

# Entrepreneurship in Central Europe after COVID-19: Resilience amid a Crisis

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## Abstract

This article aims to provide insights into the development of entrepreneurial activity in selected Central European countries, formerly transition economies, after the global COVID-19 pandemic. The objective of the study is to understand whether and how the pandemic reshaped the structure of entrepreneurship in the Czech Republic, Hungary, Poland, and Slovakia. Data from Eurostat, covering both individual-level activity and structural business statistics, were used to determine the answer three years after the start of the COVID-19 crisis. The results from statistical testing and multivariate regression models provide straightforward answers. In the vast majority of the studied indicators, entrepreneurial activity

has even increased compared to the pre-pandemic values, with a few exceptions such as employer entrepreneurship, where the results were not statistically conclusive. From the perspective of structural business statistics, we observe the highest increase in information and communication sectors of the studied economies, which might be associated with the need to shift economic and social activities online. The article demonstrates, using the example of the COVID-19 crisis, that even external shocks can boost the exploitation of new business opportunities and entrepreneurial development. In particular, it is argued that the pandemic has sped up the entrepreneurs' adoption of digital processes and agendas.

**Keywords:** entrepreneurial activity; entrepreneurship; global pandemic; COVID-19; comparative analysis; Black Swan events; resilience

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## Introduction

It has not been so long since the world was plummeted into the global COVID-19 pandemic, which spread across the globe in 2020. It affected all aspects of human interactions, led to social distancing, and put an emphasis on the use of technological innovations, allowing for remote work and business. This was reflected in business practices, forcing entrepreneurs and business organizations to adapt to the changes, spreading so far, and testing policymakers and politicians' abilities to assist in adverse times to maintain economic activities, preventing considerable economic collapse and a rise in unemployment.

Researchers started to provide evidence of best practices encapsulated in public policies and government actions to mitigate the adverse effects of the pandemic from the very beginning of the crisis (Apostolopoulos et al., 2021; Cirera et al., 2021; Kuckertz, Brändle, 2022; Brändle et al., 2023; Schøtt et al., 2024). The interaction of global organizations was very fast and dynamic. As one of the interesting initiatives, we recall the establishment of the joint COVID-19 Research Database, incentivized and maintained by the World Health Organization<sup>1</sup>, providing a significant body of knowledge and evidence, indexing all relevant COVID-19 publications into a single database.

The crisis tested the entrepreneurial mindset of business owners and self-employed individuals, highlighting their ability to adapt and seek timely solutions to maintain their business activities. Those failing to adapt or sustain their activities resulted in postponing or ending their entrepreneurial journey, while for others, it brought a unique chance to exploit new opportunities to start a new business or to foster the existing one (Davidsson et al., 2021; Liñán, Jaén, 2022; Muzaffar, 2023).

What remained an open question, as well as an existing research gap, was the extent to which the pull and push factors have reshaped the overall size and structure of entrepreneurship; in other words, what was the pandemic's macroeconomic effect on the development entrepreneurship as a whole?

This research study aims to look back three years since the beginning of the COVID-19 pandemic and provide, within the geographic scope of Central Europe, evidence on the size and structure of the entrepreneurial activity in four countries, namely the Czech Republic, Hungary, Poland, and Slovakia. The context of the studied countries is based on a joint post-communist history and the nature of small open-market economies, members of the European Union (EU) and the so-called Visegrád alliance. Most of the market-economy-related institutions had to

be set up uniquely, from scratch, after the political change of the system in the early 1990s, which makes this group unique compared to the established members of the EU, who already had their institutions set up. This constant lagging behind the “developed West” is also manifested in the continuous development and improvement of the business framework conditions and entrepreneurial ecosystem pillars, which still represent the quality of the entrepreneurs' surroundings and moderate the quality of entrepreneurial activity and its contributions to economic development (Bruothová, Hurný, 2016; Sacio-Szymańska et al., 2016; Dvouletý, Orel, 2020; Jabłońska, Fila, 2021; Csákné Filep et al., 2023).

Looking at the pre-pandemic Global Competitiveness Report data from 2019 (World Economic Forum, 2019), the Czech Republic is the economic leader of the Visegrád alliance, ranked in the Global Competitiveness Index 4.0 as the 32<sup>nd</sup> most competitive nation out of 140 countries with 10-year average annual GDP growth of 2%, followed by Poland (experiencing average growth of 3.1% and ranked 27<sup>th</sup>), Slovakia (experiencing average growth of 2.8% and ranked 42<sup>nd</sup>), and Hungary (experiencing average growth of 2.1% and ranked 47<sup>th</sup>). We can also recall that the sectoral orientation of the countries differs when looking at the sectoral contributions to value-added according to OECD Economic Surveys data (2020). All countries had the highest contributions from the services sector, in particular, the highest in Slovakia (68.1% in 2019), followed by Hungary (66.6% in 2019), Poland (64.9% in 2018), and the Czech Republic (63.0% in 2019), which on the contrary, boasts the largest industrial sector of the group.

By using the official statistical data from Eurostat on individual-level participation in self-employment and structural business statistics data, we contribute to the long-term understanding of the effects of the global pandemic on overall entrepreneurial development. We do so by collecting a wider range of entrepreneurship-related indicators used for statistical and econometric testing between the pre-pandemic and post-pandemic development trends across the pooled countries, providing a picture of Central Europe and single-country perspectives, thus extending the current knowledge on the COVID-19 crisis effects in the region, studied, for example, by Urbanovics et al. (2021), Koca (2022), or Blažková et al. (2023). Such evidence has value for the policymakers who were active in designing policy actions and aid during the pandemic as a reflection of the efforts and resources invested. The methodology applied in this study might also inspire further research, capturing the effects of the global pandemic, and further developing entrepreneurship in the region.

<sup>1</sup> <https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/#>, accessed 18.05.2024.

## Data

This research focuses on the four small post-transition open economies located in Central Europe, united in the Visegrád group, also called V4 or Visegrád alliance, which includes the Czech Republic, Hungary, Poland, and Slovakia. Prior researchers studying the entrepreneurial context of these countries also called them post-communist economies, already noted the obstacles and data-related barriers that represent a significant challenge when advancing the Central European entrepreneurial context, especially the discontinuity of Global Entrepreneurship Monitor study in some of the countries, such as the Czech Republic or non-homogeneous legal forms of business entities (Holiienka et al., 2017; Zygmunt, 2018; Meyer, Meyer, 2019; Gubik, Farkas, 2019; Dvouletý, Orel, 2020).

The selection of the proper indicators or the overall lack of data was also a central issue in this particular research, relying on the harmonized data obtained from Eurostat (2023a; 2023b; 2023c, 2023d). Several indicators were thus selected to obtain the widest possible holistic picture of post-pandemic entrepreneurial development, relying first on the European Union Labour Force Survey (EU LFS) data (Eurostat, 2023a; 2023b), reflecting individual-level participation in the labor market, i.e., being a self-employed, solo, or employer entrepreneur, which was expressed as a percentage of the economically active population, i.e., those who are 15-64 years of age (Dvouletý, Orel, 2020; Audretsch, Belitski, 2021). This choice allows us to control for high-quality entrepreneurship, i.e., employer entrepreneurs (Urbano et al., 2017). In addition, we used the Eurostat (2023c; 2023d) structural business statistics data (SBS), which also accounts for the number of registered business entities in selected sectors (Henrekson, Sanandaji, 2020). Nevertheless, despite the efforts of Eurostat to harmonize the data, we face a structural break/methodological change in the definition of some of the NACE-based indicators that took place in 2020, which caused the whole economy sums not to be comparable, and therefore, we opted as a consensus to study only selected industries, where the methodology of calculating the number of enterprises had not changed.

This selection allowed us to study entrepreneurship with data from the EU LFS from 2000 to 2022 and from the SBS from 2008 to 2022. As a first step, we display the development of the EU LFS indicators across four countries in Figure 1. One can see more or less an increasing trend over time, which is more or less similar to most of the countries in the pre-pandemic years when it comes to the overall self-employment rate and the proportions of solo self-employed individuals and quite constant once we look at the employer entrepreneurship line. Here, we note that an employer entrepreneur is a person who employs himself/herself and at least one additional employee (Burke et al., 2018) and by the beginning of the coronavirus pandemic, by this we refer

Table 1 shows the average values of the obtained indicators, informing readers that entrepreneurial activity was at about 9.4% over the studied period, consisting of 2.4% of employer entrepreneurs and mostly solo self-employed individuals, accounting for 7.4%. This is in line with the most recent studies, showing the proportions of solo self-employed dominate the overall levels of European entrepreneurship (van Stel, van der Zwan, 2020; Ciešlik, Van Stel, 2023).

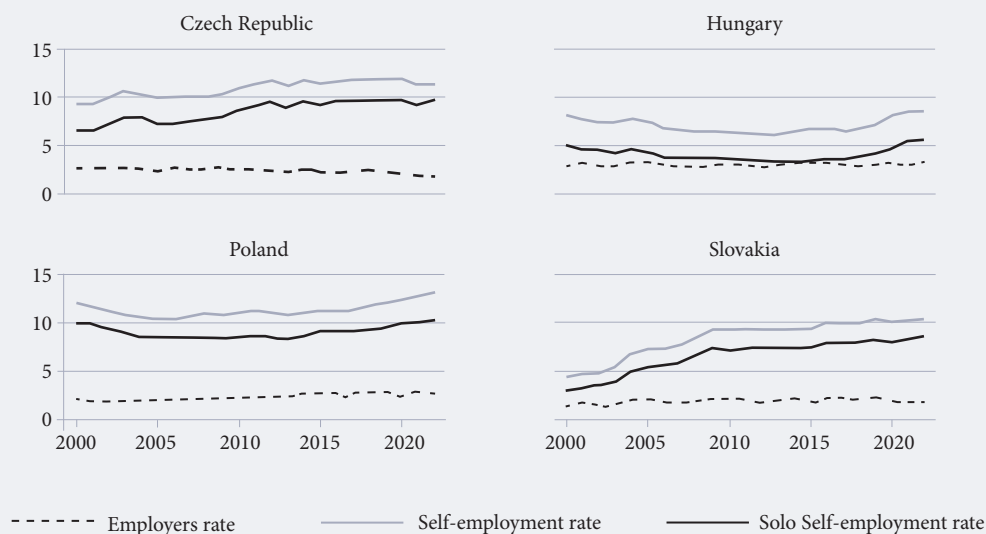
Secondly, we provide insights into the development of the number of operating businesses in the selected sectors (wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service activities; transportation and storage; manufacturing; administrative and support service activities; information and communication). Here, we display developments in each of the countries separately for better readability (see Figures 2-5), and the average values of these indicators are reported in Table 1. What is especially fascinating is the development and growth of the information and communications sector, which had to rapidly respond to the isolation needs of citizens, customers, and employees, providing innovative solutions for remote purchases and workplaces (Storr et al., 2021; Sánchez-Vergara et al., 2023). Surprisingly, we do not see any significant drops in the time trend after 2020. One would assume business closures in the sectors that suffered most from governmental restrictions would occur (Dvouletý, 2021; Gerwe, 2021), such as in the accommodation and food service sector, but the graphical illustration does not support this. Therefore, we proceed toward the statistical-analytical section, where we introduce our empirical approach and results.

## Analysis and Results

The analysis combines two methodological approaches. Firstly, we employ panel regression analysis. Particularly, we estimate the Least Squares Dummy Variables model (LSDV, for details, we refer to Kiviet, 1995), accounting for time and country heterogeneity, with a special emphasis on the variable called *COVID-19 Pandemic*, which controls for the pandemic period, i.e., 2020-2022 and should be able to capture the overall effects on entrepreneurial activity. This is a pooled analysis of all studied countries. In the second step, we conduct paired tests for each country separately and report the three-year differences between the pre-pandemic years (2017-2019) and the pandemic period (2020-2022).

Table 3 represents the results of econometric modeling. All models (Models 1-9) are statistically significant based on Chi-square significance tests, and they account for all introduced variables in Table 2. We observe statistically significant differences in all indicators across the studied countries, which supports the need to dive into the differences more in the second empirical approach. Yet, the overall effect of the pandemic on Central European entrepreneurship can

Figure 1. Entrepreneurial Development across the Studied Countries



Source: Author's own calculations based on Eurostat data (2023a; 2023b) in STATA 14 software.

be observed in the estimated coefficient of the variable *COVID-19 Pandemic*. The overall participation in self-employment increased by 0.9% in the post-pandemic period (Model 1), driven mostly by the rise of solo self-employment (Model 2) and insignificant changes in employer entrepreneurship (Model 3). Furthermore, we find no significant change in the retail segment (wholesale and retail trade; repair of motor vehicles and motorcycles, Model 4). On the contrary, in the remaining sectors (Models 5-9), all coefficients representing the pandemic provide us with positive and statistically significant coefficients, meaning that over the time of the pandemic and further on, the number of enterprises/businesses in these sectors were higher, compared to other years. The highest growth in absolute numbers is visible in

the information and communications sector, increasing by an average of 32,541 operating companies and business organizations.

Despite the fact that Visegrád countries share a common history and structure of entrepreneurial and innovation activity (Sauka, Chepurensko, 2017; Zygmunt, 2018; Jabłońska, Fila, 2021; Vokoun, Dvouletý, 2022), our econometric analysis documents significant differences in its levels and the numbers of operating businesses. This is why we took a closer look at the post-pandemic differences to see if the observed changes for the whole region apply to each country. Table 3 reports the results of the conducted paired t-tests. It seems that the econometric results are mainly driven by Hungary and Poland, which provide more or less the same results as those visible in Table 2.

Table 1. Summary Statistics of the Collected Variables Representing Entrepreneurial Activity

Variable/indicator	Mean	Median	Minimum	Maximum	Number of Observations
Self-employment Rate	9.4	9.9	4.4	13.1	92
Solo Self-employment Rate	7.0	7.8	2.9	10.4	92
Employers' Rate	2.4	2.4	1.3	3.3	92
Wholesale and retail trade; repair of motor vehicles and motorcycles	248,177	178,516	23,697	579,582	60
Accommodation and food service activities	41,615	41,093	2,446	78,343	60
Transportation and storage	60,797	38,525	553	174,666	60
Manufacturing	122,787	118,128	8,044	244,319	60
Administrative and support service activities	44,272	39,176	3,949	101,162	60
Information and communications	50,378	37,531	935	193,213	60

Source: Author's own calculations based on Eurostat data (2023a; 2023b; 2023c; 2023d) in STATA 14 software.

Table 2. Panel Regression Analysis

Model number Independent variables / Dependent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
COVID-19 Pandemic	0.932 <sup>+</sup> (0.504)	1.091 <sup>**</sup> (0.410)	-0.158 (0.105)	6762.8 (10694.0)	7083.8 <sup>+</sup> (4035.1)	10791.5 <sup>**</sup> (4173.5)	17466.3 <sup>*</sup> (8320.5)	18249.5 <sup>***</sup> (3139.8)	32541.8 <sup>*</sup> (15549.8)
Hungary	-4.109 <sup>***</sup> (0.458)	-5.055 <sup>***</sup> (0.381)	0.946 <sup>***</sup> (0.0897)	-87208.3 <sup>***</sup> (4793.9)	-27025.2 <sup>***</sup> (1719.5)	-6095.7 <sup>*</sup> (2761.0)	-124754.0 <sup>***</sup> (3597.1)	17079.5 <sup>***</sup> (2412.6)	-3002.3 (5771.4)
Poland	0.520 (0.378)	-0.0532 (0.298)	0.574 <sup>***</sup> (0.0930)	304543.8 <sup>***</sup> (7668.3)	11036.7 <sup>***</sup> (3121.2)	127140 <sup>***</sup> (2991.7)	52305.7 <sup>***</sup> (6147.7)	55235.2 <sup>***</sup> (2457.2)	89067.8 <sup>***</sup> (11264.5)
Slovakia	-1.601 <sup>***</sup> (0.355)	-1.461 <sup>***</sup> (0.284)	-0.140 <sup>+</sup> (0.0775)	-121050.3 <sup>***</sup> (5338.8)	-39697.7 <sup>***</sup> (1842.4)	-19485.2 <sup>***</sup> (2034.5)	-100063.8 <sup>***</sup> (3388.4)	6641.8 <sup>**</sup> (2083.3)	-27162.5 <sup>***</sup> (6653.8)
Constant	11.27 <sup>***</sup> (0.443)	9.134 <sup>***</sup> (0.371)	2.135 <sup>***</sup> (0.0850)	219045.7 <sup>***</sup> (9765.0)	54808.3 <sup>***</sup> (3436.7)	35842.0 <sup>***</sup> (3374.6)	167633.8 <sup>***</sup> (7928.1)	26410.1 <sup>***</sup> (3297.2)	39307.2 <sup>***</sup> (9268.7)
R2	0.952	0.974	0.961	0.998	0.981	0.997	0.994	0.989	0.950
Akaike information criterion	43.68	34.72	-30.22	515.4	467.7	475.0	500.6	458.0	530.4
Bayesian information criterion	54.29	45.32	-19.62	526.0	478.3	485.6	511.2	468.6	541.0

*Legend:* (1) - Self-employment Rate; (2) - Solo Self-employment Rate; (3) - Employers' Rate; (4) - Wholesale and retail trade; repair of motor vehicles and motorcycles; (5) - Accommodation and food service activities; (6) - Transportation and storage; (7) - Manufacturing; (8) - Administrative and support service activities; (9) - Information and communications.

*Notes:* Robust Standard errors in parentheses, stat. significance is reported as follows: + p < 0.10, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. Year Dummies included. Number of observations = 24. Prob > chi2 = 0. The reference group of countries is the Czech Republic.

*Source:* Author's own calculations based on Eurostat data (2023a; 2023b; 2023c; 2023d) in STATA 14 software.

However, the Czech Republic and Slovakia have similar results only regarding the structural business statistics, and concerning individual engagement in self-employment, the main results differ. In the Czech Republic, we see a slight statistically significant decrease in self-employment and employer entrepreneurship rates, while Slovakia has positive differences, but these are not statistically significant. Otherwise, even this additional analysis shows the increased number of businesses operating in the information and communications industry and administrative and support service activities in all studied countries.

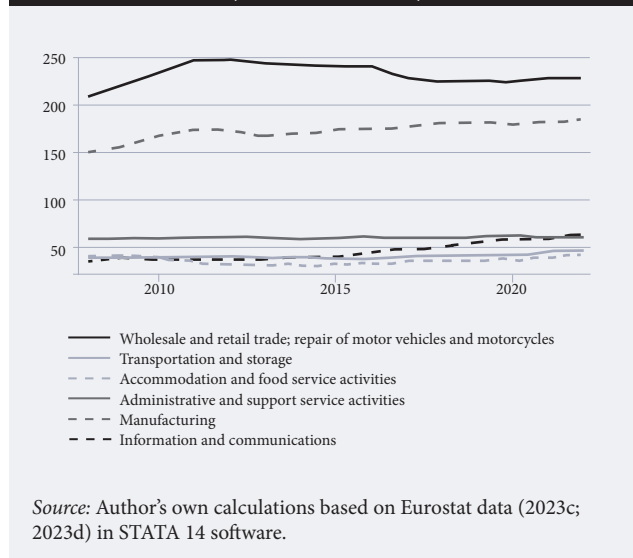
### Concluding Remarks and Prospects for Future Development

Policymakers and practitioners were concerned about the impact of the COVID-19 outbreak on entrepreneurial activity, expecting significant declines in the overall levels of entrepreneurship and increased bankruptcy rates resulting from governmental restrictions and the decreased mobility of the population across the globe. As a response, significant financial resources were allocated in many countries to support the coverage of operational costs, bankruptcy moratoriums, or investment programs to provide firms with sufficient liquidity to maintain activity and employment (Ratten, 2020; 2021; Davidsson et al., 2021; Belitski et al., 2022).

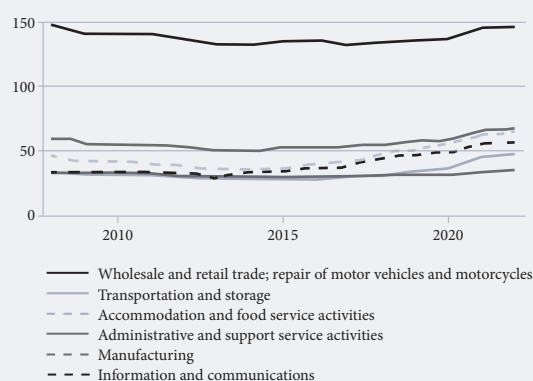
With the many forms of anti-crisis public policies implemented during the pandemic, we can now observe how entrepreneurship has changed at the macroeconomic level in the three years since its beginning. This

study contributes to understanding this phenomenon by providing insight into entrepreneurial development in four Central European countries, namely the Czech Republic, Hungary, Poland, and Slovakia, united in the so-called Visegrád group, sharing a common socialist and communist history, which was represented by the lack of private ownership and almost no individual-level entrepreneurship and small businesses, until the 1990s, when the development of entrepreneurial activity experienced a rapid boost (Dvouletý, 2017; Sauka, Chepurenko, 2017). We can

Figure 2. Development of the Number of Enterprises in the Czech Republic (thousand units)

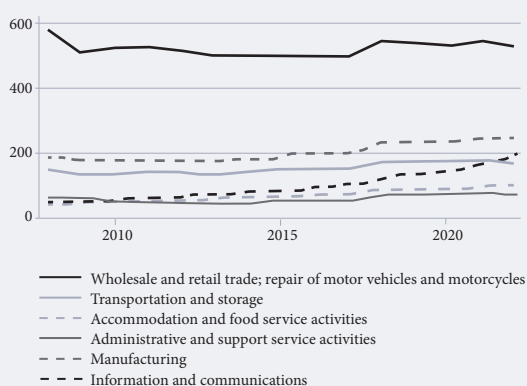


**Figure 3. Development of the Number of Enterprises in Hungary (thousand units)**



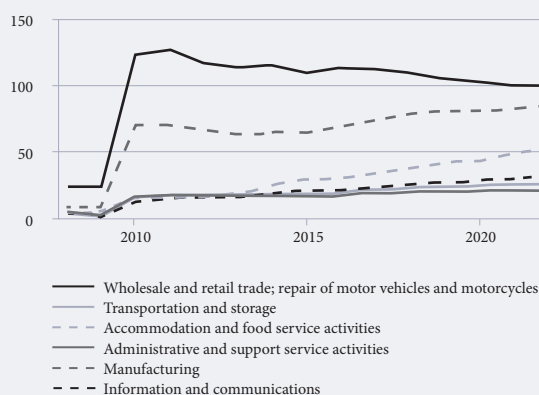
Source: Author's own calculations based on Eurostat data (2023c; 2023d) in STATA 14 software.

**Figure 4. Development of the Number of Enterprises in Poland (thousand units)**



Source: Author's own calculations based on Eurostat data (2023c; 2023d) in STATA 14 software.

**Figure 5. Development of the Number of Enterprises in Slovakia (thousand units)**



Source: Author's own calculations based on Eurostat data (2023c; 2023d) in STATA 14 software.

only speculate whether this historical milestone also impacted the adaptability of business owners to the new conditions of the market-driven economy and how participation on international markets has shaped their skills, resilience, and overall entrepreneurial culture in the region, but it might be the case that it did, and it helped entrepreneurs to promptly respond to the adverse times, such as those caused by a global pandemic and other adverse events.

An earlier article by Davidsson et al. (2021, p. 216) suggested that the COVID-19 pandemic might serve as an External Enabler (EE), i.e., “external, agent-independent, disequilibrating circumstance”, that could benefit some business ventures despite its, in general, adverse nature. This was very clearly visible with the skyrocketing spread of online software tools (such as Zoom, Asana, Kissflow Digital Workplace, or GoogleWorkspace), allowing remote meetings and providing digital workspaces (Pratama, 2020) or remote physical training activities (Castoldi et al., 2023). The evidence from Central Europe is supportive in this direction as well. The overall picture of the collected statistical data and empirical analysis shows that entrepreneurial activity has risen in the region compared to its pre-COVID-19 levels. For all four studied countries, we show that the growth was driven especially by the higher number of businesses operating in the information and communications industry and administrative and support service ac-

**Table 3. Results of the Paired T-tests across the Studied Countries**

Variable/indicator	Czech Republic	Hungary	Poland	Slovakia
Self-employment Rate	-0.43*	1.54*	1.00*	0.19
Solo Self-employment Rate	-0.13	1.50*	0.99*	0.31
Employers Rate	-0.31*	0.04	0.01	0.01
Wholesale and retail trade; repair of motor vehicles and motorcycles	-299.7	8,351.7*	6,044.7	-7,747*
Accommodation and food service activities	218.3	2,588.7*	10,983*	1,095.7*
Transportation and storage	3,524.3*	12,045*	3,680.3	2,450*
Manufacturing	2,270.3	5,744.3*	17,888.3	5,434.7*
Administrative and support service activities	4,633.3*	13,933.7*	13,285*	10,271.7*
Information and communications	9,371.7*	10,861.7*	46,512.7*	5,068.7*

Notes: A paired t-test is calculated for each of the indicators separately, comparing years 2017-2019 vs 2020-2022. Statistically significant differences are indicated with \*  $p < 0.05$ .

Source: Author's own calculations based on Eurostat data (2023a; 2023b; 2023c; 2023d) in STATA 14 software.

tivities, supporting the External Enabler framework. The regression analysis pointed out the increase in solo self-employment participation, which might be linked to the enhanced popularity and preference toward digital nomadism, providing opportunities to work online without having an explicitly stated office place and employer, providing services, for instance, via digital platforms or social networks (Sánchez-Vergara et al., 2023; Šímová, 2023). The actual details about the structure of self-employment activity, allowing for the incorporation of a definition of digital nomadism into the official statistics, is currently difficult to define and remains a recommendation for the representatives of the European statistical offices, as the proportions of individuals who are opting digital nomadism as a career choice, is still increasing (Demaj et al., 2021; Aroles et al., 2023) and is expected to shape the Central European entrepreneurship on a continuous.

On the other hand, we cannot neglect the adverse business effects brought on by the global pandemic, which at least temporarily affected entrepreneurs operating in retail, tourism, hospitality, culture, or sport. We need to remind ourselves of the closed restaurants, hotels, and considerable investments required to maintain the operation of retail stores (Dvorak et al., 2021; Betzler et al., 2021; Roncak et al., 2023). The three-year follow-up shows the number of businesses in the region in accommodation and food service activities has even increased (despite being insignificant in the Czech Republic in a separate analysis), which does not mean that there would not be closed businesses and entrepreneurs who would quit their occupations to find better options to earn a living, but the aggregate data inform us about the segment's overall development. One could thus only speculate on the intense competitiveness of the sector (new ones replaced closed businesses), the resilience of the entrepreneurs hoping to wait for better times, its overall dynamic development, or the effectiveness of the imposed anti-pandemic policies (Brown et al., 2020; Barbhuiya, Chatterjee, 2023). In this manner, we call for more micro-level evaluations, following the recent OECD (2023) Framework for the Evaluation of Entrepreneurship and SME policies, recommending that one implement the Evaluation Quality Score (EQS) and Six Steps approach to ensure that the evaluation results are sufficiently rigorous. Only rigorous evaluation studies can show which policies delivered the most influential impacts on the business's survival and growth during adverse times. This is a recommendation for ongoing studies, informing readers about the diverse effects of these public policies. One also cannot neglect the COVID-19 pandemic's effects, which were followed by the forthcoming energy crisis and Ukraine crisis, two ongoing events that have significantly affected both inflows of tourists to the region (in the negative direction) and, on the other hand, the high inflows of immigrants and refugees from Ukraine (Kříž et al., 2021; Kuckertz et al., 2023).

A recent study by the OECD (2022) reports on the best practices and key challenges associated with the segment's recovery. It is evident that the overall economic contributions of the industry to the gross domestic product (GDP) in all countries were affected negatively by the pandemic. Specifically, we use the OECD (2022) report to compare the contributions of the tourism economy to the GDP in the studied countries and to illustrate its downfall: Slovakia - 2019: 2.8%, 2020: 1.2%; Czech Republic - 2019: 2.9%, 2020: 1.5%; Hungary (measured as Gross Value Added) - 2019: 6.8%, 2020: 5.4%; Poland - 2018: 6.1%, 2020: 4.5%. Unfortunately, more novel comparable data for all countries are not available. Despite these harmful effects and the continuous recovery process, entrepreneurial activity does not seem to be showing such dramatic declines. The data up to 2022 shows that Central European entrepreneurs sustained and maintained business operations, and the data does not allow us to say the opposite. With that said, our main conclusion is that the COVID-19 pandemic has partially reshaped the structure of Central European businesses, which are now more inclined toward digitalization and information and communications, facing the challenges of the digital age, including artificial intelligence that could help us to understand further and expand sustainable business practices in the region (Cowls et al., 2021). A broader understanding of the adaptation of these trends in the structure and size of the studied formerly communist economies thus remains a further challenge for ongoing research that could shed more light on the further adoption of sustainability and a digital agenda within the current EU policies, thus becoming one of the central pillars of doing business in Europe.

Applying the described methodological approach toward monitoring entrepreneurial activity and adapting new statistical operations might help in this direction and provide relevant insights for policymakers and stakeholders. The application of advanced statistical and econometric modeling techniques in the first year of the pandemic (Dvouletý, 2021) has already suggested that the overall effect on entrepreneurship might be positive, which was also supported by this study, looking at the data three years since the pandemic's beginning. Such a finding underlines the importance of timely ex-ante entrepreneurship and business cycle fluctuations forecasting (also called nowcasting when following short-term development and using real-time or high-frequency data) for policymakers' decision-making processes, despite its deviations from the real development, being determined ex-post (Carriero et al., 2020; Barbaglia et al., 2023). Other studies on the quantifying effects of the global pandemic, such as the recent contribution by Faroni et al. (2022), dove into the quantification of the recovery speed across the countries, allowing us to determine which countries have dealt with the consequences of the pandemic better and which experienced more significant (not only economic) dam-

ages, and thus experienced a slower recovery. This is another suitable recommendation for future research within the Central European context.

Ongoing monitoring of entrepreneurial development remains a key issue as the consequences of ongoing Black Swan events (e.g., Yousaf et al., 2022) reshape global economic and diplomatic powers, which opens up new tensions between established EU members and Russia, while awaiting the response of the remaining G20 superpower countries, such as China. If the European Union member states come to the point that they remain in isolation from international trade or lose their competitiveness due to the enhanced

competitiveness of Asian countries and their technological advancement, even in traditional European industries there could be serious social and economic consequences (Berger et al., 2022; Vokoun, Dvouletý, 2022). Therefore, a key area of interest for European as well as Central European policymakers is to promote innovative solutions in the region, critically assess to what extent the current business population lags behind the global trends due to its regulatory framework, and to adapt rapid changes in enhancing the quality of the European entrepreneurial ecosystem, fostering ongoing international trade activities between Europe and other continents.

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