



Article

Development of Entrepreneurial Activity in the Czech Republic over the Years 2005–2017

Ondřej Dvouletý

Department of Entrepreneurship, University of Economics, W. Churchill Sq. 1938/4, 130 67 Prague 3, Czech Republic; ondrej.dvoulety@vse.cz; Tel.: +420-224098-753

Received: 24 May 2019; Accepted: 25 June 2019; Published: 26 June 2019



Abstract: Although there is a rich debate about entrepreneurship and its impact on economic development, much less is known about the actual levels of entrepreneurial activity. The main aim of the article is, thus, to map the level of entrepreneurial activity in the Czech Republic, its structure, and development during the years 2005–2017. The study is based on the secondary data obtained from national structural business statistics, the Global Entrepreneurship Monitor, and the Labour Force Survey. The average rate of entrepreneurial activity in the Czech Republic was 15.2% of the economically active population aged 15–64 years during the analysed period. The activity is dominated by solo-self-employed workers (own-account workers). Job creators represent only 3.2% of the economically active population. Patterns and cohorts of entrepreneurs were identified regarding gender, age, and education. There were 2.5 times more self-employed males compared to females for the past years, and the proportion of job creators is also higher for males. The Czech job creators are on average older (mostly represented in age cohort 40–49 years) compared to solo-self-employed (mainly represented in age cohort 35–44 years) and they have obtained tertiary education to a larger extent. Classification and monitoring of the Czech entrepreneurial activity might serve as an overview for Czech policymakers and regional scholars. Especially from a job creation perspective, it might be very relevant to understand the characteristics of those individuals who employ other workers, aside from themselves. From an international perspective, this study might serve as an inspiration to shed more light on the national levels of entrepreneurship and self-employment.

Keywords: entrepreneurial activity; measuring entrepreneurship; labour force survey; self-employment rate; classification of entrepreneurs; Czech Republic

JEL Classification: M2; M1; L260

1. Introduction

Policymakers, researchers, and scholars often talk about the positive impact of entrepreneurship on the economic development of countries, regions, and cities. There is empirical evidence that the growth of entrepreneurial activity is associated with the economic growth of particular countries. Nevertheless, this relationship might differ over time and across countries, as many scholars have pointed out [1–7].

The positive influence of entrepreneurship on economic growth is described in the concept of entrepreneurship capital that has been described in the article written by Audretsch and Keilbach [8]. Audretsch and Keilbach [8] explain that entrepreneurship capital (operationalised as formation of new businesses) mobilises the mechanism of the creation of new knowledge, innovation spillover, and increases competition and diversity through the establishment of new business activity [5]. The concept of entrepreneurship capital historically relates back to Joseph Alois Schumpeter [9], whose

emphasis on innovation activity and the process of creative destruction are still being highlighted in entrepreneurship and innovation management literature nowadays [10–13].

While mentioning the link between innovation and entrepreneurship we need to also describe the concept of open innovation that is currently getting more attention among stakeholders [14–18]. Open innovation may, according to scholars [19,20], substantially speed-up business growth and scaling-up. Open innovation enables business growth through the exploitation of ideas from external sources, while keeping doors open for internal, innovative solutions [21,22].

The mainstream entrepreneurship literature distinguishes between Kirznerian and Schumpeterian entrepreneurship. Schumpeterian entrepreneurs are presumed to be more ambitious; they create new opportunities mainly through new (and revolutionary) innovations, compared to Kirznerian entrepreneurs, who mostly discover and exploit existing opportunities by combining existing resources and solutions. However, it is assumed that both types of entrepreneurs contribute positively to society no matter if they bring to the market Kirznerian or Schumpeterian business ideas. Nevertheless, it is essential to note that their contribution to economic development and employment might substantially differ, and therefore we need to find ways to distinguish between different kinds of entrepreneurs in the empirical world, and to see what their actual impact on economic development is [23–25].

As the assumption of the positive impact of entrepreneurship on economic growth is based mainly on findings from developed countries, it is crucial to explore entrepreneurship in other countries that have not been studied before, as recommended by Davidsson [26,27], and to see whether the traditional patterns described in entrepreneurship literature are valid or not. Such an example might be countries of the former Soviet Union that experienced the process of economic transition during the early 1990s [28–39].

Cieřlik and Van Stel [33] further explain that the former soviet socialist regime might have influenced current behaviour of economic agents (employees, entrepreneurs) in the society, and thus there might be different patterns of economic (and entrepreneurial) behaviour compared to those observed in developed countries.

The particular interest in this study is focused on the Czech Republic as an example of a post-communist economy. The country is a small open economy located in the heart of Europe with a long-term tradition of entrepreneurship [40–44].

Lukeř [44] names famous entrepreneurs in the history of the country, such as Tomáš Baťa, the founder of Baťa shoes company, Emil Škoda, the founder of Škoda works company that was a predecessor of today's Škoda Auto (cars) and Škoda Transportation corporations (trams and trains), and Emil Kolben, an entrepreneur and engineer who co-owned a large electrotechnics and engineering company named ČKD [45].

The process of economic transformation boosted entrepreneurship in the country, and the activity has been growing since the early 1990s [44,46–48]. Dvouletý [49] has attempted to quantify the impact of entrepreneurial activity on regional economic growth in the Czech Republic. He studied this relationship empirically with the help of multivariate regression models during the years 2003–2015. While using data for the newly registered business activity, he found a positive impact of the rate of newly established business companies on the real Gross Domestic Product (GDP) per capita. However, Dvouletý [49] was not able to find a positive impact on the real GDP per capita for the rate of new self-employed set-ups. Nevertheless, the increase in both forms of newly established business activity was associated with lower unemployment rates in the Czech regions [49].

Such an observation leads to the conclusion that not all kinds of entrepreneurship and self-employment are equal in their contributions to economic development, as already mentioned earlier in the text, and thus it is essential to also study the structure and different types of entrepreneurial activity [25]. Moreover, it has been discussed by scholars [50,51] that registered business activity does not always adequately reflect the actual levels of entrepreneurship and self-employment due to several measurement errors, and thus it is better to use more measures to reveal the state and structure of the entrepreneurial activity.

The presented article aims to contribute to this debate by exploring the recent trends in the development of entrepreneurial activity in the Czech Republic. The main aim of the study is to describe the latest trends in the development of the Czech entrepreneurial activity in the context of the data obtained from the Labour Force Survey, which is the most extensive European survey among private households and individuals related to the labour market [52]. The article aims to explore the main characteristics of the Czech entrepreneurs and to identify cohorts and patterns in the Czech entrepreneurial activity over the years 2005–2017. The article answers relatively simple but important questions:

1. What is the actual level of entrepreneurship in the Czech Republic?
2. What kind of people are engaged in self-employment?

We believe that such a piece of information might be relevant for both the Czech policymakers and the regional entrepreneurship scholars. Moreover, the article offers a methodological approach that might be used by other scholars, aiming to better understand the levels of entrepreneurship and self-employment in their countries and regions. It is also worth mentioning that a combination of country-level data with demographic and other characteristics of entrepreneurs is not that common in the current literature nowadays. Thus, the approach presented in this paper might be considered as quite novel, as it makes a distinction between different kinds of self-employed individuals at the national level.

In addition, please note that in this article, we follow Blanchflower and Oswald [53], and we use the terms self-employment and entrepreneurship interchangeably as the most crucial goal of the paper is to explore different types of self-employed workers and entrepreneurs and not to discuss the interchangeability of these two words.

The rest of the article is organised traditionally. First, we discuss different approaches on how to measure entrepreneurship. After that, we utilise data from existing surveys and databases and describe the entrepreneurial activity in the Czech Republic. The third section then aims to explore patterns in the national entrepreneurial activity with a focus on the role of classical drivers of self-employment, such as gender, age, and education. The final section concludes the article and provides recommendations for future research.

2. Measuring Entrepreneurship

There are basically two main approaches towards measuring entrepreneurship and self-employment, and they have been reviewed several times by various scholars in the past [50,51,54–56].

The first approach relies on the data obtained from the national structural business statistics, and the second one is based on data collected from representative population surveys, such as the Global Entrepreneurship Monitor (GEM) and Labour Force Survey (LFS). There are pros and cons of each of these two approaches. Data from the official statistics describes the actual number of registered businesses. However, they do not include data on nascent entrepreneurs, and they might contain information about enterprises that no longer exist but are still officially designated as active. Moreover, these data often lack information about the business owners, and thus, it is difficult to calculate the population ratios of engagement in entrepreneurship. Researchers usually express the registered business activity per economically active population (15–64 years). Contrary to the official statistics, data from representative surveys cover individual data, so we may answer a question related to the level of entrepreneurial activity that is operationalised as a share of self-employed workers per economically active population. However, these data are limited by the sample size of the survey. The smaller the size of the representative survey, the more problematic the extrapolation of the data on the actual population of entrepreneurs [50,51,54,55].

In this paper we aim to utilise both types of measures. However, we primarily rely on the data from population surveys as they allow us to learn more about different kinds of entrepreneurs operating in the Czech economy.

3. Entrepreneurial Activity in the Czech Republic

The Czech business activity can be mainly characterised by small and medium-sized enterprises (SMEs) that represent the backbone of the Czech economy [42,44,57–63]. According to the Czech Ministry of Industry and Trade [64], there were 1,152,203 active enterprises in 2017, out of which 1,150,302 were SMEs, which corresponds to 99.8% of all active businesses in the country. Bařtová et al. [65] and Dvouletý and Mareš [66] further demonstrated that the highest density of registered businesses (self-employed individuals and business companies) can be found in the capital Prague, which is expected as the capital is the economic and political centre of the country. Other regional scholars [67–72] have highlighted the differences between engagement in entrepreneurship and self-employment across the Czech regions, and they further point out that the activity is most densely concentrated around larger towns and cities. It is also well known that the Czech business activity consists mainly of self-employed individuals [73,74]. For example, out of 1,150,302 active SMEs in 2017 in the country, 876,957 (76%) SMEs were officially registered as self-employed individuals and 273,245 as legal entities, i.e., business companies [64].

Nevertheless, registered business activity does not inform us about the engagement of the Czech population in entrepreneurship and self-employment. Therefore, we exploit information from the available surveys to get a deeper insight into this issue.

The Global Entrepreneurship Monitor (GEM) study [75] was conducted for the Czech Republic in 2006, 2011, and 2013 by Martin Lukeš and his team [44] (see Lukeš et al. [76] for a study on factors influencing entrepreneurial entry based on GEM data).

We use the two most common GEM measures—established business ownership rate (EBOR) and total early-stage entrepreneurial activity (TEA)—to obtain rough information about the overall GEM level of entrepreneurship in the country. According to these data, the activity ranged from 13.3% of the population aged 18–64 years in 2006 to 12.6% of people aged 18–64 in 2013. As more data from GEM are not currently available, we focus in our description on the data from the largest European survey among private households and individuals related to the labour market—the Labour Force Survey (LFS) [52]. Contrary to the GEM, which is based on responses from at least 1000 individuals, the LFS in the Czech Republic was historically based on at least on 11,320 responses, which was the lowest number of responses obtained in 2009. However, in 2016, for example, the survey was based on responses from 41,455 individuals, which is much more than in the GEM study [77].

Once we have combined data from Eurostat [78–80] on the economically active population aged 15–64 years and self-employment engagement (both in thousands), we may calculate time-series of self-employment rates (in percentages) in the Czech Republic over the past years, starting from 2005 and ending in 2017. By following the time period starting from the year 2005 onwards, we can monitor the development of self-employment after the Czech Republic's accession to the European Union in 2004. A significant advantage of LFS is also an allowance of the crucial distinction between those self-employed workers who have employees (job creators) and those entrepreneurs who work alone (own-account workers). This is particularly important, especially from the perspective of policy makers, as job creators contribute mainly to economic growth [81,82]. The development of entrepreneurial activity over the years 2005–2017 is shown in Figure 1, which depicts the following three rates of entrepreneurship calculated from LFS: (I) overall entrepreneurship rate; (II) rate of own-account workers (solo-self-employed); and (III) rate of job creators (self-employed with employees).

The overall entrepreneurship rate was relatively stable for the past years, although there is an evident increase in 2017 compared to 2005. The average rate of entrepreneurial activity in the Czech Republic was 15.2%, which is not far from 13.3% indicated by the GEM survey. Compared to the European average, the activity is above the average for the 28 European Union countries (13%), and it is also higher compared to neighbouring Slovakia (12.8%) and Hungary (10.3%), but slightly below Poland (16.6%).

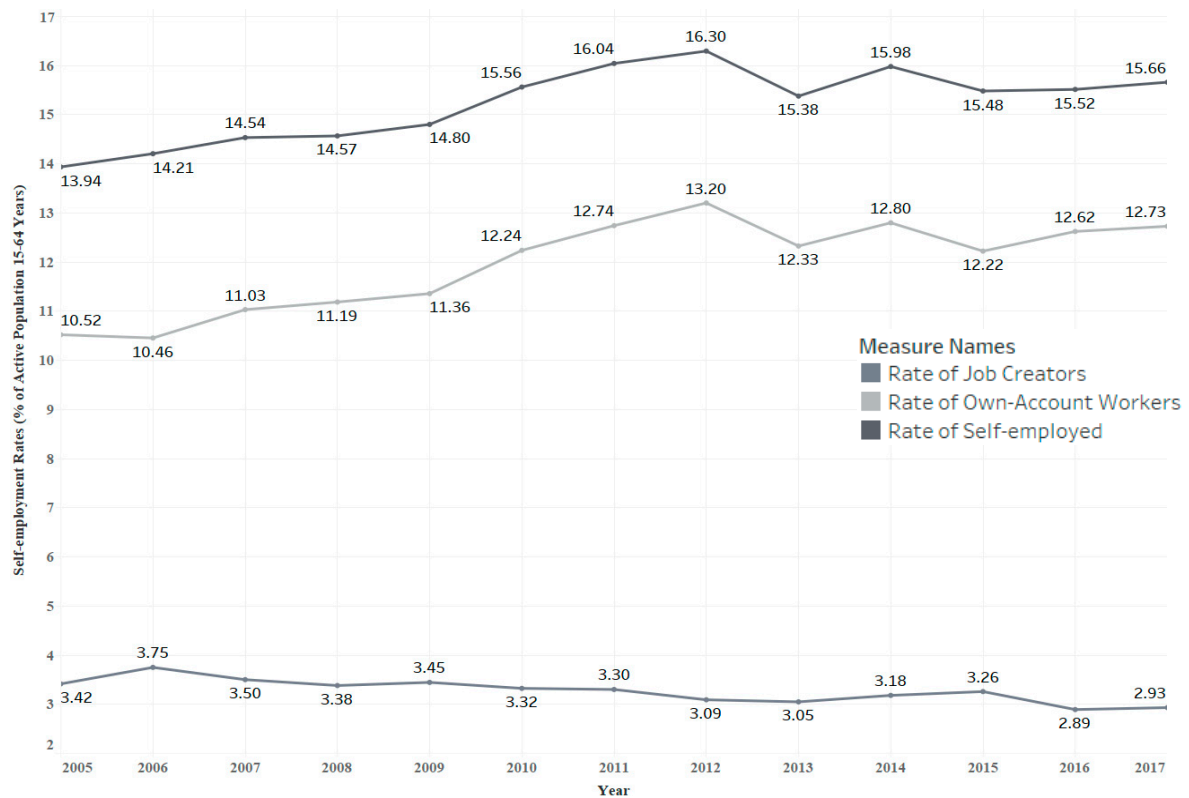


Figure 1. Development of Entrepreneurial Activity in the Czech Republic during the period 2005–2017 (Entrepreneurial Activity is calculated as % of population aged 15–64). Source: Own elaboration based on Eurostat [78–80] data.

The entrepreneurial activity is dominated by solo-self-employed workers (own-account workers), who represent on average 12% of the economically active population, compared to the relatively small share of job creators, who represent only 3.2% of the economically active population. The growth of entrepreneurial activity was mainly driven by the growth of solo-self-employment, which reached 12.7% in 2017 (the job creators’ rate was 2.9% in 2017). Extrapolation of these data shows that in 2017 in the Czech Republic there were 668,100 individuals engaged in solo-self-employment and 153,900 individuals who employed at least one other employee in addition to themselves.

4. Cohorts of Entrepreneurs

The Labour Force Survey (LFS) also allows exploration of the demographic patterns in the overall entrepreneurial activity. We build on the existing literature dedicated to the individual drivers of entrepreneurship and self-employment [83], and we focus especially on the differences between job creators and solo-self-employed individuals [84]. Particularly, we build on the recently published study by Dvouletý [82], who found significant differences across these two groups in Europe based on the data obtained from the three waves of the European Survey on Working Conditions (2005, 2010, and 2015). Dvouletý [82] found in his work that job creators, as compared to solo-self-employed workers, are most often middle-aged men who have more experience and who have attained higher levels of education. Nevertheless, as the study was focused on the whole of Europe, we cannot say if the identified patterns would also hold for the Czech Republic separately. Moreover, the presented analysis is based on a larger sample (i.e., LFS) compared to the study by Dvouletý [82].

Given the data availability of LFS, we aim to identify patterns across job creators and solo-self-employed workers in the Czech Republic relating to gender, age, and education, accounting for the limitation that there are also other identified determinants of self-employment.

The Chi-square test of association, Cramer’s V (Table 1; Table 3), and correlation coefficients (Table 2) accompany the identification of categories. The following comparisons are based on the data representing average values of years 2005–2017, which helps us to map long-term patterns in the Czech entrepreneurial activity. Please note that there are some differences in the number of observations, as not all respondents answered the categorical variables, such as gender, age, and education, which are the subject of analysis in this section. All data presented in the tables are based on official Eurostat [78–80] statistics.

Table 1. Association between gender and type of self-employment (age range 15–64 years; absolute numbers and row percentage shares in brackets).

Gender/Type of Self-Employment	Solo-Self-Employed	Job Creators	Total Self-Employed
Females	190,177 (83.4%)	37,908 (16.6%)	228,085 (100%)
Males	429,723 (76.6%)	131,546 (23.4%)	561,269 (100%)
Total Self-employed	619,900 (78.5%)	169,454 (21.5%)	789,354 (100%)

Test of association, Chi-Square = 4470.6; p-value < 0.000; Cramer’s V = 0.08

Source: Own elaboration based on Eurostat [78–80] data.

Table 2. Association between age and type of self-employment (age range 15–64 years; absolute numbers and column percentage shares in brackets).

Age Category /Type of Self-Employment	Solo-Self-Employed	Job Creators	Total Self-Employed
Age (15–24)	21,346 (3.4%)	1431 (0.8%)	22,777 (2.9%)
Age (25–29)	53,169 (8.6%)	6500 (3.8%)	59,669 (7.6%)
Age (30–34)	79,892 (12.7%)	16,085 (9.5%)	94,977 (12.0%)
Age (35–39)	98,154 (15.9%)	26,108 (15.4%)	124,262 (15.8%)
Age (40–44)	95,392 (15.4%)	28,862 (17.0%)	124,254 (15.8%)
Age (45–49)	87,877 (14.2%)	29,392 (17.4%)	117,269 (14.9%)
Age (50–54)	82,031 (13.3%)	26,492 (15.7%)	108,523 (13.8%)
Age (55–59)	66,131 (10.7%)	22,062 (13.0%)	88,193 (11.2%)
Age (60–64)	35,908 (5.8%)	12,577 (7.4%)	48,485 (6.0%)
Total Self-employed	618,900 (100%)	169,509 (100%)	788,409 (100%)

Correlation coefficients: Age category X Solo-self-employed = 0.2; Age category X Job creators = 0.5

Source: Own elaboration based on Eurostat [78–80] data.

The results presented in Tables 1–3 are generally in-line with the literature on determinants of self-employment [83]. Table 1 shows us that for the past decade there have been roughly 2.5 times more self-employed males compared to females. Females are also proportionally less represented in the group of job creators (Chi-Square’s p-value < 0.000; Cramer’s V = 0.08). Further, 23.4% of self-employed men employ at least one employee, whereas among females the proportion is lower at 16.6%.

Table 2 shows that there is an association between the age cohort and the number of self-employed individuals. When it comes to solo-self-employed workers, the lowest proportion of individuals (3.4%) is 15–24 years old, followed by the age category of 60–64 years (5.8%). The highest share of solo-self-employed workers is aged between 35–39 (15.9%) and 40–44 (15.4%) years. Additionally, one can say that solo-self-employed workers are distributed across age cohorts relatively proportionally. A stronger relationship may be found in the group of job creators (correlation coefficient = 0.5), where there are more significant differences. Age categories 15–24 (0.8%) and 25–29 (3.8%) years show the lowest proportions of individuals creating jobs, contrary to age categories of 40–44 (17.0%) and 45–49

(17.4%) years, which are the most represented. This information demonstrates that Czech job creators are, on average, elder individuals compared to solo-self-employed workers.

Building on the previous findings, we may explore the educational differences between both types of self-employed workers in Table 3 (Chi-Square’s p-value < 0.000; Cramer’s V = 0.12). Czech entrepreneurs have attained a mostly secondary level of education (77.9% for solo-self-employed and 67.4% for job creators). However, we may observe that there is a larger proportion of job creators who have obtained tertiary education (31%) compared to solo-self-employed workers (19.3%).

Table 3. Association between education level and type of self-employment (age range 15–64 years; absolute numbers and column percentage shares in brackets).

Education/Type of Self-Employment	Solo-Self-Employed	Job Creators	Total Self-Employed
Less than Primary and primary (ISCED 2011 0–2)	17,293 (2.8%)	2762 (1.6%)	20,000 (2.6%)
Upper Secondary and post-secondary non-tertiary (ISCED 2011 3–4)	482,692 (77.9%)	114,215 (67.4%)	596,907 (75.6%)
Tertiary (ISCED 2011 5–8)	119,831 (19.3%)	52,454 (31%)	172,285 (21.8%)
Total Self-employed	619,761 (100%)	169,431 (100%)	789,192 (100%)
Test of association, Chi-Square = 10,869.8; p-value < 0.000; Cramer’s V = 0.12			

Source: Own elaboration based on Eurostat [78–80] data.

5. Discussion and Conclusions

Scholars and researchers call for more empirical evidence from countries that have not yet received much attention in the literature [26,27]. At the same time, there is a trend of narrowing down the level of analysis from cross-country studies to national ones. Moreover, public discussions about the entrepreneurship phenomena sound sometimes like a “black box”, where we cannot even imagine the real numbers of the entrepreneurship population doing business in the economy. Through this article, we respond to this issue, and we shed more light on this “black box” of entrepreneurship. We present information about the development of entrepreneurial activity in the Czech Republic as an example of a post-communist economy that experienced the process of economic transformation in the early 1990s. We contribute to the regional body of knowledge on the levels of entrepreneurship and self-employment as an up-to-date study, providing that such an overview in the country is still missing.

The article provides information about the level of entrepreneurial activity in the Czech Republic, its structure, and development during years 2005–2017. The article is based on the secondary data obtained from national structural business statistics, the Global Entrepreneurship Monitor (GEM), and the Labour Force Survey (LFS). The overall entrepreneurship rate, according to LFS, was relatively stable in recent years, and the average rate of entrepreneurial activity in the Czech Republic was 15.2% of the economically active population aged 15–64 years. That is slightly more than reported by GEM surveys that were performed in 2006, 2011, and 2013.

The entrepreneurial activity is, according to LFS, dominated by solo-self-employed workers (own-account workers) who represent, on average, 12% of the economically active population, compared to the relatively small share of job creators, who represent only 3.2% of the economically active population. We show that actual engagement of the Czech population in entrepreneurship and self-employment is higher (15.2%) than the European Union average (13%).

Males dominate self-employment in the country—there were 2.5 times more self-employed males compared to females for the past decade, and the proportion of job creators is also higher for males. Differences between both types of entrepreneurs also emerged when it comes to age and education. The Czech job creators are, on average, elder (mostly represented in age cohort 40–49 years) compared to solo-self-employed workers (mainly represented in age cohort 35–44 years) and they have obtained tertiary education to a more considerable extent. Nevertheless, the largest group of self-employed workers accomplished secondary school at the highest rate (75.6%).

The identified patterns and observations related to the Czech entrepreneurial activity correspond with the literature on determinants of self-employment [82,83] and with the recent reports on the levels of entrepreneurship and self-employment in Europe [85].

We believe that such a structured piece of information might be relevant for both policymakers and regional entrepreneurship scholars aiming to better understand levels of entrepreneurship and self-employment in the Czech Republic. The provided findings might also be useful for adjustment of the current and future entrepreneurship and SME policies in the country. One particular implication based on observed patterns among job creators might be to consider tertiary education as one of the factors included in assessment criteria for application of a business support policy that aims to foster employment.

From the international perspective, this study might serve as an inspiration on how to map patterns in the national entrepreneurial activity. Scholars willing to understand the regional levels of entrepreneurship and self-employment might follow the presented empirical approach and exploit the described sources of data. The added value of this study for the readers lies in the combination of different data sources that may offer different perspectives on the types and roles of entrepreneurs in the economy. Starting with the data from the structural business statistics, we know how many enterprises we have in the economy and their legal statuses. Such a piece of information might be, for instance, relevant for adjustments and changes in the tax policy. GEM data provide insights into a population of individuals engaged in self-employment; however, they are limited in terms of the number of observations and variables included in the survey. Moreover, many countries still have not conducted a GEM study or have not continued in pursuing it. LFS data are very rich when it comes to the number of observations and their availability in Europe. LFS may provide reliable evidence on the levels of activity and cohorts of entrepreneurs at the national level. Scholars might then easily understand what kind of people (with which characteristics) are doing business and what kind of activities they are involved in. This might be very important when targeting different groups of entrepreneurs with public interventions because LFS data might suggest expected sizes of the target audience and their key-characteristics. Therefore, the combination of the various data sources (indicated in this article) might provide reliable and relevant insights into entrepreneurship and self-employment.

The ongoing research might expand the study for other characteristics of solo-self-employed workers and job creators, for example by adding regional or industry dimensions. This is important, especially from the perspective of differences between Kirznerian and Schumpeterian entrepreneurship and for the discussions related to high-growth entrepreneurship, by answering the question of who creates jobs and who contributes to the country's employment and economic development to the largest extent. Utilising these measures obtained from surveys (i.e., using country, regional, or sectoral rates of job creators and solo-self-employed workers) might be a way to expand the former studies that were based on data mainly reflecting the registered business activity. From a regional perspective, we still need a better understanding of how different actors and institutions shape the regional entrepreneurship ecosystem, for example by implementing a multilevel analysis [86–88].

It is also worth discussing in the forthcoming studies how the changes described under the concept of Industry 4.0, the new industrial and information revolution, and the wider spread of open innovation will shape the future development of entrepreneurship and self-employment.

Funding: This work was supported by the Internal Grant Agency of Faculty of Business Administration, University of Economics, Prague, under grant no. IP30004.

Acknowledgments: An earlier version of the paper was presented at the international conference on Decision Making for Small and Medium-Sized Enterprises (DEMSME 2019), held in Petrovice in May 2019. The author would like to express his thanks to the three reviewers for their constructive comments and suggestions.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Wennekers, S.; Thurik, R. Linking entrepreneurship and economic growth. *Small Bus. Econ.* **1999**, *13*, 27–56. [[CrossRef](#)]
2. Acs, Z.J.; Szerb, L. Entrepreneurship, economic growth and public policy. *Small Bus. Econ.* **2007**, *28*, 109–122. [[CrossRef](#)]
3. Bjørnskov, C.; Foss, N.J. Institutions, entrepreneurship, and economic growth: What do we know and what do we still need to know? *Acad. Manag. Perspect.* **2016**, *30*, 292–315. [[CrossRef](#)]
4. Kodila-Tedika, O.; Agbor, J. Does trust matter for entrepreneurship: Evidence from a cross-section of countries. *Economies* **2016**, *4*, 4. [[CrossRef](#)]
5. Dvoulětý, O.; Gordievskaya, A.; Procházka, D.A. Investigating the relationship between entrepreneurship and regional development: Case of developing countries. *J. Glob. Entrep. Res.* **2018**, *8*, 16. [[CrossRef](#)]
6. Ivanović-Djukić, M.; Lepojević, V.; Stefanović, S.; van Stel, A.; Petrović, J. Contribution of Entrepreneurship to Economic Growth: A Comparative Analysis of South-East Transition and Developed European Countries. *Int. Rev. Entrep.* **2018**, *16*, 257–276.
7. Rico, P.; Cabrer-Borrás, B. Entrepreneurship, firms creation and regional performance. *Eur. J. Manag. Bus. Econ.* **2019**. online first. [[CrossRef](#)]
8. Audretsch, D.; Keilbach, M. Entrepreneurship capital and economic performance. *Reg. Stud.* **2004**, *38*, 949–959. [[CrossRef](#)]
9. Schumpeter, J.A. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*; Transaction Publishers: Piscataway, NJ, USA, 1934; Volume 55.
10. Drucker, P. *Innovation and Entrepreneurship: Practice and Principles*; Harper and Row: New York, NY, USA, 1985.
11. Lukeš, M. Entrepreneurs as Innovators: A Multi-Country Study on Entrepreneurs' Innovative Behaviour. *Prague Econ. Pap.* **2013**, *22*, 72–84. [[CrossRef](#)]
12. Subotic, M.; Maric, M.; Mitrovic, S.; Mesko, M. Differences between adaptors and innovators in the context of entrepreneurial potential dimensions. *Kybernetes* **2018**, *47*, 1363–1377. [[CrossRef](#)]
13. Marques, C.S.; Santos, G.; Ratten, V.; Barros, A.B. Innovation as a booster of rural artisan entrepreneurship: A case study of black pottery. *Int. J. Entrep. Behav. Res.* **2019**, *25*, 753–772. [[CrossRef](#)]
14. Chesbrough, H.W. Why companies should have open business models. *MIT Sloan Manag. Rev.* **2007**, *48*, 22–28.
15. Park, H. Technology convergence, open innovation, and dynamic economy. *J. Open Innov. Technol. Mark. Complex.* **2017**, *3*, 24. [[CrossRef](#)]
16. Yun, J.J. How do we conquer the growth limits of capitalism? Schumpeterian Dynamics of Open Innovation. *J. Open Innov. Technol. Mark. Complex.* **2015**, *1*, 17. [[CrossRef](#)]
17. Yun, J.; Jeong, E.; Lee, Y.; Kim, K. The effect of open innovation on technology value and technology transfer: A comparative analysis of the automotive, robotics, and aviation industries of Korea. *Sustainability* **2018**, *10*, 2459. [[CrossRef](#)]
18. Lee, M.; Yun, J.; Pyka, A.; Won, D.; Kodama, F.; Schiuma, G.; Park, H.S.; Jeon, J.; Park, K.B.; Jung, K.H.; et al. How to respond to the Fourth Industrial Revolution, or the Second Information Technology Revolution? Dynamic new combinations between technology, market, and society through open innovation. *J. Open Innov. Technol. Mark. Complex.* **2018**, *4*, 21. [[CrossRef](#)]
19. Scott, G.; Chaston, I. Open innovation in an emerging economy. *Management Research Review. Open innovation in an emerging economy. Manag. Res. Rev.* **2013**, *36*, 1024–1036. [[CrossRef](#)]
20. Foroughi, A.; Buang, N.A.; Senik, Z.C.; Hajmirsadeghi, R.S.; Bagheri, M.M. The role of open service innovation in enhancing business performance: The moderating effects of competitive intensity. *Curr. Sci.* **2015**, *109*, 691–698.
21. West, J.; Lakhani, K.R. Getting clear about communities in open innovation. *Ind. Innov.* **2008**, *15*, 223–231. [[CrossRef](#)]
22. Chaston, I.; Scott, G.J. Entrepreneurship and open innovation in an emerging economy. *Manag Dec.* **2012**, *50*, 1161–1177. [[CrossRef](#)]

23. Sundqvist, S.; Kyläheiko, K.; Kuivalainen, O.; Cadogan, J.W. Kirznerian and Schumpeterian entrepreneurial-oriented behavior in turbulent export markets. *Int. Mark. Rev.* **2012**, *29*, 203–219. [[CrossRef](#)]
24. Kirzner, I.M. *Competition and Entrepreneurship*; University of Chicago Press: Chicago, IL, USA, 2015.
25. Ferreira, J.J.; Fayolle, A.; Fernandes, C.; Raposo, M. Effects of Schumpeterian and Kirznerian entrepreneurship on economic growth: Panel data evidence. *Entrep. Reg. Dev.* **2017**, *29*, 27–50. [[CrossRef](#)]
26. Davidsson, P. Data replication and extension: A commentary. *J. Bus. Ventur. Insights* **2015**, *3*, 12–15. [[CrossRef](#)]
27. Davidsson, P. A future of entrepreneurship research: Domain, data, theory, and impact. In *The Wiley Handbook of Entrepreneurship*; Wiley: Hoboken, NJ, USA, 2017; pp. 1–23.
28. Brada, J.C. Privatization is Transition Or is it? *J. Econ. Perspect.* **1996**, *10*, 67–86. [[CrossRef](#)]
29. Danis, W.M.; Shipilov, A.V. A comparison of entrepreneurship development in two post-communist countries: The cases of Hungary and Ukraine. *J. Dev. Entrep.* **2002**, *7*, 67–94.
30. Winięcki, J. The role of the new, entrepreneurial private sector in transition and economic performance in light of the successes in Poland, the Czech Republic, and Hungary. *Probl. Econ. Trans.* **2003**, *45*, 6–38. [[CrossRef](#)]
31. Smallbone, D.; Welter, F. The distinctiveness of entrepreneurship in transition economies. *Small Bus. Econ.* **2001**, *16*, 249–262. [[CrossRef](#)]
32. Kshetri, N. Entrepreneurship in post-socialist economies: A typology and institutional contexts for market entrepreneurship. *J. Int. Entrep.* **2009**, *7*, 236–259. [[CrossRef](#)]
33. Cieślík, J.; van Stel, A. Comparative analysis of recent trends in private sector development in CEE transition economies. *Entrep. Res. J.* **2014**, *4*, 205–235. [[CrossRef](#)]
34. Dvouletý, O. What is the Relationship between Entrepreneurship and Unemployment in Visegrad Countries? *Cent. Eur. Bus. Rev.* **2017**, *6*, 42–53. [[CrossRef](#)]
35. Sauka, A.; Chepurens, A. (Eds.) *Entrepreneurship in Transition Economies: Diversity, Trends, and Perspectives*; Springer: Cham, Switzerland, 2017.
36. Zygmunt, J. Entrepreneurial activity drivers in the transition economies. Evidence from the Visegrad countries. *Equilib. Q. J. Econ. Econ. Policy* **2018**, *13*, 89–103. [[CrossRef](#)]
37. Korcsmáros, E.; Šimová, M. Factors affecting the business environment of SMEs in Nitra region in Slovakia. *Oecon. Copernic.* **2018**, *9*, 309–331. [[CrossRef](#)]
38. Mets, T.; Sauka, A.; Purg, D. (Eds.) *Entrepreneurship in Central and Eastern Europe: Development Through Internationalization*; Routledge: London, UK, 2018.
39. Marjański, A.; Sułkowski, Ł. The Evolution of Family Entrepreneurship in Poland: Main Findings Based on Surveys and Interviews from 2009–2018. *Entrep. Bus. Econ. Rev.* **2019**, *7*, 95–116. [[CrossRef](#)]
40. Benáček, V. Small businesses and private entrepreneurship during transition: The case of the Czech Republic. *East. Eur. Econ.* **1995**, *33*, 38–75. [[CrossRef](#)]
41. Benáček, V. The Rise of the ‘Grand Entrepreneurs’ in the Czech Republic and Their Contest for Capitalism. *Sociol. Časopis/Czech Sociol. Rev.* **2006**, *42*, 1151–1170.
42. Šebestová, J. *Globalization Tendencies in the Czech SME’S-Historical Approach (1997–2004)*; No. 13129; University Library of Munich: Munich, Germany, 2006.
43. Hlaváček, P.; Zambochová, M.; Sivicek, T. The influence of the institutions on entrepreneurship development: Public support and perception of entrepreneurship development in the Czech Republic. *Amfiteatru Econ. J.* **2015**, *17*, 408–421.
44. Lukeš, M. Entrepreneurship development in the Czech Republic. In *Entrepreneurship in Transition Economies*; Sauka, A., Chepurens, A., Eds.; Springer: Cham, Switzerland, 2017; pp. 209–224.
45. Hospodářské Noviny/Business News. 100 let Československa. Úspěšné Podnikatele a Manažery Spojovala Schopnost Inovovat/100 Years of CZECHOSLOVAKIA—Successful Entrepreneurs and Managers Have Been United by the Ability to Innovate. 2018. Available online: <https://infografiky.ihned.cz/100-let-cz-byznysu/r-~|j64bb4f18d69411e889f40cc47ab5f122/> (accessed on 31 May 2019).
46. Benáček, V.; Zemplerová, A. Problems and environment of small businesses in the Czech Republic. *Small Bus. Econ.* **1995**, *7*, 437–450. [[CrossRef](#)]
47. Bohatá, M.; Mládek, J. The development of the Czech SME sector. *J. Business Venturing.* **1999**, *14*, 461–473. [[CrossRef](#)]

48. Branchet, B.; Křížková, A. Gender and entrepreneurial intentions in a transition economy context: Case of the Czech Republic. *Int. J. Entrep. Small Bus.* **2015**, *25*, 260–281. [CrossRef]
49. Dvouletý, O. Can policy makers count with positive impact of entrepreneurship on economic development of the Czech regions? *J. Entrep. Emerg. Econ.* **2017**, *9*, 286–299. [CrossRef]
50. Dvouletý, O. How to analyse determinants of entrepreneurship and self-employment at the country level? *A methodological contribution. J. Bus. Ventur. Insights* **2018**, *9*, 92–99. [CrossRef]
51. Iversen, J.; Jørgensen, R.; Malchow-Møller, N. Defining and measuring entrepreneurship. *Found. Trends Entrep.* **2007**, *4*, 1–63. [CrossRef]
52. Eurostat. EU Labour Force Survey—Main Features and Legal Basis. 2019. Available online: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_labour_force_survey_%E2%80%9393_main_features_and_legal_basis#Main_features_of_the_EU-LFS (accessed on 31 May 2019).
53. Blanchflower, D.G.; Oswald, A.J. What makes an entrepreneur? *J. Labor Econ.* **1998**, *16*, 26–60. [CrossRef]
54. Congregado, E. (Ed.) *Measuring Entrepreneurship: Building a Statistical System*; Springer: Cham, Switzerland, 2007.
55. Stenholm, P.; Acs, Z.J.; Wuebker, R. Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *J. Bus. Ventur.* **2013**, *28*, 176–193. [CrossRef]
56. Henrekson, M.; Sanandaji, T. Measuring Entrepreneurship: Do Established Metrics Capture High-Impact Schumpeterian Entrepreneurship? In *Entrepreneurship Theory and Practice, Forthcoming*; Research Institute of Industrial Economics: Stockholm, Sweden, 2019.
57. Křečovská, M.; Procházková, P.T. Enhancing entrepreneurial education activities: New challenges for SMEs development. *Aktual'ni Problemy Ekonomiky (Actual Probl. Econ.)* **2014**, *8*, 262–271.
58. Belás, J.; Bilan, Y.; Demjan, V.; Sipko, J. Entrepreneurship in SME segment: Case study from the Czech Republic and Slovakia. *Amfiteatru Econ. J.* **2015**, *17*, 308–326.
59. Ključnikov, A.; Belás, J.; Kozubíková, L.; Paseková, P. The entrepreneurial perception of SME business environment quality in the Czech Republic. *J. Compet.* **2016**, *8*, 66–78. [CrossRef]
60. Hamplová, E.; Kovárník, J. Analysis of Entrepreneurship Development in the Czech Republic from 2008 to 2014. In Proceedings of the 19th International Colloquium on Regional Sciences, Čejkovice, Czech Republic, 15–17 June 2016; pp. 226–232.
61. Dvouletý, O.; Longo, M.C.; Blažková, I.; Lukeš, M.; Andera, M. Are publicly funded Czech incubators effective? The comparison of performance of supported and non-supported firms. *Eur. J. Innov. Manag.* **2018**, *21*, 543–563. [CrossRef]
62. Pártlová, P.; Humlerová, V. Economic Potential of SMEs in the Regional Context of the Czech Republic. In Proceedings of the Innovation Management, Entrepreneurship and Sustainability (IMES 2018), Prague, Czech Republic, 31 May–1 June 2018; pp. 867–877.
63. Povolná, L. Innovation Strategy in Small and Medium Sized Enterprises (SMEs) in the Context of Growth and Recession Indicators. *J. Open Innov. Technol. Mark. Complex.* **2019**, *5*, 32. [CrossRef]
64. Czech Ministry of Industry and Trade. Report on the Development of the Small and Medium-Sized Entrepreneurship and Its Support in 2017/Zpráva o vývoji malého a středního podnikání a jeho podpoře v roce 2017. 2018. Available online: https://www.mpo.cz/assets/cz/podnikani/male-a-stredni-podnikani/studie-a-strategie-dokumenty/2018/10/Zprava_MSP_2017.pdf (accessed on 31 May 2019).
65. Bašťová, M.; Hubáčková, V.; Frantál, B. Interregional differences in the Czech Republic, 2000–2008. *Morav. Geogr. Rep.* **2011**, *19*, 2–16.
66. Dvouletý, O.; Mareš, J. Entrepreneurial Activity in the Czech regions: Are Business Companies and Self-employed Individuals Affected by the Same Factors? In Proceedings of the 10th International Days of Statistics and Economics, Prague, Czech Republic, 8–10 September 2016; pp. 418–428.
67. Smékalová, L.; Hájek, O.; Belás, J.; Macháček, J. Perception of small and medium entrepreneurship in the Czech Republic. *J. Compet.* **2014**, *6*, 41–49. [CrossRef]
68. Zapletalová, Š.; Meixnerová, L.; Menšík, M.; Pászto, V.; Sikorová, E. Character of entrepreneurial subjects in Olomouc region. *Ekon. Manag. Inovace* **2015**, *7*, 21–31.
69. Šebestová, J.; Krejčí, P.; Šiška, P. “Be or Not to Be”: A Dilemma of Business Policy Support on a Regional Level. *Cent. Eur. Bus. Rev.* **2018**, *7*, 3–13. [CrossRef]

70. Šebestová, J.; Klepek, M.; Čemerková, Š.; Adámek, P. Regional entrepreneurship culture and the business lifecycle: Patterns from the Moravian-Silesian region. *Acta Univ. Agric. Silvic. Mendel. Brun.* **2015**, *63*, 2137–2144. [CrossRef]
71. Dvouletý, O.; Mareš, J. Determinants of Regional Entrepreneurial Activity in the Czech Republic. *Econ. Stud. Anal./Acta VSFS* **2016**, *10*, 31–46.
72. Novosák, J.; Novosáková, J.; Hájek, O.; Górska-Szymczak, J. The geography of new business formation in the Czech Republic: A cross-section analysis (2003–2014). *Hum. Geogr. J. Stud. Res. Hum. Geogr.* **2017**, *11*, 169–180. [CrossRef]
73. Průša, L.; Baštýř, I.; Brachtl, M.; Vlach, J. *The Socio-Economic Status of Self-Employed Persons in Czech Society*; Research Institute for Labour and Social Affairs: Prague, Czech Republic, 2009.
74. Večerník, J. Self-employment in the Czech Republic and CEE countries: Persons and households. *Post Communist Econ.* **2011**, *23*, 359–376. [CrossRef]
75. Global Entrepreneurship Monitor. Total Early-Stage Entrepreneurial Activity, Established Business Ownership Rate. 2019. Available online: <http://www.gemconsortium.org/data> (accessed on 31 May 2019).
76. Lukeš, M.; Zouhar, J.; Jakl, M.; Očko, P. Faktory ovlivňující vstup do podnikání: Začínající podnikatelé v České republice. *Politická Ekon.* **2013**, *61*, 229–247. [CrossRef]
77. German Microdata Lab. EU Labour Force Survey September 2017 Release. 2018. Available online: <https://www.gesis.org/en/missy/materials/EU-LFS/setups> (accessed on 31 May 2019).
78. Eurostat. Self-Employment by Sex, Age and Educational Attainment Level (1 000) [lfsa_esgaed]. 2019. Available online: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_esgaed&lang=en (accessed on 31 May 2019).
79. Eurostat. Self-Employment by Sex, Age and Country of Birth (1 000) [lfsa_esgacob]. 2019. Available online: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_esgacob&lang=en (accessed on 31 May 2019).
80. Eurostat. Active Population by Sex, Age and Citizenship (1 000) [lfsa_agan]. 2019. Available online: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_agan&lang=en (accessed on 31 May 2019).
81. Henrekson, M.; Johansson, D. Gazelles as job creators: A survey and interpretation of the evidence. *Small Bus. Econ.* **2010**, *35*, 227–244. [CrossRef]
82. Dvouletý, O. Determinants of self-employment with and without employees: Empirical findings from Europe. *Int. Rev. Entrep.* **2018**, *16*, 405–426.
83. Simoes, N.; Crespo, N.; Moreira, S.B. Individual determinants of self-employment entry: What do we really know? *J. Econ. Surv.* **2016**, *30*, 783–806. [CrossRef]
84. Cowling, M.; Taylor, M.; Mitchell, P. Job creators. *Manch. Sch.* **2004**, *72*, 601–617. [CrossRef]
85. Eurofound. Exploring Self-Employment in the European Union. 2017. Available online: <https://www.eurofound.europa.eu/publications/report/2017/exploring-self-employment-in-the-european-union> (accessed on 31 May 2019).
86. Kuckertz, A. Let's take the entrepreneurial ecosystem metaphor seriously! *J. Bus. Ventur. Insights.* **2019**, *11*, e00124. [CrossRef]
87. O'Connor, A.; Stam, E.; Sussan, F.; Audretsch, D.B. *Entrepreneurial Ecosystems: Place-Based Transformations and Transitions*; Springer: Cham, Switzerland, 2018.
88. Stam, E. Entrepreneurial ecosystems and regional policy: A sympathetic critique. *Eur. Plan. Stud.* **2015**, *23*, 1759–1769. [CrossRef]

