

## Article

# Impact of the COVID-19 Pandemic on the Business Environment in Slovakia

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**Abstract:** The COVID-19 pandemic has significantly affected economic development in countries around the world. It has deepened existing problems and increased the need for economic transformation, modernisation, and qualitative development, and launched new technological reforms that have led to the emergence of new economic forms of business models, consumption, as well as policies at the level of the state or local governments. The impacts of the pandemic are still visible in many aspects of life, including economic activity and the individual decisions of economic subjects at the level of households, enterprises, and governments. In this article, we present the results of the impact analysis of the COVID-19 pandemic with an emphasis mainly on the SMEs segment focusing on the tourist, hotel, and gastro industry (generally as one of the most affected by the pandemic). We also analyse the impact of the pandemic on the automotive industry because it is the most important manufacturing industry in Slovakia. Regardless of which industries of the national economy they are operating in, SMEs are assumed to be a driving force of structural changes, increasing employment, and economic growth. SMEs in Slovakia represent approx. 99% of all active enterprises and significantly participate in the success of the national economy. They are also an important factor in cooperation with large enterprises; in the case of Slovakia, the automotive industry should be highlighted (it is an important part of the secondary sector). The analysis and evaluation of the impacts of the COVID-19 pandemic are carried out as a temporal and comparative analysis of the selected economic and industrial indicators relevant to the assessment of the impact of the pandemic on the Slovak business environment. It is an overview study of development; the impact of the pandemic is expressed mostly through the ratio indicators. The basis for time analysis and comparison is data representing the economic status quo before the pandemic (2019), and the ordinary period is represented by data distinctive of the pandemic period (2020, 2021). The results of the analysis indicate that the pandemic had a strong impact on employment and the sales of enterprises operating in the accommodation and catering industries; on the other hand, it did not reflect in the number of defunct enterprises, which points to the potential effectiveness of anti-pandemic measures in terms of state aid for the business sector. The results of this study may serve as a basis for the evaluation of introduced support programs (the evaluation of optimal combination and the impact of fiscal policies during a national/global economic crisis between assisting households, companies, state, and local governments) immediately mitigating the consequences of anti-pandemic measures, but also programs to eliminate the long-term consequences of the pandemic in the business environment in Slovakia. Assessing the situation is also a prerequisite for evaluating the impact of current crises (problems such as the global failure of logistics chains due to the pandemic, inflation, the environmental and energy crisis, and migration due to war conflict and applied sanction measures). In general, it is possible to claim that the pandemic was a huge burden for Slovakia; on the other hand, it was a lesson learned.

**Keywords:** COVID-19 pandemic; business environment; pandemic impact



**Citation:** Svabova, Lucia, Katarina Kramarova, and Dominika Chabadova. 2022. Impact of the COVID-19 Pandemic on the Business Environment in Slovakia. *Economies* 10: 244. <https://doi.org/10.3390/economies10100244>

Academic Editor: Robert Czudaj

Received: 13 August 2022

Accepted: 26 September 2022

Published: 7 October 2022

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## 1. Introduction

Small and medium enterprises (SMEs) play a key role in the economic acceleration of any country. Their contribution (from the national economic perspective) is based mainly on their considerable number, adaptability, flexibility in decision making, and resulting synergistic effect. Even if a small enterprise alone does not show a huge benefit to the economy, given that there are many small enterprises, their overall benefit, the synergistic effect, is quite substantial and increases significantly (Carvalho and Costa 2014; Gregova and Novikov 2017; Haviernikova and Mynarzova 2018, etc.). For the Slovak economy (like other centrally planned Eastern Bloc economies), their creation was irreplaceable for the process of transforming a centrally planned economy into a market one after 1989.

The growth and development of SMEs depend mostly on a favourable business environment determined by both micro and macro facts (Civelek et al. 2016; Meyer and Meyer 2016), since the business environment has a significant impact on the progress, competitiveness, and opportunities for business growth (Khan et al. 2021; Kolkova 2020). Following this, SMEs are the most important catalysts of economic growth (Henderson and Weiler 2010). In Slovakia, according to the data provided by the Slovak Business Agency (2022), SMEs represent more than 99% of all active business entities in a long-term period, including all three years under analysis (2019–2021). For example, for 2021, SMEs provided job opportunities in the corporate economy to almost 3/4 of the active workforce (74%) and participated in more than half of the added value creation (55%).

The business of SMEs worldwide was recently affected, mainly by the COVID-19 pandemic. The effects of the pandemic manifested primarily in the economic, social, health, and technological areas at the national and global level and affected the behaviour and decision making of all economic entities in the meaning of their general classification—households, enterprises, state. The pandemic is seen as a systemic shock with profound implications, both in the short- and medium- to long-term (Engidaw 2022). Many enterprises were pushed to the brink of collapse due to anti-pandemic measures, and national economies suffered significantly in almost all aspects (Song and Zhou 2020). The pandemic is still affecting behaviour and decision making in some areas to varying degrees. Although it is assumed that the global threat from the COVID-19 pandemic has passed (the severity of the disease is gradually reaching the level of “common” flu), the consequences of the pandemic on the activity and economy of selected entities still persist, e.g., the functionality of global supply chains has not yet been ensured (the situation that occurred during the pandemic is currently escalated by the war conflict and the adopted sanction measures).

During the COVID-19 pandemic, which officially began in Slovakia in March 2020, the adopted anti-pandemic (epidemiological) measures were able to flatten the epidemiological curve; however, they contributed to a sudden and sharp economic decline, unemployment, and an increase in public spending. The COVID-19 pandemic has significantly affected major economic variables such as economic growth, world trade, public spending, unemployment and underemployment, foreign direct investment, production and sales, household consumption, the investment of enterprises, etc. (Khan et al. 2021). The depression in the business environment during the pandemic period was mainly caused by government regulations, the stoppage of production, a decrease in demand, or by changes in consumer preferences (Kramarova et al. 2022; Martin and Roman 2021; Ugurlu and Jindrichovska 2022). It had a negative impact on the economies of all countries, notwithstanding the strictness of the measures they adopted. This can be explained by the fact that the current economies are interconnected; therefore, developments in their external environment significantly affect the given country (Caplanova 2021). In general, the strictness, length, and nature of the COVID-19 anti-pandemic measures around the world were (and still are) relatively heterogeneous.

The national anti-pandemic measures and regulations had different impacts on businesses, as sectors are not homogeneous (Phan et al. 2015), and therefore, responded differently to market shocks due to the pandemic. The relationship between supply and demand during the pandemic (considering the market for goods and services as well as

the market for capital and labour) varied depending on the characteristics of the industry (depending on the market, the business acted on the supply side or on the demand side) (Belas et al. 2021).

In Slovakia, the anti-pandemic measures were mainly aimed at reducing the mobility of people and preventing social contact. As a result of the enforcement of curfews and voluntary social distancing, enterprises mainly operating in tourism, travel, dining, and leisure were critically affected. The closing of borders and the suspension of air transport were felt most by the service sector, restaurants, bars, theatres, cinemas, swimming pools, ski resorts, and tourism in general. Closures of cities and industries, travel restrictions, and border closures by other countries led to large declines in service sectors such as retail, tourism, and hospitality. The COVID-19 pandemic also drastically reduced hotel occupancy rates. In terms of the size of enterprises, it was mainly a limitation of the activities of SMEs. Wu et al. (2022) found that a decrease in production due to the COVID-19 crisis in European enterprises depended on capacity utilisation and the size of employment.

As for Slovakia, according to the Slovak Business Agency (2022), up to 94% of SMEs experienced a drop in sales during the first and second waves of the pandemic. If we wish to point out the problems of large enterprises due to the crisis in Slovakia, the automotive industry in Slovakia was affected significantly, especially during the first wave of the pandemic. The automotive industry is generally a typical representative of the globalised sectors and, together with other representative sectors, is still struggling to meet demand due to the COVID-19 crisis. All four car producers operating in Slovakia (Volkswagen, Peugeot, Kia, Jaguar Land Rover) shut down production in March 2020, which subsequently caused most car suppliers in Slovakia to significantly reduce production volume or close operations due to the lack of car components. Breaks in production due to a lack of components are still present today.

In the case of the automotive industry, there is also the high dependence of the whole world on China, the largest automotive market in the world and, at the same time, the largest producer of components. The impact of the pandemic restrictions in China—such as production suspension—was, therefore, also significant for global automakers (the anti-pandemic measures adopted in China are considered the strictest), as most of them have joint ventures in China and remain exposed to the risk of disrupted supply chains.

The next significantly affected sector was the electronic industry, to which the same could be applied—the closure of Chinese assembly companies caused a freeze in orders for the producers of semiconductors and other electronic components that are needed in modern consumer electronics devices.

On the other hand, the response of enterprises and governments to the challenges associated with the COVID-19 pandemic has led to the development of the digital economy around the world. In addition to enterprises that were bankrupted because of the adopted measures, many took advantage of the opportunities in the given situation and adapted or differentiated their business activities. During the pandemic, state effort was necessary to help enterprises overcome the adopted anti-pandemic measures.

In this article, we focus on the automotive industry due to its significant importance to the Slovak economy (the Slovak industry is clearly automobile-oriented), as well as the tourism–hotel industry, and restaurant services, as some of the areas most affected by the COVID-19 pandemic due to adopted anti-pandemic measures. The results of the analysis provide scope for understanding the impact of the unexpected fact on the activity and economy of the mentioned sectors, as well as the Slovak economy. It also offers the possibility of carrying out further research studies which, based on the results of this analysis, can subsequently contribute to an objective assessment of the state aid provided to economic entities because of the COVID-19 crisis in Slovakia.

The contribution itself is an overview analytical study consisting of three main parts—a literature overview that maps the COVID-19 crisis from the perspective of the functionality of business entities (including SMEs); the methodology and data selection, where we present the methodology of analysis, including the data we worked with; and the results

and discussion section, where we present our findings and discuss them in close connection with their usefulness for other studies.

## 2. Literature Review

In recent decades, the attention of academics and policymakers towards the entrepreneurship of SMEs has increased (Acs et al. 2008; Audretsch and Keilbach 2007). This interest has been stimulated by various studies showing the significant contribution of SMEs to economic growth, job creation, and innovation (Carree et al. 2007; Storey 2016). According to the study of the World Bank (2022), SMEs account for most businesses globally and are important contributors to job creation and global economic development. From a quantitative perspective, SMEs represent about 90% of businesses and more than 50% of employment worldwide. It is estimated that their contribution to the GDP in emerging countries is up to 40%.

A prerequisite for the development of SMEs is a stable and quality level of the business environment (Haviernikova and Mynarzova 2018). The quality of the business environment plays an important role in the national economic sector—in the economic system of any country (Olah et al. 2019; Dvorsky et al. 2018) and different economic and non-economic indicators related to it. An adequate business environment with regulatory procedures that are transparent, easy to comply with, and accessible to all despite their connections may foster a greater contribution of the sector of SMEs to the growth of the national economy (Rocha 2012). In connection with the COVID-19 pandemic, e.g., studies presented by Belas et al. (2021), OECD (2020), Vaskovic and Siranova (2022), Versic et al. (2022) etc., indicate that, even with different types of state aid (e.g., temporary social-economic measures protecting companies and their employees affected by national lockdowns, such as provisional and exceptional indemnities; deferring the payment of contributions payable by employers in the statutory social security scheme; “kurzarbeit” schemes; financial compensation due to a decrease in sales, etc.), the pandemic (in terms of the adopted anti-pandemic measures) had a negative impact on the quality of the business environment. However, the impact of the pandemic in individual countries may also differ based on the different level of social experience of any country, which will already have been exposed to epidemics and other catastrophic events in the past (Belas et al. 2015; Gavurova et al. 2020).

Regarding the economic and other impacts of the COVID-19 pandemic on the national economies and the global economy, many studies evaluate these impacts using different statistical and non-statistical assessing methods/models. Their common denominator is, for instance, the fact that they see the duration of the pandemic as an unexpected fact and place its effects (mainly economic ones) in a mutual confrontation, primarily with the effects of the global financial crisis, which began to take shape in 2008, e.g., Almeida et al. (2021), de Crescenzo and Lepers (2021), Gehrke and Weber (2020), Gunay (2020), Gunay and Can (2022), Li et al. (2022), Wilkins et al. (2021), etc. In connection with the pandemic, another significant part of the studies is represented by the evaluation of support systems and schemes in individual countries, which were aimed at supporting (financially, socially) the most affected entities, e.g., Brulhart et al. (2020), Burdenko et al. (2021), Dell’Ariccia et al. (2022), Juergensen et al. (2020), Roziqin et al. (2021), Xia et al. (2021), Zamani et al. (2022), etc. In connection with this, other studies focus on evaluating the impact of the COVID-19 crisis and the impact of provided financing support systems and schemes from the perspective of the burden on public and government budgets. OECD (2021) states that the COVID-19 pandemic caused a significant deterioration in public finances, adding to pre-existing strains from long-term structural challenges, including population ageing, climate change, rising inequality, digitalisation, and automation. As for Slovakia, the preparation of the budget for 2021 already also included expenses intended for dealing with the pandemic (state aid to the business sector and households, financing the costs of testing and vaccinating the population). However, the expenses in the final sum exceeded the planned value by 1.9% of the GDP for 2021 (Council for Budget Responsibility SR 2022). Next, the empirical studies and analysis of empirical data also demonstrate various im-

pacts of the crisis on individual economic sectors. [Valaskova et al. \(2021\)](#) investigated changes in the shopping behaviour of consumers in Slovakia during the pandemic and identified the most important factors impacting consumers' financial situations, as well as the effects on the maintenance of new shopping habits established during the pandemic period. The studies show that uncertainty related to the COVID-19 pandemic had a heterogeneous effect on the performance of individual enterprises, industries, and financial markets in general. Some industries benefited from the COVID-19 crisis, while others were negatively affected, considering different assessment variables ([Abbas et al. 2021](#); [Anayi et al. 2021](#); [Das 2022](#); [Juergensen et al. 2020](#); [Klein and Smith 2021](#); [Kramarova et al. 2022](#); [Szczygielski et al. 2022b](#); [Szczygielski et al. 2022a](#), etc.). Among the areas most affected by the COVID-19 pandemic are offline areas focused on personal communication: tourism, transportation, accommodation and food provision, healthcare, and entertainment ([Abbas et al. 2021](#); [Li et al. 2021](#); [Kramarova et al. 2022](#)), all in connection with the issue of the SMEs, e.g., [Belas et al. \(2021\)](#) compared SMEs in Czechia and Slovakia and investigated the impact of the pandemic on various areas of business management and different economic segments where the SMEs under analysis operated. The conclusions confirm that the pandemic had a negative impact on the financial performance of SMEs, while this burden was not homogeneous in terms of the industry orientation of the examined enterprises. Disproportionality was also noted regarding the sectoral classification of SMEs and its effects on unemployment and the creation of new job positions ([Kramarova et al. 2022](#)). [Juergensen et al. \(2020\)](#), in response to the first wave of the pandemic, argue that in the short run, most SMEs mainly faced logistical challenges in addition to demand disruptions, although the severity differed across enterprises and industries.

### 3. Materials and Methods

The analysis and evaluation of the impacts of the COVID-19 pandemic were carried out as a temporal and comparative analysis of selected economic and industrial indicators (aggregates) relevant (and generally accepted) to the assessment of the pandemic impact on the Slovak enterprises, hence, mainly SMEs, since they represent 99.9% of all active enterprises in Slovakia. They participate considerably in the creation of the Slovak GDP and employment as the basic economic macro-aggregates.

The indicators are clustered into general indicators (number of SMEs, number of established and defunct SMEs, number of allowed SMEs restructurings) and economic/financial indicators (gross production, added value, rate of employment, sales, amount of funds drawn for SMEs, amount of funds drawn for SMEs to support jobs).

The contribution is an overview study of development; the impact of the pandemic is expressed through the ratio indicators. The basis for time analysis and comparison is data representing the economic and social status quo before the pandemic (2019), and the ordinary period is represented by data distinctive of the pandemic (2020, 2021). All the data we work with are secondary quantitative data originating mostly from the reports presented by the Slovak Business Agency and official statistics from the Slovak Statistical Office. These are not aggregated data; data aggregation and summarisation were necessary for the analysis. The length of the time series, or the period the data covers, always depends on its availability; therefore, this period might differ for the selected indicators (we mainly focus on the pandemic period—years 2020 and 2021 if it is available). However, the previous period mainly serves to estimate the development trend of the indicators.

We firstly pay attention to the analysis of the overall situation in the Slovak economy and the business environment. After that, we deal with a more detailed analysis of the selected sectors according to the official classification of economic activities (SK NACE classification), namely with the automotive industry as the most important industry in Slovakia (the Slovak economy is oriented toward the automotive industry; in Slovakia, there operate four car producers). The share of the automotive industry in the total industrial production of Slovakia reached 49.5%, and the share of exports was 46.6% for 2019. In 2019, this industry directly employed more than 177,000 people and directly and indirectly

generated up to 275,000 jobs. The designation according to the SK NACE classification is as follows:

- Automotive industry: manufacturing (NACE C), thereof, the manufacture of vehicles:
  - NACE C29—Manufacture of motor vehicles, trailers, and semi-trailers;
  - NACE C30—Manufacture of other transport equipment.

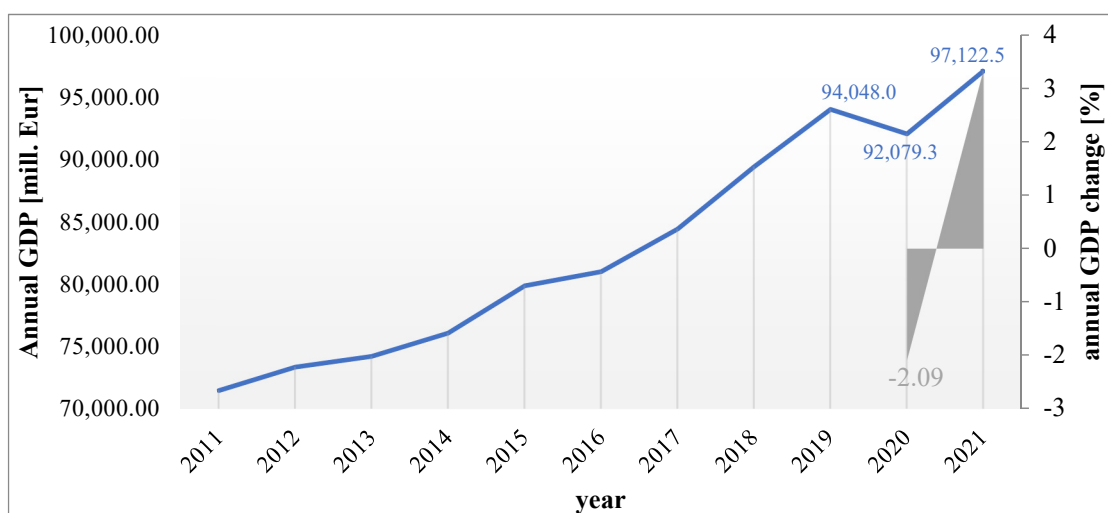
The second sector we examine is the sector of services (tertiary economic sector) related to the tourism–hotel industry, and restaurant services, as some of the areas most affected by the COVID-19 pandemic and the anti-pandemic measures adopted. The designation according to the SK NACE classification is as follows:

- Restaurants, catering establishments, hotels, and guesthouses: accommodation and food service activities (NACE I) thereof:
  - NACE I55—Accommodation;
  - NACE I56—Food and beverage service activities.

#### 4. Results and Discussion

##### 4.1. Analysis of the Impact of the COVID-19 Pandemic on the Business Environment in Slovakia

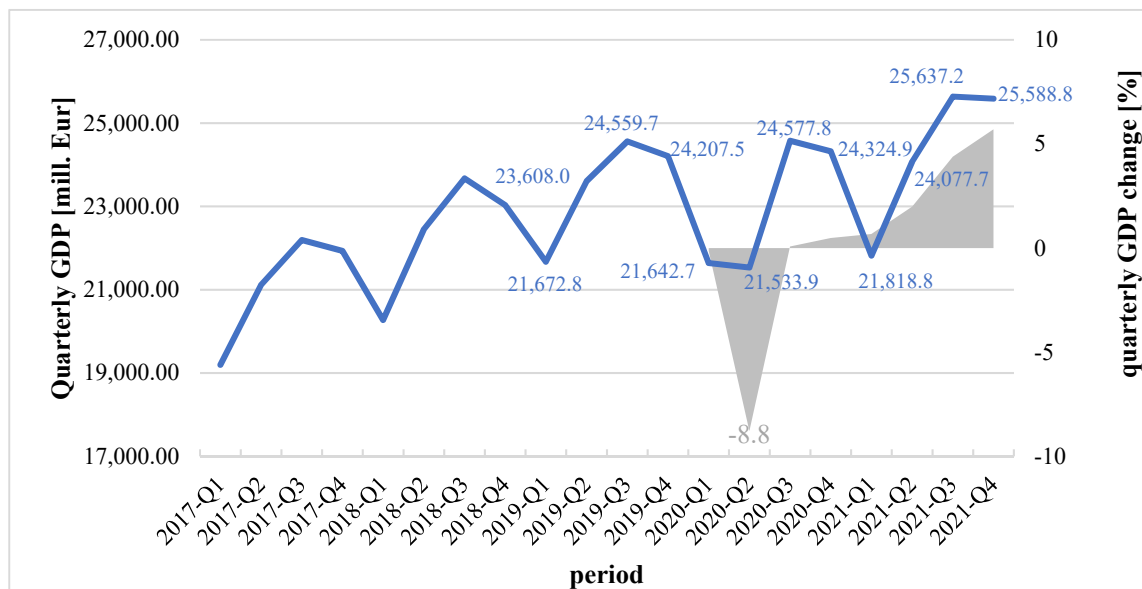
The development of the Slovak GDP (the most used measure of the size of the national economy in general; in this case, expressed in constant prices calculated by chaining volumes to the reference year 2015), as it can be seen in Figure 1, dramatically dropped mainly in 2020 (in comparison to the pre-pandemic year 2019), which corresponds with the first and second wave of the COVID-19 pandemic in Slovakia when the government adopted the strictest anti-pandemic measures during the whole duration of the pandemic and its presence in Slovakia. While before the spread of the pandemic the medium-term forecast of the National Bank of Slovakia spoke of a 2.2% growth of the national economy for 2020 (National Bank of Slovakia 2019), the GDP was by more than six perceptual points lower compared to 2019. According to the Statistical Office of the Slovak Republic (2021), the drop in the GDP was caused by declines in the key industries, especially in the automotive industry, and by declines in several parts of the service sector.



**Figure 1.** Annual GDP development in Slovakia. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

In 2021, the development of the Slovak GDP recovered and reached a higher value than before the pandemic outbreak. Therefore, it can be concluded that the impact of the pandemic on the Slovak GDP was not as fatal as it seemed. Instead, it mainly had an impact on slowing down the economic development of the Slovak economy. On the other hand, however, it is necessary to point out that the GDP was primarily formed thanks to the growing consumption of households.

A more detailed overview of the quarterly GDP development is presented in Figure 2. The blue line represents the GDP development, and the grey area shows the percentual change in the pandemic period for the corresponding quarter compared to the pre-pandemic year 2019.



**Figure 2.** Quarterly GDP development of the Slovak Republic. Source: own elaboration based on the data from Statistical office SR.

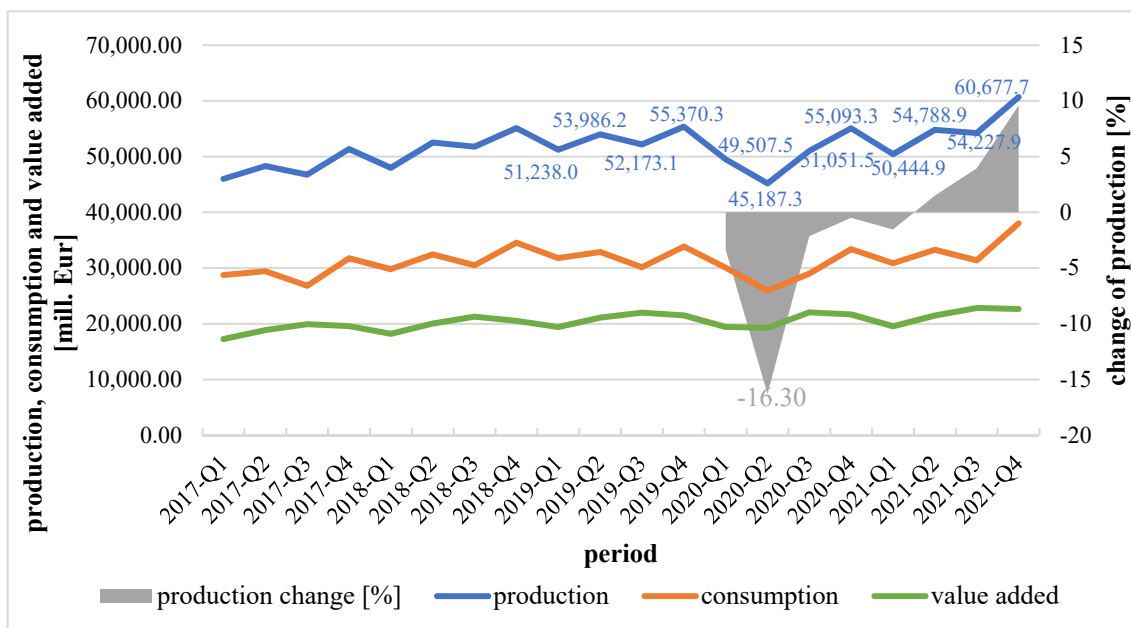
The quarterly GDP development had a seasonal character. It is visible, among other things, that the pandemic had the greatest impact on the Slovak GDP in the second quarter of 2020 (GDP = EUR 21.5B), which corresponds, for example, with the state in the second quarter of 2017. On the other hand, in the third quarter of both pandemic years the GDP increased—in the third quarter of 2020 by 11.4% compared to the second quarter of 2020, and by 1.5% in the case of a year-on-year comparison (to the third quarter of 2019) and the third quarter of 2021, by 4.4% in the case of a year-on-year comparison to the pre-pandemic period (to the third quarter of 2019). For instance, compared to the state during the global financial crisis of 2008, the difference in GDP changes was also that, after a significant decrease in the first and second quarters, the increase in the third quarter was jumpy, which was related to the specific shock that caused it. We assume that this significant difference was mainly caused by the relaxation of anti-pandemic measures at the end of May 2020 and 2021. The waves of the COVID-19 disease had a seasonal character; in the late spring and summer of 2020 and 2021 the situation improved, and strict anti-pandemic measures were not required.

Comparing the quarter data on the Slovak GDP during the pandemic, the pandemic had a milder impact on its development in 2021 than in 2020, as the fluctuations were not as significant as during 2020. In the third and fourth quarters of 2021, the GDP reached the values seen before the pandemic. The reason for this was primarily the health measures adopted (the mass vaccination of the population), which did not require such a strict closure of economic activities as in 2020. Further, effective aid from the state focused primarily on supporting the employment of enterprises threatened by the crisis, as well as the loss of sales due to the restriction of their business activities in response to the anti-pandemic measures adopted in Slovakia. The state aid was provided within the support scheme “First Aid”, and the structure of this support varied depending on the character of the recipients and the severity of the impact of anti-pandemic measures on their business activities. The aid contributions consisted of a contribution from the state budget of the Slovak Republic, or a contribution from the state budget of the Slovak Republic and, at the same time, a

contribution from the European Social Fund (in a ratio of 85:15 and 50:50, respectively, depending on the territorial region of the aid recipient).

In reality (based on the quick estimate compiled according to the ESA methodology), the GDP of Slovakia in the second quarter of 2022 increased year-on-year by 1.7% ([Statistical Office of the Slovak Republic 2022a](#)); however, the situation still lags behind the pre-pandemic estimates.

Closely related indicators to the GDP are production, intermediate consumption, and added value (other macro-aggregates expressed in constant prices). Their development is shown in Figure 3.



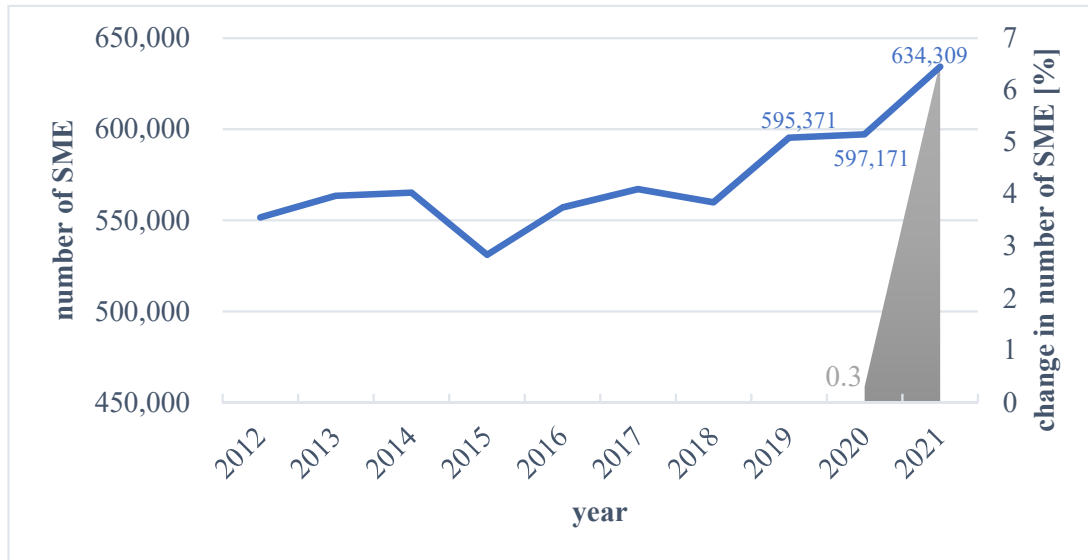
**Figure 3.** Development of production, intermediate consumption, and value added. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

In Figure 3, in addition to seasonal fluctuations, we can see that before the pandemic, the development of all three indicators had a slightly increasing trend. In the second quarter of 2020, the value of production fell by more than 16%, a drop of EUR 8.8B compared to the same period of 2019. The decrease was mainly caused by intermediate consumption, which decreased in that period due to the lower consumption of services and less production. At that time, the first anti-pandemic measures were adopted, and a state of emergency was introduced. In addition to the suspension of air traffic, industrial production was also limited, which was reflected in this significant drop. In the same quarter, intermediate consumption decreased by more than 21% compared to 2019, representing a loss of almost EUR 7B. However, this decrease was followed by an increase in the next quarter due to more relaxed anti-pandemic measures and the re-opening of production and operations, as well as due to the provision of support schemes “First Aid” from the state. However, these are still lower values than in the base year 2019. The change acquired positive values only from the second quarter of 2021. When compared to the base year 2019, it increased by 1.5%. Then, the situation in the country improved, measures were eased, testing was expanded, and vaccination began. This helped to restore the activity of enterprises and their consumption.

To examine the impact of the COVID-19 pandemic on the Slovak economy and business environment, we also used the number of active business entities operating in Slovakia, one of the indicators of the general nature. This indicator generally points to the business activity and interest in doing business in Slovakia. Figure 4 namely shows the development of the number of SMEs in Slovakia (blue line) and its changes during the pandemic

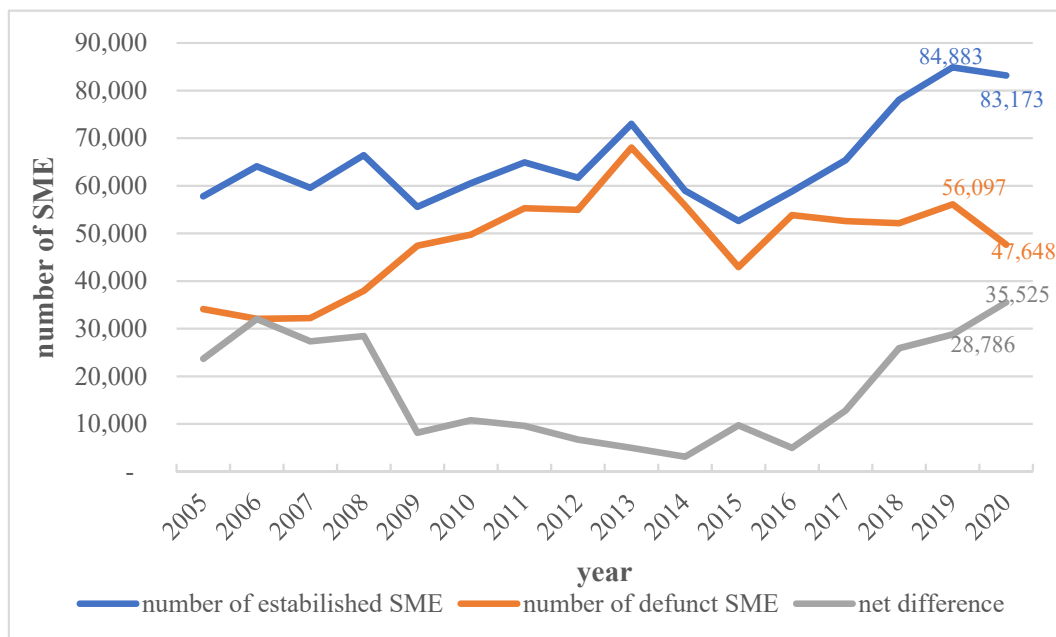


compared to 2019 (a grey area). The focus on SMEs is purposeful, since from the beginning of the statistics on the number and size of enterprises in Slovakia, SMEs (including micro-enterprises) comprise 99.9% of all enterprises actively operating in the country.



**Figure 4.** Development of the number of SMEs. Source: own elaboration based on the data from the Slovak Business Agency.

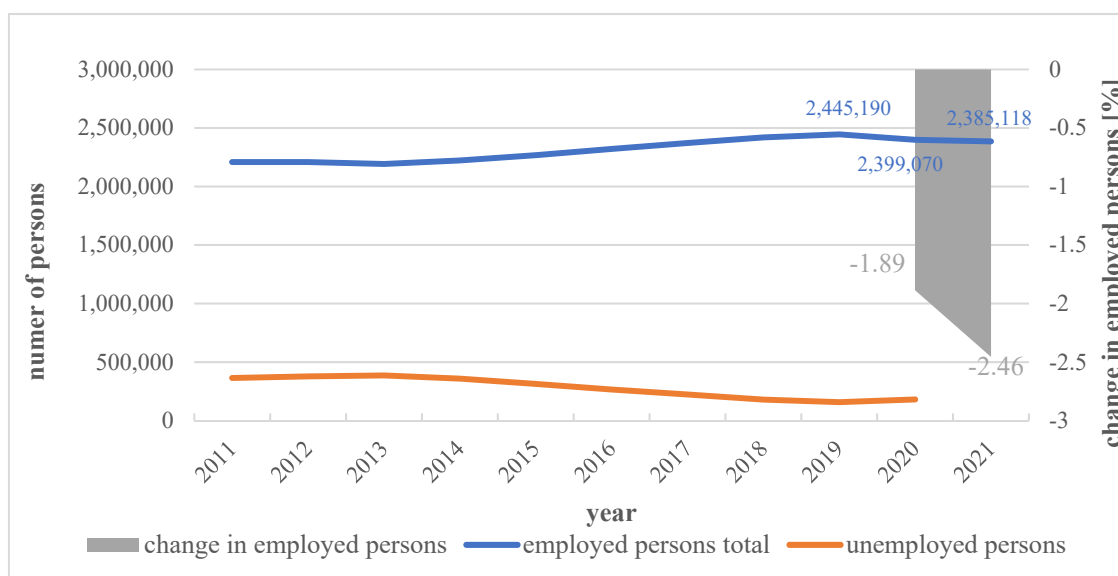
The total number of enterprises has been increasing since 2018, even after the pandemic outbreak. However, the reason for this cannot be found in the growing number of newly established enterprises, but in the decreasing number of enterprises that ceased their business activities. By comparing both indicators, the net increase is another general indicator that characterises the business environment in Slovakia, focusing on the segment of SMEs (regardless of the economic sector they operate in). The development of these indicators is presented in Figure 5.



**Figure 5.** Development of the number of established and defunct SMEs and their net difference. Source: own elaboration based on the data from the Slovak Business Agency.

In 2020 the number of newly established enterprises decreased year-on-year by 2%, which indicates that the business environment, which in that year was influenced by anti-pandemic measures, was evaluated by potential starting entrepreneurs as rather unfavourable for starting a business. On the other hand, the number of defunct entrepreneurs also decreased, namely by 15.1%, which may indicate that, despite the worsening business conditions due to the anti-pandemic measures adopted, the financial support from the state was so effective that it limited the number of enterprises that would otherwise terminate their activity. Most of them represented self-employed entrepreneurs. Therefore, the change in the total net increase in 2020 is positive; it increased by 23.4%.

We also assessed the state of the business environment in the country through the analysis of employment, which reflects the state of the labour market in Slovakia. As for employment, overcoming the economic and social crisis caused by the pandemic and raising real wages and the standard of living of citizens is important. In this regard, the Government of the Slovak Republic is committed to promoting measures aimed at maintaining employment, creating new jobs, and improving the quality of the business environment in Slovakia by reducing bureaucracy in employment, administrative complexity, and tax burden. The development of the number of employed (blue line) and unemployed persons (orange line) and the percentage change of employed compared to the base year (a grey area) are shown in Figure 6.



**Figure 6.** Number of employed and unemployed persons. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

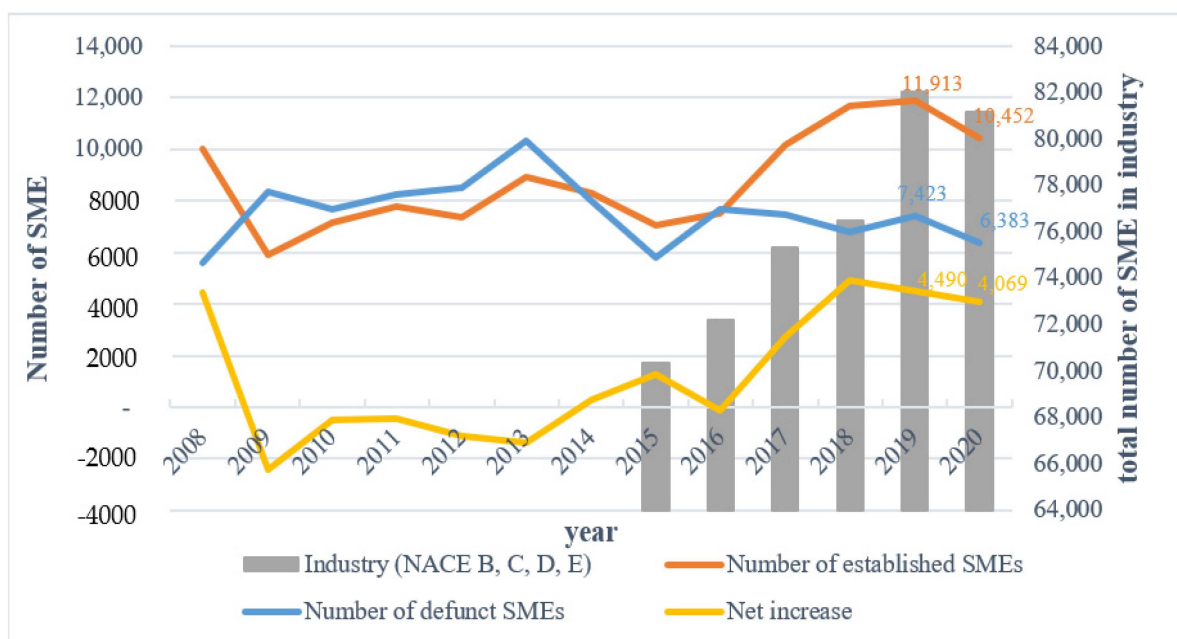
Based on the data from the Slovak Statistical Office, overall, the number of employed persons had an increasing trend (the state from 2013 to 2019). On the contrary, the number of people actively looking for work was continuously decreasing. In 2019, in the case of both indicators, the Slovak economy reported the best values ever (considering the whole existence of the Slovak Republic since 1993)—the registered unemployment rate was only 4.92%. Subsequently, in 2020 and 2021, the registered unemployment rate increased by 2.65 per cent in 2020 compared to 2019, and 1.84 per cent in 2021 compared to 2019. In absolute terms, the number of employed persons in 2020 reduced close to the level of 2017 (1.9% less than employment in 2019), and in 2021 the situation was even worse (decreased by 2.5% in comparison to 2019). Therefore, it is obvious that the pandemic negatively affected the labour market situation (a result of reduced production, closed establishments, reduced mobility, or the impossibility of working from home). The increase in unemployment and the decrease in employment occurred even though the number of active enterprises in the Slovak economy increased during the pandemic years. The

structural analysis of the unemployed indicates that layoffs occurred mainly among so-called agency employees and employees who had reduced working hours. Likewise, the number of persons unemployed before reaching retirement age increased.

#### 4.2. Analysis of the Impact of the Pandemic on the Business Environment in the Selected Sectors

##### 4.2.1. Industry (Secondary Sector)

According to the [Statistical Office of the Slovak Republic \(2022b\)](#), the industry includes activities related to mining and quarrying; manufacturing, the supply of electricity, gas, steam and cold air, and the supply of water; the cleaning and drainage of waste water, and waste and waste removal services. Figure 7 shows the number of SMEs in the industry sector from 2015 to 2020. The data are for all enterprises with a main industrial activity, including self-employed persons.



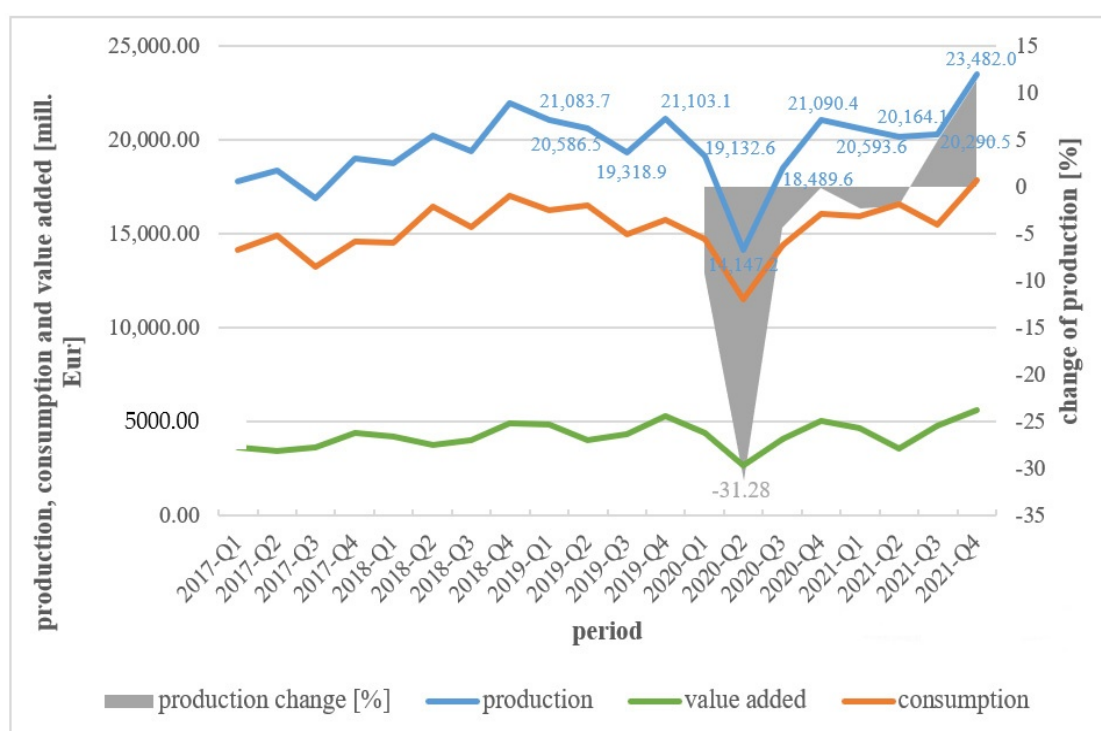
**Figure 7.** Development of the total number of active SMEs, newly established SMEs, defunct SMEs, and the net increase in SMEs in the industry. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

The development of the number of SMEs in the industry sector (grey bar graph) demonstrated a growing trend in the monitored period with a maximum in 2019, when the number of SMEs reached over 82,030 enterprises. However, the pandemic visibly disrupted this development trend, since the number of SMEs fell to approx. eighty-one thousand in 2020.

In addition to the total number, we can also monitor the development of the number of established and defunct SMEs in the industry, as well as their net increase. The data indicate that the number of newly established SMEs in the industry (orange line) fluctuated during this period. After the financial crisis in 2008–2009, the number of newly established SMEs increased slightly; the highest value in this general indicator was revealed in 2019 when 11,913 SMEs were established, representing 14.5% of the total number of active SMEs. In 2020, the value of the indicator decreased by 12.3% to 10,452 (absolute difference of 1461 entities), which is a 12.9% share in the total number of active SMEs operated in the industry sector in Slovakia (a decrease of 2.2 percentual points). The number of defunct SMEs (blue line) in the pandemic year 2020 also decreased compared to 2019 by 14% (by 1040 entities in absolute terms). From the perspective of the quality of the business environment, however, it is acceptable that the total number of newly established

SMEs exceeded the number of defunct ones, which is mirrored in a positive value of the net increase.

Figure 8 shows depicted data, except for other data on gross production reported for the industrial production (NACE C). According to the [Statistical Office of the Slovak Republic \(2021\)](#), this quantitative economic aggregate expresses the value of own products and services which are the result of the economic activity of business entities in the monitored period (in our case, in constant prices). As follows from its time series analysis, the impact of the pandemic is mainly seen in the second quarter of 2020, when the production fell year-on-year by 31.28%, which is a drop of almost EUR 6.5B. At the same time, the decrease is already visible in the first quarter of 2020, when the value of the production fell by more than 9% compared to the same period of 2019 (by approx. EUR 1.95B). Until the third quarter of 2021, the output of industrial production was lower than in the reference period of 2019. However, after this period, the indicator recovered and reached values exceeding the pre-pandemic values (approx. EUR 23.5B in constant prices).

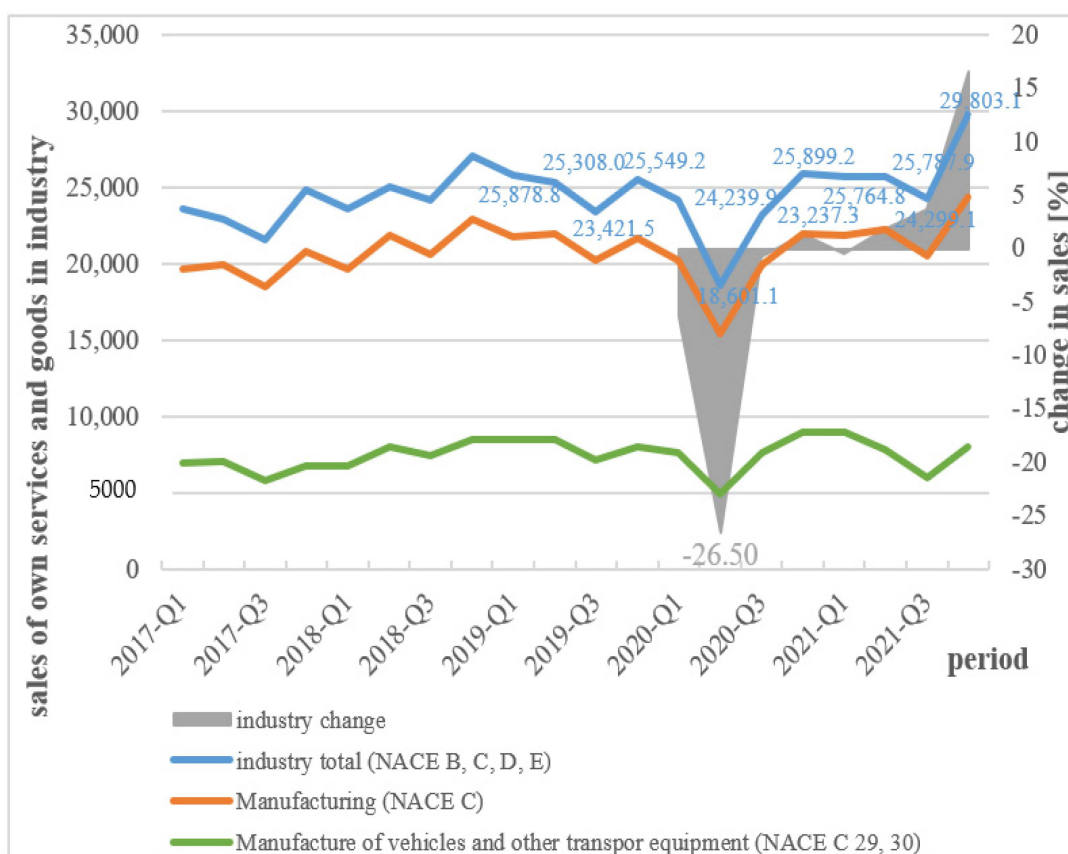


**Figure 8.** Development of gross production, gross value added and intermediate consumption in NACE C: Manufacturing. Source: own elaboration based on the data from Statistical Office SR.

Following the structural analysis of this economic aggregate, the decrease in its values was mainly caused by reducing the intermediate consumption (the estimated impact of the change in the consumption on the change in the aggregate indicator of the gross production is approx. 61.4%; *ceteris paribus* condition was applied), which, due to the suspension of production in Slovakia during the first wave of the pandemic, fell by almost 30.5% to approx. EUR 11.5B in the second quarter of 2020 compared to the same quarter of 2019. In general, its development copied the development of gross production—the recovery phase mainly started in the fourth quarter of 2021 when the values exceeded the pre-pandemic values. According to another economic indicator, the value added, the pre-pandemic state was also reached in the fourth quarter of 2021 when the indicator reached EUR 5.6B. This is based on the year-on-year comparison with the pre-pandemic state of 2019, an increase of 5.1%. Overall, the worst situation was in the second quartal of 2020, as in the case of the previous indicators when the value added of the Slovak industry was only EUR 2.65B. The negative change in the development of this indicator (based on a year-on-year comparison

of the second quarter of 2020 and 2019) affected the value of the production indicator (and thereby its decrease) by 38% (ceteris paribus condition was applied).

The impact of the pandemic on sales in the industry is depicted in Figure 9. According to the [Statistical Office of the Slovak Republic \(2022a\)](#), sales for own services and goods include the value of sales from the sale of own products, services, trade goods, revenues from orders, and revenues from the sale of real estate, realised in the monitored period and intended for domestic and foreign customers.

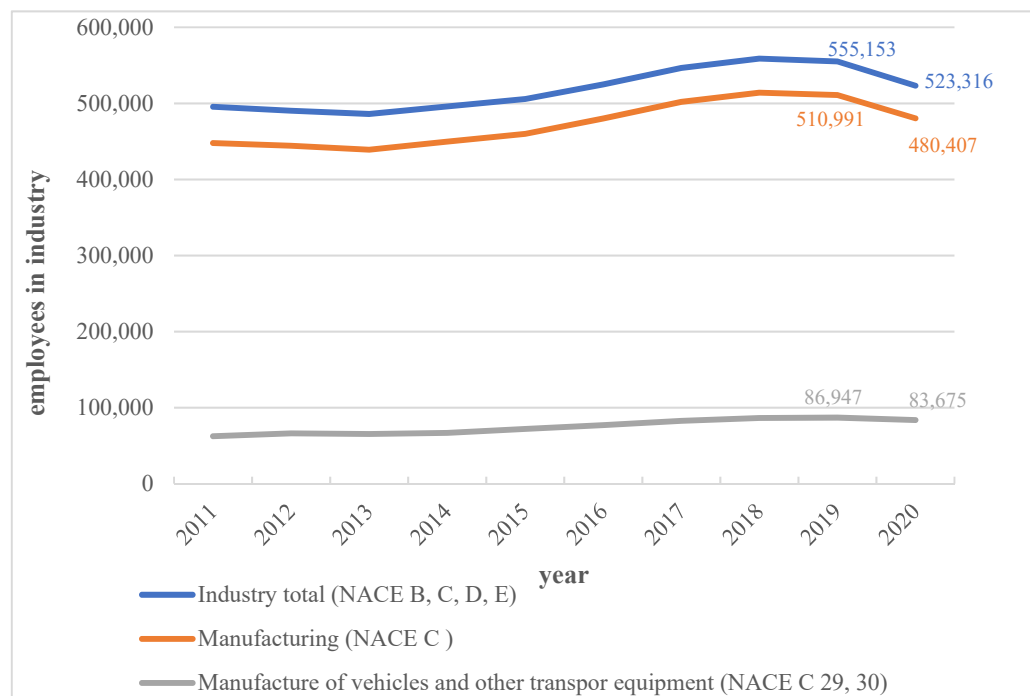


**Figure 9.** Development of sales of own services and goods in the industry. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

The development of sales in the monitored period fluctuated slightly. The largest decrease in sales in the industry sector occurred in the second quarter of 2020 when it fell by 26.5% to EUR 18.6B, compared to the same quarter of 2019. However, as in the case of previous economic indicators, an obvious recovery occurred in the fourth quarter of 2021—the reported sales were 16.6% higher (in constant prices). Therefore, although the results indicate that the pandemic was mainly reflected in sales for 2020, the values of the indicator for 2021 lag behind the pre-pandemic values of 2019 by 11.1%.

The largest share in the sales of industrial production covers the production of means of transport (SK NACE C—29, 30; in 2019—33.7%, in 2020—37.8%, in 2021—29.3%). In the first wave of the pandemic, which took place in the second quarter of 2020 in Slovakia, the production of vehicles by some car companies was limited or stopped, which caused this high drop in sales. In fact, sales for own services and goods in the vehicle manufacturing sector had already fallen by 9.6% in the first quarter of 2020, but the most significant drop occurred in the second quarter of 2020, when they fell by more than 41% year-on-year, which represented a loss compared to 2019 in the amount of EUR 3.5B. In the next period, sales increased, which was helped by the relaxation of anti-pandemic measures and the start of car production towards the end of 2020. However, an obvious recovery occurred again in the fourth quarter of 2021.

Figure 10 presents the data that are distinctive of the employment in the industry sector and its selected subsectors. According to the [Statistical Office of the Slovak Republic \(2022b\)](#), the average number of employed persons includes, in addition to the average number of employees, self-employed persons.



**Figure 10.** Development of employment in the industry. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

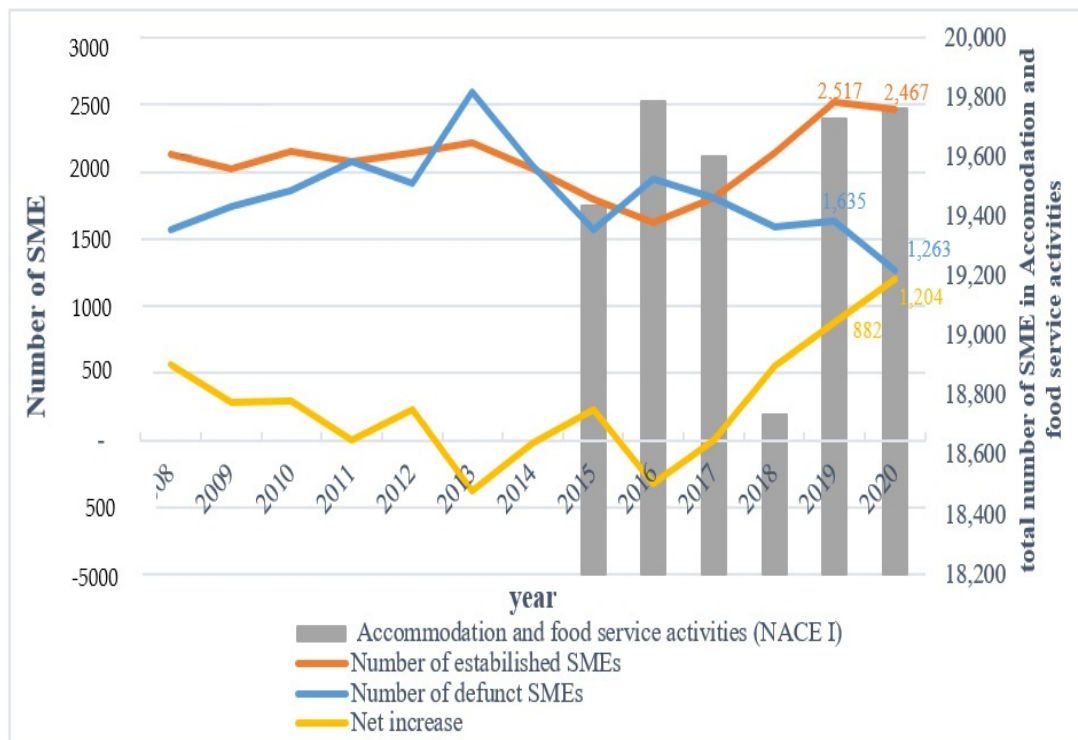
The number of employees in the industry and the sector of the manufacture of vehicles and other transport equipment (SK NACE C 29, 30) also had a growing character before the pandemic until 2019. In 2020, the number of persons employed in the industry decreased by 5.7% (in absolute terms by 31,837 people) due to layoffs caused by the COVID-19 pandemic and adopted anti-pandemic measures. In the case of a closer look at the enterprises operating in the sector of the manufacture of vehicles and other transport equipment, the results indicate that the employment in these industry subsectors had a 15.7% share in the employment for the whole industry in 2019, and 16% in 2020, respectively. Year-on-year, the employment in these subsectors decreased by 3272 people, i.e., 3.4%. The given subsectors participated in the overall decrease in employment in the industry sector by 10.7% (*ceteris paribus* condition was applied), and most dismissed employees had the character of agency workers.

#### 4.2.2. Sectoral Analysis of Services (Tertiary Sector)

The tertiary sector represents the service sector, which includes several subsectors/categories. In connection with the COVID-19 pandemic and its impacts, our attention is paid mainly to the analysis of enterprises operating in catering services (restaurants, hospitality) and accommodation services (hotels, tourism). According to the [Slovak Business Agency \(2022\)](#), 99.9% of the companies operating there are categorised as SMEs. The subsectors of these services are generally considered the most at risk due to the pandemic and adopted anti-pandemic measures.

Figure 11 graphically shows the development of the number of business entities operating in the accommodation and food service sectors. Obviously, there was a growing trend in the number of established SMEs in Slovakia until 2019. Compared to this trend, however, in the pandemic year 2020, the number of newly established companies decreased

by approx. 2%. The number of defunct SMEs also decreased, and the net increase was positive and growing over the last few years, which continued even in 2020. Thus, the impact of the pandemic on the number of SMEs is only visible in the case of the number of newly established companies.



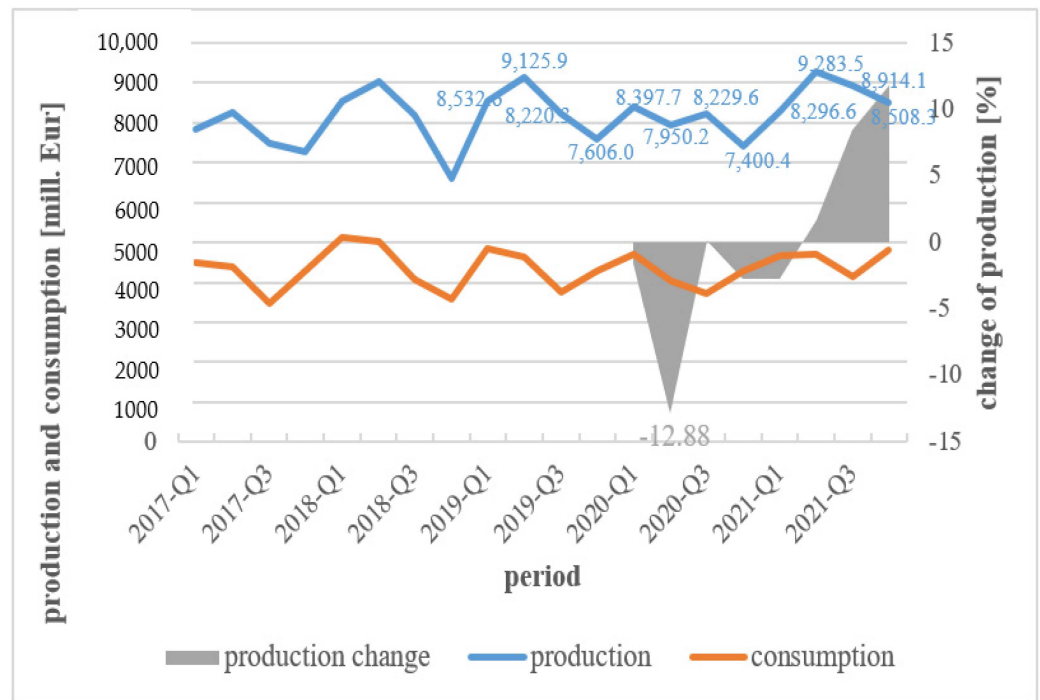
**Figure 11.** Development of total number, established, defunct number and a net increase in SME in NACE I: Accommodation and food service activities. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

The impact of the pandemic on the gross production (in constant prices) of this NACE category was most pronounced in the second quarter of 2020, when production fell by almost 13% compared to 2019, representing a loss of EUR 1.2B. The situation is described in Figure 12. The situation with gross production improved in the third quarter of 2020; the value of the indicator was slightly above the pre-crisis values in the same period of 2019. From the second quarter of 2021, production began to grow gradually, but with the arrival of the next waves of the COVID-19 pandemic and the adopted anti-pandemic measures, the production of enterprises operating in the accommodation and food services decreased again.

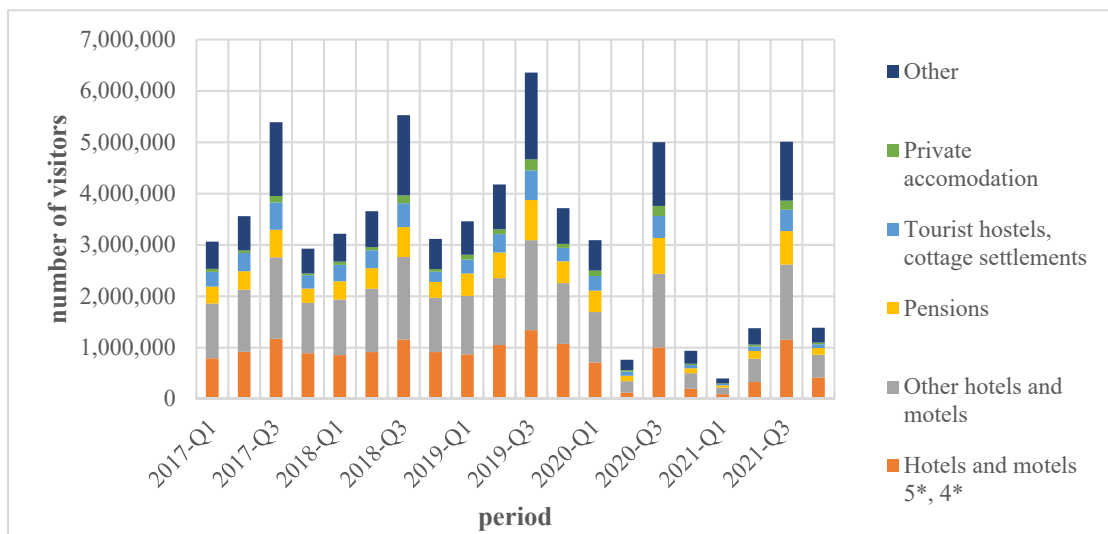
The tourism industry is also characterised by the number of visitors in accommodation facilities, and appropriate data are presented in Figure 13.

In the second quarter of 2020, when the mobility of people was most significantly restricted in Slovakia, the number of visitors in accommodation facilities decreased sharply year-on-year to only 15% of the number in 2019. Since the beginning of the pandemic, the number of visitors decreased significantly throughout the year, most significantly in the fourth quarter of 2020 and the first quarter of 2021, when a state of emergency was declared and no operations, especially ski resorts, could operate. Nevertheless, a partial recovery approaching the state before the pandemic indicates estimates for 2022.

If we monitor the number of overnight stays of visitors in accommodation services, we can say that compared to 2019, the number of overnight stays was lower in both years. However, the most significant reduction occurred in the first quarter of 2021. Compared to 2019, the number of overnight stays was only 11.4%, a drop of almost 89%.



**Figure 12.** Development of the gross production and intermediate consumption in NACE I: Accommodation and food service activities. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.



**Figure 13.** Development of the number of visitors in accommodation facilities. Source: own elaboration based on the data from Slovak Business Agency.

Figure 14 presents the sales of companies operating in accommodation and food service activities. The sales gradually decreased since 2020; the lowest sales were recorded in the second quarter of 2020. At the same time, it follows from the data analysis that the revival and, thus, the increase in sales always occurred in response to the relaxation of the anti-pandemic measures adopted at that time in Slovakia. As for most European countries, the situation in Slovakia worsened primarily in the autumn and winter months.

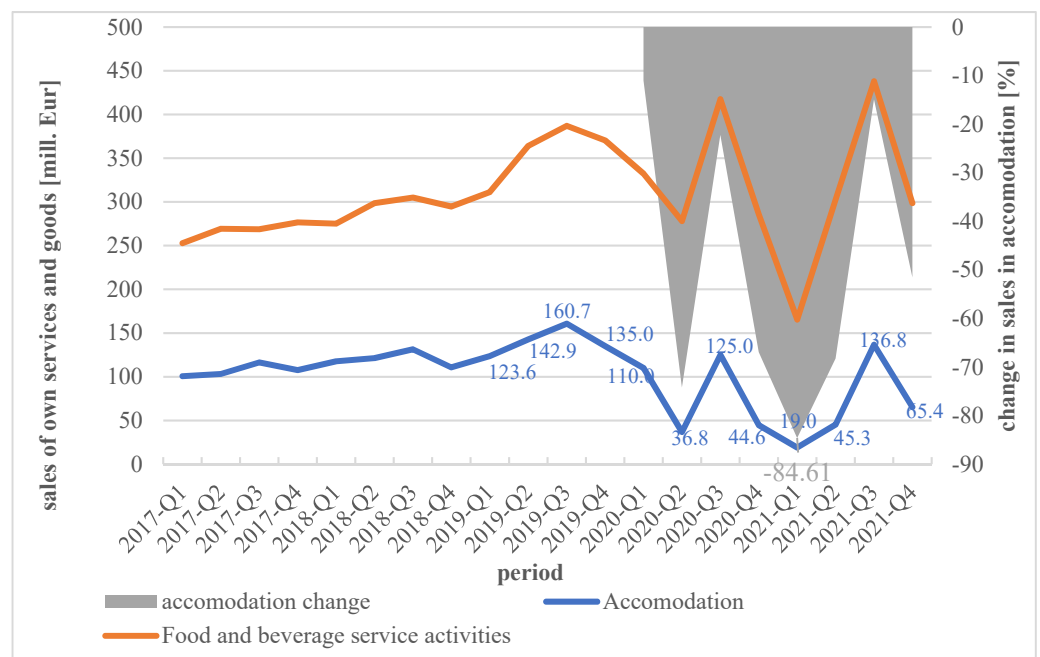
Accommodation sales fell by almost EUR 105M compared to 2019, which is a drop of almost 85%. Restaurant sales fell by almost EUR 146M, which is a decrease of almost 47% compared to 2019. At the time, a state of emergency and curfew were in place, so many



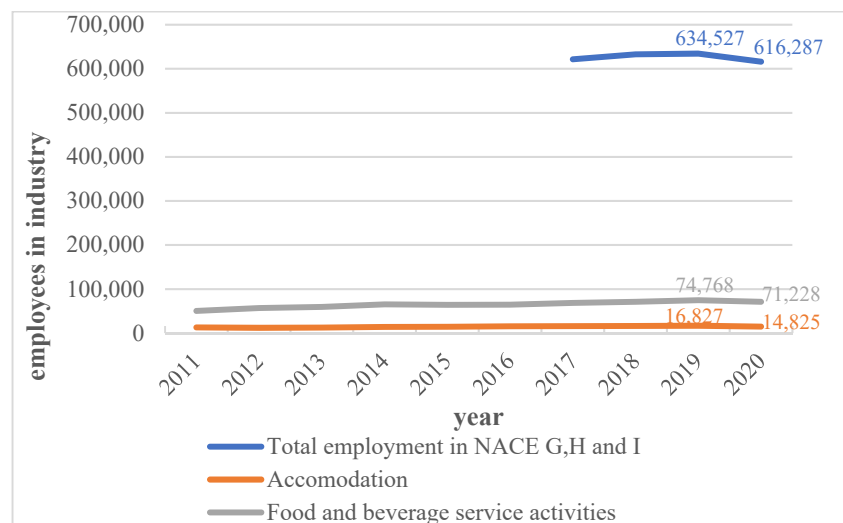
companies were forced to close. During the pandemic, sales developed depending on the situation and the adopted anti-pandemic measures and their strictness.

A more detailed look at the structure of tourism sales shows that in 2020 the tourism industry recorded the lowest sales during the last ten years. The biggest impact on tourism sales was for passive tourism sales, which reached only 11.5% of sales in 2019, i.e., they fell by 88.5% (by EUR 620M in absolute terms). The tourists paid almost 90% less for these services (air tickets, hotels, reservations, restaurants, etc.) than in the same period of 2019.

As for the employment in this sector, overall employment as well as the number of employees fluctuated throughout the monitored period. This is partly due to seasonality, but until the end of 2019 it demonstrated a growing trend. However, the employment saw a downward trend since the pandemic outbreak. The development is shown in Figure 15. Due to data availability, we show total employment in the service sector as employment in NACE G, H, and I. Unfortunately, data for the earlier period were not available.



**Figure 14.** Development of sales of own services and goods in accommodation and food and beverage service activities. Source: own elaboration based on the data from Statistical Office SR.



**Figure 15.** Development of employment in accommodation and food and beverage service activities. Source: own elaboration based on the data from the Statistical Office of the Slovak Republic.

A more detailed look at the number of employees in the service sector during the COVID-19 pandemic shows that employment was lower in both years than in 2019. However, the largest decrease was in the first quarter of 2020 when the number of employees fell by more than 25,000 compared to the same quarter of 2019.

Employment in accommodation services before the pandemic had a 2.7% share in overall employment in the services according to SK NACE classification G, H, I, and in food and beverage service activities this was 14% (all for 2019). In 2020, the number of employees in this sector decreased by almost 12%, which represented 2000 persons who lost their jobs in accommodation services. In the restaurant and food service activities sector, the decrease in employees after the pandemic outbreak was more moderate, but more employees lost their jobs in absolute numbers. Compared to 2019, the number of employees decreased by 3.5%, representing over 3500 people.

#### 4.3. Discussion

The COVID-19 pandemic caused a significant drop in the Slovak GDP due to closed operations, problems with the disruption of supply chains, or restrictions on the mobility of people. While before the spread of the pandemic, the medium-term forecast of the National Bank of Slovakia spoke of a 2.2% growth of the Slovak economy for 2020 (National Bank of Slovakia 2019), the GDP growth was negative (−) 4.4%. A partial recovery of the Slovak economy occurred in 2021 when the GDP recorded an increase of approx. 3%. In the case of Slovakia, the development of the Slovak GDP was like the development of GDP in other EU countries when the economic slump was recorded, especially in the first year of the immediate response to the COVID-19 pandemic. Likewise, there was a negative development in the indicator of the registered number of unemployed persons in Slovakia, and its development was like the development of the Slovak GDP, i.e., a partial recovery occurred in 2021 when the unemployment rate was 6.76%, i.e., by 0.81 percentage higher than in 2020; however, this was by 1.84 lower behind the pre-pandemic year 2019. The impact of the pandemic can be seen mainly in the areas heavily affected by the anti-pandemic restrictions and especially in such job positions where working from home was impossible. We consider the increase in unemployment and the decrease in sales as basic indicators of the possible effects of COVID-19 on selected sectors of the economy. In that case, the sector of services, especially the hotel industry and restaurant services (SK NACE I), belong among the most hit. These industries, or the tourism industry, were declared the riskiest even globally.

Tourism in Slovakia, from the perspective of participation in the value of GDP (the share of the direct GDP of tourism in the GDP of the Slovak economy is long-term at the level of approx. 2.8%), is not so important, but indirectly its share is higher, and it is gaining importance (indirect approx. 6%). Almost 100% of these enterprises simultaneously fall into the segment of SMEs.

The state of tourism significantly worsened just due to the closure of borders, the suspension of air traffic, the ban on passing between districts, and the closure of wellness centres, hotels, swimming pools, and ski resorts. The pandemic and measures to prevent the spread of the coronavirus weakened this part of the service sector most noticeably. A more detailed look at the structure of tourism sales shows that in 2020 the tourism industry in Slovakia recorded the lowest sales during the last ten years, and the biggest impact of the pandemic on tourism sales was in the case of passive tourism sales, which reached only 11.5% in 2019. Due to the forced limitation of their business activities, a decrease in consumer demand and an increase in costs, restaurants, hospitality establishments, and accommodation establishments were exposed to the pressure of reducing costs, for example, by laying off their employees. In terms of this kind of service, the adequacy of the aid provided by the state was constantly debated during the COVID-19 crisis, as enterprises of this type of service represent a significant part of the enterprises that decided to close their operations due to the pandemic. They also point to the threat to their activity in the current era as a direct result of the energy crisis and high inflation, which are both the result

of the gradual recovery of the economy after the end of the most difficult periods of the COVID-19 pandemic, but also of the war conflict. To support tourism in Slovakia, it would also be possible to increase the value of so-called recreational vouchers. These vouchers serve to cover part of the costs of recreation in Slovakia for employees of large companies. If the employees' annual limit allocated for stays in Slovakia increased, tourism would be supported, and thus, the situation in this industry could improve. Here, however, it would be necessary not to transfer the burden for this increase in the limit of recreation vouchers to employers, but the participation of the state would also be necessary.

The study was also focused on the most important industrial sector in Slovakia—the automotive industry (SK NACE C—29, 30). At the same time, this is an industry that is characterised by the close cooperation of large automobile companies and SMEs operating in the given industry with related activities specific to the production of automobiles in the conditions of Slovakia. The COVID-19 crisis limited or stopped the production of vehicles, which caused the car producers a large drop in sales. In fact, sales for own services and goods in the vehicle manufacturing sector had already fallen by 9.6% in the first quarter of 2020, but the most significant drop occurred in the second quarter of 2020, when they fell by more than 41% year-on-year, which represented a loss compared to 2019 in the amount of EUR 3.5B. In the next period, sales in this industry increased; however, an obvious recovery occurred again in the fourth quarter of 2021. The decline in sales in the given industry was not only recorded because of the interruption of production due to the introduction of measures against the spread of the virus in Slovakia, but also due to the introduction of restrictions abroad, which disrupted the logistic chains ensuring the supply of the necessary components, which “fully” manifested the integration of the Slovak economy into the global economy.

## 5. Conclusions

In this study, we focused on the quantification of the impact of the COVID-19 pandemic on the economy of Slovakia. For this purpose, we used public data from the Slovak Statistical Office and Slovak Business Agency. These data are published yearly in separate studies. First, it was necessary to collect all the values of indicators in order to characterise the SME environment in Slovakia. In the analysis, we focused on the general environment in the country. Consequently, we analysed two selected sectors—tourism, including food and accommodation services, one of the most affected sectors by the pandemic, and the automobile industry, one of the most important economic sectors in the Slovak economy. The analysis showed the fields in which the economy as a whole and individual sectors were most affected by the pandemic, or rather, adopted anti-pandemic measures.

The contribution of this article can, therefore, be the identification and quantification of those aspects of the business environment in Slovakia that were affected by the pandemic. This can help to focus the right measures, serving to mitigate the immediate but also the long-term consequences of a pandemic or other emergency in the future.

As a weakness of this study, we consider the fact that some data were measured only on an annual basis. Quarterly or even monthly indicators would capture the development of the situation during the pandemic in more detail and with greater accuracy. In addition, it would also be possible to quantify the impacts more precisely. In this study, we used only a simple percentage change compared to the base pre-pandemic year 2019. In the continuation of this study, we would also like to focus on the statistical modelling of the time series development of the analysed indicators. These models could subsequently be used to predict their development in a situation without a pandemic. This would increase the precision when quantifying the pandemic's impact.

**Author Contributions:** Conceptualisation, L.S. and D.C.; methodology, L.S. and D.C.; software, L.S.; validation, L.S. and D.C.; formal analysis, L.S. and D.C.; investigation, L.S.; resources, D.C.; data curation, D.C.; writing—original draft preparation, L.S.; writing—review and editing, L.S. and K.K.; visualisation, L.S.; supervision, L.S.; project administration, L.S.; funding acquisition, L.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** This publication was created thanks to support under the Operational Program Integrated Infrastructure for the project: Identification and possibilities of implementation of new technological measures in transport to achieve safe mobility during a pandemic caused by COVID-19 (ITMS code: 313011AUX5), co-financed by the European Regional Development Fund.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Publicly available datasets were analysed in this study.

**Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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