dobrescu et al., 2012) or the crisis due to the SARS-CoV-2 pandemic.

The motivation for starting a business by a potential entrepreneur can be of a pull or a push character, which depends on the current economic situation (Krasniqi, 2014). This is consistent with the assumptions of the theory of entrepreneurship, where at least two types of justification for the relations between a business cycle and the activity of entrepreneurs are implicated. One is the prosperity pull entrepreneurship theory, associated with the theory developed by Schumpeter, while the other one is the recession push entrepreneurship theory (Schumpeter, 1939; Payne & Mervar, 2017).

During the time of prosperity, one of the factors stimulating the level of entrepreneurship could be the occurrence of opportunities to start own, profitable businesses (Koellinger and Thurik, 2012; Krasniqi, 2014; Zwan et al., 2016). From their observations of positive economic impulses for example, an increase in consumer demand or changes in the PMI (Purchasing Managers Index), potential entrepreneurs evaluate opportunities to start and conduct own, profitable businesses as promising ones. This concept (entrepreneurial pull) is in accord with the theory of Schumpeter (1939), where it is maintained that entrepreneurship increases during a period of economic prosperity, while declining during an economic slowdown. This is a consequence of the emergence of ‘a creative entrepreneur’ and his imitators, greater innovation and better availability of bank credits (Shane & Venkatraman, 2000).

According to Schumpeter, the innovative activity of entrepreneurs is actually a cause of cyclical fluctuations. Developmental processes are triggered by innovations, which are a stimulus leading to changes, and this chain reaction is typical of a competitive capitalist society. Implementation of innovations, according to Schumpeter, equates with the establishment of new companies, which imitate the innovative enterprise, and this stimulates the socioeconomic development. The moment innovators and imitators, through the activities they carry out, force their competitors to start

modernisation and improvement in their business practice, the so-called creative destruction begins* (Schumpeter, 1939).

The recession push entrepreneurship theory assumes a more intensive development of companies during an economic slowdown. The causes are seen in the deteriorating situation of people, who are forced to start own businesses due to the unfavourable changes occurring on the labour market (Gaweł, 2007; Payne & Mervar, 2017). During an economic recession, the unemployment rate rises and the opportunities for finding work are limited, which inclines people to set up own businesses. They make a subjective evaluation of potential losses and gains, and decide that this is their best option to avoid negative consequences of the recession. Moreover, the alternative cost of starting own business during a recession is much lower than in a period of prosperity (Hamilton, 1989; Thurik et al., 2008; Piróg, 2016).

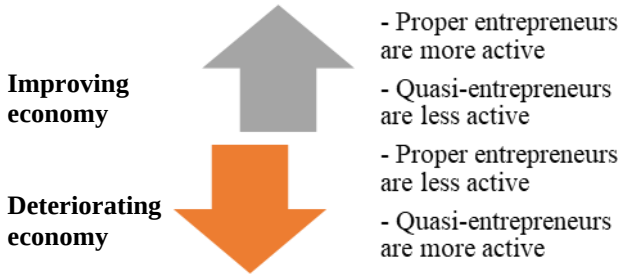


Figure 1. Changes in the activity of entrepreneurs during a time of improving and deteriorating economy

Source: The authors, based on (Krasniqi, 2014).

In this approach, self-employment changes counter-cyclically. It can, therefore, be concluded that the level of entrepreneurship increases faster during an economic downturn than during the period of expansion. The concept of the recession push toward being entrepreneurial stands in opposition to the assumptions of the theory of pull factors (Meager, 1992). The graph in Figure 1 illustrates changes in the entrepreneurial activity during a recession and prosperity.

The economic research completed so far has revealed both positive and negative correlations between a business cycle and the level of entrepreneurship (Zwan et al., 2016; Block and Sandner, 2009; Dawson and Henley, 2012; Stephan et al., 2015; Yu et al., 2013). Congregado and his team, through estimations of the cyclical component, proved that fluctuations in the economic situation in Spain had a permanent effect on entrepreneurship indices. No such relationship was determined for the US economy (Congregado et al., 2011). Furthermore, Koellinger and Thurik (2012), in a study covering 22 OECD countries, showed the presence of a dependence between the level of entrepreneurship and business cycle fluctuations on the global scale. They maintain that it is actually the activity of entrepreneurs that are a cause of both changes in business cycles and the economic development. Different conclusions were drawn from their research by the team of Aubry et al.

* This is a stage where some companies, unable to face the challenge of new market circumstances, declare insolvency, which is the earliest implication of a future economic slowdown

(2015). Based on the analysis of relationships between gross domestic product (GDP) fluctuations and the index referring to the number of new companies in regions of France, they showed no correlation between these variables in the long-term perspective.

Divergent results may have been due to differences in the methods applied in these studies, including a different choice of economies covered by a study or time periods submitted to analysis. Noteworthy, the vast majority of the empirical studies that verified the presence of a correlation focused on the variable connected with unemployment as the one that determines the level of entrepreneurship (Baptista et al., 2006; Dilanchiev, 2014; Cueto et al., 2015; Payne & Mervar, 2017). However, as Aubry et al. (2015) indicated, it is necessary to apply time series methods, also to a business cycle, to identify the true character of this problem. An analysis of the level of entrepreneurship in this approach included the verification of the motivation for starting a business activity (Aubry et al., 2015). Furthermore, as underlined by Payne and Mervar, special attention should be drawn to the phases of a business cycle because this could be a significant implication for policy-makers in terms of designing an economic policy and supporting entrepreneurial activities (Payne & Mervar, 2017).

The results of the studies conducted so far show that the two theories do not need to exclude each other, and the level of entrepreneurship is a product of negative and positive changes in the socioeconomic circumstances (Gilad and Levine, 1986; Gaweł, 2007). Because there is a certain gap in the knowledge about the connection between entrepreneurship and business cycle phases in the countries which have relatively recently accomplished the socioeconomic transformation for example, in Poland, it is pertinent to shed light on this issue. It is especially important to diagnose the relationship not only in the national context but also on a regional level, which – according to Audretsch (2007) – is the most suitable dimension for studies on entrepreneurship. It is a common knowledge that regions attain different levels of entrepreneurship, and these differences can persist for a long time (Aubry et al., 2015). The Polish regions are characterised by significantly diverse economic structures, which relate to their historic past as well as geographical and cultural differences. This has far-reaching consequences in many spheres of life, including the economic activity of entrepreneurs.

2. Research objective and methods

The main aim of the study was to identify relationships between the level of entrepreneurship and the business cycle in Poland, both on the national and regional levels, in 2005–2018. The regional analysis was carried out according to the NUTS 2 class, as this is the most popular classification category used in research. Moreover, it is the level that bears much importance for a regional policy. Another advantage of the NUTS 2 classification is that it corresponds to the Polish provinces that is, the higher tier in the country's administrative division, which are the most common object of analysis both in Poland and abroad.

The first stage in the study was to determine the level of entrepreneurship in the whole country and in 16 provinces. To this end, we employed the entrepreneurship rate expressed as the number of natural persons registered as nascent entrepreneurs in the National Business Registry (REGON) per 10,000 residents, calculated from the equation:

$$W_p = \frac{P}{L} * 10000$$

where:

P – number of natural persons registered for the 1st time in the National Business Register (REGON),

L – number of the population.

The second stage was to identify business cycle fluctuations in Poland, based on data defining the GDP, which is a variable that expresses most synthetically the economic activity. The research employed the concept of growth cycles consisting of an analysis of changes in the rate of growth of a given indicator. This method enables one to identify cyclic fluctuations even when the economy goes through a long period of consistent growth (Warżała, 2016), which was the case in Poland during the time period analysed.

The raw time series taken for the study was the quarterly dynamics of real GDP (percentage change compared to same period in previous year), according to the Eurostat data, liberated from seasonal or incidental fluctuations, whose presence could have otherwise distorted the correct identification of the cyclical component. To this purpose, the TRAMO/SEATS procedure, recommended by Eurostat, was applied (Kufel, 2013; Gomez & Maravall, 2001). Next, the cyclical component from the time series submitted to deseasonalisation was distinguished with the help of the Christiano-Fitzgerald's filter (CHF)[*].

The final stage of the research was composed of an analysis of the level of entrepreneurship in Poland and in the 16 Polish provinces during the analysed economic cycle. An assumption was made that potential entrepreneurs evaluate the overall economic situation in the country rather than on the regional market. To achieve this, the Pearson's simple correlation coefficients were estimated. Because of the limited frequency of statistical data regarding the number of new natural persons registering business activity, the coefficients were computed for half-year data (the neighbouring quarterly data regarding the cyclical component were averaged). The values thus obtained were supplemented with a graphical analysis.

3. The research results

This research was based on an analysis of changes in the cyclical component of the real GDP growth rate of Poland alongside the value of the entrepreneurship rate (Figure 2). The value of the correlation between the two variables in the whole analysed period was 0.25, which to some extent confirms the pull entrepreneurship theory because the level of entrepreneurship increased during the increasing prosperity in the business cycle, while decreasing when the economic growth slowed down. The

[*] The time series was subjected to the unit root KPSS test. The results proved that there was no ground for discarding the zero hypothesis of the stationarity of the analysed series, which is why the average-corrected filter was used in the study.

power of this relationship, however, should be viewed as weak. Moreover, the relationship seems to be stronger in the 1st years of the analysed period.

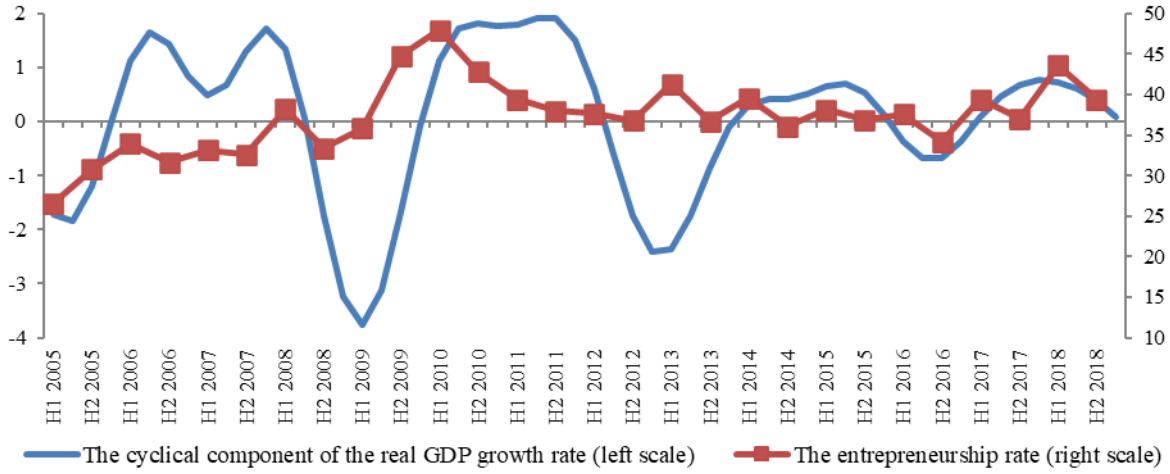


Figure 2. The cyclical component of the real GDP growth rate of Poland alongside the value of the entrepreneurship level in 2005–2018

Source: The authors, based on data from the (Eurostat, 2019; Local Data Bank, Statistics Poland, 2019).

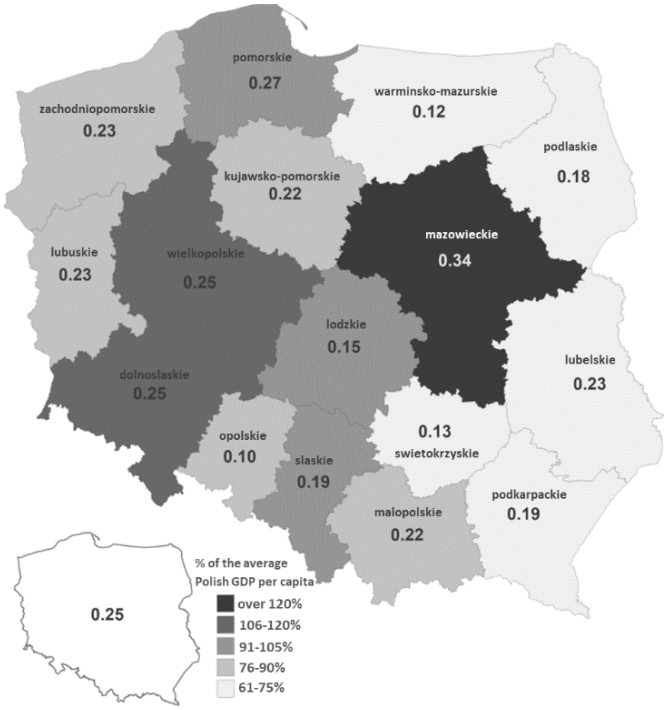
Until 2006, the level of entrepreneurship had increased alongside the increasing dynamics of the GDP growth, after which it remained on a relatively stable level despite the observed fluctuations in the economic cycle (a slight increase occurred as late as the first half-year of 2008). The financial crisis, which in Poland significantly decelerated the economic growth since the second quarter of 2008, also led to a decline in entrepreneurship in the whole country in the second half of that year. As the economic situation began to improve (second quarter of 2009), the entrepreneurship rate also took off. It is worth underlining that Poland did not experience the so-called technical recession that is, an absolute decrease in real GDP lasting for at least two consecutive quarters of a year. Many economists maintain that the factor which prevented it was the high internal demand in conjunction with the demand for Polish products abroad (mainly in Germany, in addition stimulated by the depreciation of PLN relative to EUR), which could have stimulated the rate of entrepreneurship in Poland. In the subsequent years, however, despite the relatively favourable economic situation (2Q2010–3Q2011), the entrepreneurship rate began to fall dramatically. This may testify to the fact that 'the green island' as Poland was 'announced' to be at that time was a myth. Other macroeconomic indicators seemed to reveal similar tendencies in this regard to the one plotted for the entrepreneurship level and proved that the economic situation was poor (e.g., the unemployment rate was increasing and reached 13% in 2010, while the dynamic of industrial production was negative). In this approach, although the plotted diagram implicates a counter-cyclical shaping of the level of entrepreneurship (an element of the theory of the recession push toward entrepreneurship), in reality the unfavourable economic situation in Poland did not stimulate any growth in the level of entrepreneurship.

In the following years, until the end of the time period analysed, the graphic analysis does not

implicate any relationship, even a weak one, between the variables. This is confirmed by values of partial correlation coefficients. The correlation coefficient for the time period of 1Q2005–4Q2012 was 0.30, decreasing to –0.04 for the period of 1Q2013–4Q2018. Thus, it is impossible to maintain that there was any relationship in the latter time period[*]. It is worth emphasising that the amplitude of fluctuations in the business cycle observed in the second part of the analysed time period was much lower. Entrepreneurs might have perceived the economic situation in the country as more stable, which restrained more intensive changes in the entrepreneurship rate.

In addition to making an analysis of trends in the entrepreneurship level during a business cycle, the problem was approached from the regional perspective. Specific characteristics of a region may result in differences in how entrepreneurship develops. Figure 3 contains correlation coefficients for 16 provinces in Poland, estimated in the same way as for the entire country.

The correlation coefficient values were positive in all the provinces. With respect to the power of this correlation, certain differences can be noticed. The strongest correlation between the entrepreneurship level and business cycle phase is noted in the *Mazowieckie* Province. In this case, it is justified to refer to it as a moderately strong relationship. This region makes the greatest contribution to the Polish GDP and is the socioeconomically most highly developed part of Poland. The distance between the *Mazowieckie* Province and the second highest scoring province (*Pomorskie*) is also the biggest in the whole set (0.07).



[*] The distinguished research subperiods coincide with the onset of a new business cycle in Poland in 1Q2013. The turning points in the cycles were identified with the help of the Bry-Boschan procedure, in the BUSY software application. It was assumed that a phase in an economic cycle should last for at least two quarters of a year and the entire cycle – at least six quarters.

Figure 3. The correlation coefficient between the entrepreneurship rate and business cycle in Poland in 2005–2018

Source: The authors based on data from the (Eurostat, 2019; Local Data Bank, Statistics Poland, 2019).

Our effort to classify the Polish provinces and distinguish certain groups in terms of values of the correlation coefficient and GDP p.c. (as % of whole country) did not yield unequivocal results. Provinces with relatively higher GDP p.c. where large urban agglomerations are pivotal to creating the power of regional economies (*dolnoslaskie, wielkopolskie, zachodniopomorskie, pomorskie, malopolskie, slaskie and lodzkie*) are characterised by different values of the correlation coefficient (from 0.15 in *lodzkie* to 0.27 in *pomorskie*). Although the regions in the so-called eastern Poland (*warminsko-mazurskie, podlaskie, lubelskie, swietokrzyskie, podkarpackie*), which are among the least developed areas in Poland and in the European Union (Marks-Bielska & Opalach, 2019), tend to have the lower correlation coefficients, but this is not a rule. For instance, the *Lubelskie* Province achieved the same value of the correlation coefficient as the *Zachodniopomorskie* Province. Moreover, comparing the provinces in a decreasing approach due to the values of the correlation coefficient, it can be noticed that the differences between the neighbouring regions do not exceed 0.03, and most often amount to 0.01. Therefore, it cannot be concluded that there is a simple relationship between the broadly understood economic development (expressed in GDP p.c.) of a given region and the phenomenon studied in this study.

The factors which can have a significant influence on the relationship between the business cycle phase and entrepreneurship include the structure of the GDP, specialisation in the economy of a given region, housing conditions, level of urbanisation and education of the population. Not without significance is also the diversified level of innovativeness of Polish regions, which are the result of different activity of areas in obtaining funding for innovative projects (Markowski, 2017). In addition, the regional policy can provide financial support to newly established companies. Verification of the influence of all these conditions surpasses the framework set for this paper. In this context, this study can be a starting point for further analyses into the relationships between the business cycle phases and the level of entrepreneurship.

4. Conclusions

The reported research did not provide the ground for unambiguous conclusions regarding the correlations between a business cycle and entrepreneurship. On the national level, there is a weak positive correlation, which to some extent supports the theory of prosperity pull entrepreneurship. However, this correlation grew much weaker with time. Certain positive correlations were also determined on the regional level. Nonetheless, a moderately strong correlation was determined only in the case of the *Mazowieckie* Province. In the other regions, this correlation was either weak or even faint. It is, therefore, impossible to conclude that there is a simple dependence between the business cycle phase and the level of entrepreneurship on a regional or national level. Thus, it seems that the research reported above could be a starting point for further analyses.

It is worth emphasising that the observed relations between the course of an economic cycle in Poland

and the level of entrepreneurship may change in the face of the current crisis caused by the SARS-CoV-2 pandemic. This crisis is explicitly unique, and the current circumstances may lend themselves to supporting the recession push entrepreneurship theory. Many people who have lost jobs can make a subjective evaluation of their situation and arrive at the conclusion that self-employment could be a safer form of their presence on the labour market in the future if a similar situation was to occur. In Poland, this is particularly true about people who are employed under civil law contracts, which do not guarantee stable employment. It should also be highlighted that the present economic situation in Poland is an unprecedented one as this is the 1st time since the state and economic transformation (launched in 1989) that an absolute decrease in the GDP value on the annual basis will be recorded (the country will go into a recession). This fact can also have affected the problem explored in our study.

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