EKONOMICKÉ ROZHĽADY – ECONOMIC REVIEW, 2024, 53(1), 4 ─ 21
https://doi.org/10.53465/ER.2644-7185.2024.1.4-21

THE IMPACT OF THE COVID-19 PANDEMIC ON ACCOMMODATION FACILITIES IN THE V4 COUNTRIES – CURRENT SITUATION AND DEVELOPMENT PERSPECTIVES[1]

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Abstract: *The COVID-19 pandemic had an immediate negative impact on the tourism sector on an international as well as a national scale. The number of accommodation facilities recorded a constant growing trend in the pre-pandemic period. The assumption of world organizations focused on tourism was that it would decrease in the pandemic and post-pandemic period. The aim of the contribution is to measure the impact of the COVID-19 pandemic on accommodation facilities in the V4 countries and their future development forecast. To fulfill the main objective, secondary data from the European Statistical Office (EUROSTAT) for the years 2011-2020 were used. Accommodation facilities in the pre-pandemic period recorded a constant growing trend, while the results of the forecast for the development of the number of accommodation facilities in the future show that this growing trend is also expected after the pandemic period.*

Keywords: *accommodation facilities, V4 countries, tourism, COVID-19*

JEL Classification: M29, Z32

[1] The paper was presented on conference EDAMBA 2023.

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1 Introduction

The COVID-19 pandemic was one of the world's most difficult crises. Strict pandemic measures have essentially stopped tourism around the world. This situation had the greatest impact on tourism, which also includes companies providing accommodation services - accommodation facilities. Measures to mitigate the spread of the disease resulted in the complete closure of these businesses. Their future as well as the development of their performances became uncertain. The OECD predicted that due to the pandemic, international tourism would drop by 60-80% compared to 2019 which will also have a significant impact especially on accommodation facilities (OECD, 2020a).

A significant element of the impact of the pandemic is its very impact on tourism businesses, as well as on tourism in general.

The V4 was founded in 1991 with the aim of supporting economic and social catch-up cooperation in the region. It pays particular attention to the cooperative solution of the socio-economic consequences of the COVID-19 epidemic, with an emphasis on creating suitable conditions for a safe tourist flow (Antošová, Vogl & Schraud, 2020). During this period, almost 1.6 million visitors stayed in hotels, guesthouses, and other accommodation facilities in the Slovak Republic, which represented a year-on-year decrease of almost 54%. In May 2020, the number of international tourists decreased by 98% compared to the same period in 2019 (Tajtáková, 2021). According to data from STR Poland, the occupancy of accommodation in 2020 decreased by approximately 70% compared to the previous year 2019, which significantly affected tourism in Polish cities. The decrease in the percentage of occupancy of accommodation facilities clearly indicates a potential economic impact on the tourism industry and subsequently on the Polish economy (Korinth & Ranasinghe, 2020). The occupancy and economic situation of accommodation facilities in the V4 countries have a more favorable development into the post-Covid period than international countries (Michalkó et al., 2022).

Forecasts of the development of the number of accommodation facilities are crucial for strategic decisions and the effective response of the strategic management of accommodation facilities to the crisis caused by the Covid-19 pandemic (Zhang & Lu, 2022). Forecasting the development of accommodation facilities can help the state in assessing the potential impact of events on the implementation of various security policies to ensure the demand of visitors.

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Therefore, there are various professional and reliable methods through which it is possible to forecast the demand for accommodation facilities, which are able to capture the volatility of the pandemic and its consequences (Benítez-Aurioles, 2022). Measuring forecasts within the development of accommodation facilities is also important for setting prices. The Covid-19 pandemic has caused a significant reduction in prices and demand worldwide. Changes also occurred in the characteristics of the rooms, the characteristics of the clientele, and the reservation policies. Forecasts speak of a change in the behavior of the clientele due to the fear of the pandemic, an increase in accommodation prices and also an increase in accommodation facilities (Wachyuni & Kusumaningrum, 2020). Other tourism predictions in the post-Covid era are that travel trends have changed. People are looking for and will look for short-term tourism, which can cause an increase in occupancy in accommodation facilities and their new rise. It is also assumed that countries that had a high number of patients treated for Covid-19 will be more affected by the reduced number of visitors (Gricar & Bojnec, 2022). Tourism will also be strongly affected by rising inflation from 2021 as a result of the pandemic. Not only tourism businesses will be affected, but also visitors who will be looking for cheaper accommodation options (Antipov & Pokryshevskaya, 2020). Authors Gunter, Smeral and Zekan, in their scientific research focused on tourism import, assume a decrease in the average annual growth of tourism imports from 2.7% per year to approximately 1.7% per year within the countries of the European Union (Gunter, Smeral & Zekan, 2022).

There are only a few authors who have conducted research regarding the impact of the Covid-19 pandemic on accommodation facilities in the V4 countries and their subsequent forecasts for the future. Since accommodation facilities are an important aspect for tourism and its development in the territory of the V4 countries, it is necessary to focus on their operation and expected development. Authors such as Antipov and Pokryshevskaya (2022), Kvítková and Petrů (2021) , Antošová, Vogl and Schraud (2022) addressed the impact of the pandemic on accommodation facilities in the EU and V4 countries. However, they did not work with predictions of the development of accommodation facilities in their research papers. They used only discrete and empirical research without specification for accommodation facilities.

The paper is aimed at predicting the development of the number of accommodation facilities in the countries of the V4 group in the post-pandemic period, as well as at identifying the impact of the Covid-19 pandemic on the

investigated companies providing accommodation. The aim of the article is to measure the impact of the COVID-19 pandemic on accommodation facilities through the indicator of the number of accommodation facilities in the V4 countries in the time 2011-2020 and their future development forecast.

2 Literature Review

Statistical models of the spread of SARS-CoV-2 indicated that due to insufficient immunity in the population and the highly contagious nature of the virus, 40-70% of the population could become infected unless strict measures were taken to prevent the spread of the disease. At the community level, the most important measures to reduce the spread of infection rely on case detection, isolation, and contact tracing of positive cases, followed by quarantine for those exposed (Khanna et al, 2020).

The world faced an unprecedented global health, social and economic emergency due to the COVID-19 pandemic, travel and tourism were among the hardest hit industries with planes grounded, hotels closed, and travel restrictions in place in virtually every country around the world (UNWTO, n. d.).

The COVID-19 pandemic has caused a financial and economic crisis in tourism. Revised OECD estimates of the impact and consequences of the pandemic indicate that it will have the effect of reducing international tourism by 60 to 80 percent (OECD, 2020; WTO, 2020; CCSA, 2020).

Tourism is the industry that was most affected by the Covid-19 crisis and its prospects in 2020 were very uncertain. The OECD expected that tourism would drop by 80%, and destinations that focus on international, business, and social tourism had the biggest problems. However, rural, coastal, and regional areas were predicted to fare better than large cities. It was assumed that tourism would revive only after international tourism began. Interventions and support from governments and from businesses were also necessary to focus on motivating tourists to travel again and use tourism businesses (OECDb, 2020).

In their research, García-Gómez et al used the ESM method (application of event study methodology) where they found that the coronavirus outbreak had more damaging effects on accommodation prices than previous epidemics.

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It also shows that the effects are persistent and longer-term (García-Gómez et al., 2021). The authors of Baños-Pino et al. (2021) state based on research that the length of stay of tourists has changed from longer to short-term. The impact of the Covid-19 pandemic had a strong effect on reducing spending on accommodation in tourism by 1.34%, while spending on transport and other sectors increased by 0.54%. Due to the impact of the pandemic, tourists will look for cheaper accommodation and will rent fewer services in accommodation facilities.

Roman et al. (2022) investigated the impact of Covid-19 on 31 European countries in terms of tourism in the period 2019-2020. They state that the most affected areas in the tourism industry were accommodation facilities, which was caused by restrictions on flights.

Tourism businesses reduced their development and economic growth during this period. The economic growth of tourism decreased by 3.2% in 2020, and forecasts indicate an increase again in 2021 (CRS, 2021). Syaifudin, Hendarmawan and Noviati (2022) examined the impacts of Covid 19 worldwide through a literature overview, where they state that the pandemic also had an impact on the reduction GDP in each country (Gross Domestic Income), reduction of salaries due to reduction of employees and termination of employment of employees in tourism businesses. In their research work, Aldao, Blasco and Espallargas (2022) focused on learning from Covid-19 for the future. They predict that tourism will grow again due to the strong motivation of tourists to travel, which will also result in an increase in the number of employees. After the revival of tourism, the dismissed employees refuse to return to their original jobs for fear of job stability. Accommodation facilities are therefore forced to look for new employees, which affects the quality of the services provided. In particular, businesses that have implemented information innovations and promote their services online will prosper (Aldao, Blasco & Poch Espallargas, 2022). Uglis et al. (2022) investigated the travel plans of tourists. Based on the survey, they state that in the post-covid period, tourists will choose safer accommodation than a cottage or a campsite. Resorts and hotels were considered less safe in terms of hygiene. They assume that accommodation facilities such as hotels and resorts will be less frequented and sought after by tourists. In Poland, Covid-19 had the most significant impact on hotels, boarding houses and motels, which caused them to close. Operators of caravans and campsites felt the least impact (Tokarz-Kocik et al., 2023). Tourists are expected to use services in their own country due to inflation and

disease concerns. Kvítková and Petrů (2021) mapped and characterized the current state of tourism in the V4 countries. They compared it with domestic tourism and recovery after Covid-19. Slovakia and the Czech Republic had the best positions in domestic tourism in 2021. In their study, the authors Pokryshevskaya and Antipov (2022) quantitatively analyzed the negative effects of restrictions within the framework of Covid-19 on the dynamics of tourism demand. They used a time-series analysis through which they found that hotels in 18 European countries were most affected by the pandemic. Most accommodation facilities were affected in countries such as Italy, Croatia, Spain, Belgium and Slovenia. Western Europe was included in the middle segment due to smaller losses caused by the pan-European blockade.

The OECD examined the specific impacts of the Covid-19 pandemic on tourism in the countries of the European Union. Until 2019, the Czech Republic recorded stable growth, and the cross-border trade accounted for 2.9% of GDP. Tourism accounted for 4.4% of total employment in 2019. In 2019, the Slovak Republic and Poland achieved record numbers that they had not had in the tourism industry until that year. In Hungary, tourism was the main source of the economy in 2019 and its GDP was at the level of 6.8%. Tourism contributed up to 9.5% of employment. In 2020, decrease occurred in all V4 countries. In the Czech Republic, tourism fell by approximately half - GDP fell to 1.5% and the drop in employment was up to 7.5%. In the Slovak Republic, revenues decreased by 62% compared to 2019, GDP was at the level of 1.2%, and this year the Slovak Republic recorded the lowest level of tourists in the last 20 years. In Poland, the economy decreased by 26.4% compared to 2019, GDP fell to 4.5% and employment recorded a decrease of 6.1%. In Hungary, the decline in tourism in 2020 was the mildest, but they also experienced a sharp decline due to the Covid-19 pandemic. The decrease in VAT in Hungary was 5.4%, and the overall decrease in tourists was 58.5%. In 2021, tourism in the V4 countries began to increase, but its results were still not the same as in the years before the Covid-19 pandemic. In the Czech Republic, domestic tourism recorded a decrease in accommodation by 20.7% less than in 2019. In the Slovak Republic, there was another decrease in foreign tourists, they also recorded a decrease in domestic tourists to -45% compared to the year before the pandemic. In Poland, the number of tourists decreased by 54% compared to the year before the pandemic. Hungary was the best of these countries and tourism started to recover, but it was still 28.5% lower than before the pandemic. The forecasts for the future are very good and a return

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to the years before the pandemic is expected. The Czech Republic expects tourism to return to the level of 2019 by 2024 or 2025. In Poland, this situation is a little more difficult, because at the beginning of the war in Ukraine, Poland saw a decrease in bookings throughout the country. Ongoing crises make it difficult to forecast the recovery of tourism, but it is expected that in 2024 the CR could approach 2019 and in 2025 exceed these results (OECD, 2022c).

3 Methodology

The aim of the contribution is to measure the impact of the COVID-19 pandemic on accommodation facilities through the indicator of the number of accommodation facilities in the V4 countries in the time 2011-2020 and their future development forecast.

Several scientific methods were used in the paper. The method of deduction and induction was used primarily in obtaining secondary data and subsequently in their processing. In connection with this, an abstraction method was used, by which only relevant information, data and data were extracted. The method of comparison was used in the interpretation of the obtained and identified contexts and data of the V4 countries. At the end of the paper, by means of synthesis, the results were generalized, and the opinion of the authors was adopted. Finally, mathematical-statistical methods were used, especially in the presentation and testing of the data set in the Gretl software and subsequently also in the created forecasts.

In the first step, the research area was identified, which was narrowed down to accommodation facilities in the V4 countries. Since the V4 countries are one of the least researched from the point of view of scientific and professional research, accommodation facilities in the V4 countries were accepted as the object of the research. Subsequently, secondary data were collected from available sources. Since it was necessary to identify the number of enterprises, it was necessary to decide whether the data would be drawn from the Statistical Offices of the individual V4 countries or from the Eurostat database. However, since the methodology for classifying businesses as well as the availability of data in individual Statistical Offices are different, which is also helped by limits in data complexity, Eurostat was determined as the data source. From Eurostat, accommodation facilities were chosen according to the NACE Rev. classification. 2 in section H Accommodation and catering establishments and

the following divisions H 551 – H552. Based on the obtained data on the number of accommodation facilities in the V4 countries, forecasts until 2025 were created.

The forecasts were created using the exponential smoothing forecast in the AAA version (additive error, additive trend, and additive seasonality) for the selected data for the years 2011-2020. The exponential triple smoothing (ETS) algorithm was used. It was used due to variations in data trends and seasonality. The SARIMA model was also used to verify and compare forecasts. Forecasting was performed using qualitative techniques, time-series analysis, and causal models. An alpha of 0.75, a confidence interval of 95%, and missing points were filled by interpolation.

The obtained data were presented through graphs, but above all the development of the number of accommodation facilities, data testing as well as the subsequent compilation of a development forecast with a view to 2025. The data distribution normality test as well as the data stationarity test represent one of the basic tests of the set, if in erroneous data or stationarity data appear in the file, if it were necessary to choose a different methodology. The conclusion of the paper contains a summary of the results and obtained data, as well as a proposal for future research.

4 Results and Discussion

4.1 The condition of accommodation facilities and their performance in the V4 countries in 2011-2020

Accommodation facilities fall under division I55 Accommodation facilities on the Eurostat statistical portal (Eurostat, 2023). The observed period 2011-2020 shows the development of accommodation facilities in individual countries and whether the fall caused their decline, increase, or stability. Chart 1 presents the development of the number of business entities included in section I Accommodation and catering facilities, specifically in division I55 Accommodation facilities.

Since 2011, Poland had achieved the highest number of accommodation facilities, while the development shows a growing trend, except for 2014, when accommodation facilities recorded a slight decrease. The second country with

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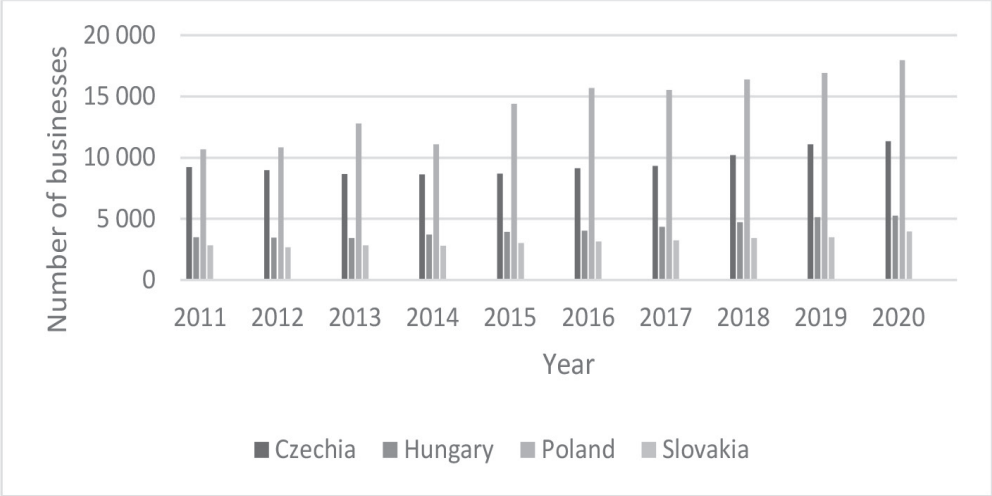
the most represented accommodation companies is the Czech Republic, which also shows a growing trend since 2015. The smallest number of represented accommodation companies is in Slovakia. Slovakia shows a growing trend in the monitored period, but relatively slower than in other cases. In the case of the overall development of accommodation facilities, we can confirm that Poland achieves the highest growth, namely 68% of monitored facilities since 2011. The Czech Republic achieved the lowest growth compared to the first monitored year. Its growth is at the level of 22%. Hungary achieved the second highest growth with a value of 51%, followed by Slovakia with a growth value of 39%.

Fig. 1: Development of the number of enterprises in division I55 Accommodation facilities, 2011-2020, in thousand



Source: own processing based on data from Eurostat

With the arrival of the COVID-19 pandemic at the end of the first quarter of 2020, it was assumed that the number of entities in the tourism industry, to which accommodation facilities belong, will decrease. From the above figure, it can be concluded that there was no decrease, on the contrary, there was a growth of companies providing accommodation facilities. Year-on-year growth in 2019/2020 was recorded at the level of 2-10%, while Slovakia achieved the highest growth in the number of enterprises at the level of 10%. We can assume that the growth in the number of businesses could have been caused precisely in the first quarter of 2020 when the introduced anti-pandemic measures were not yet so strict. During this period, many entrepreneurs closed their businesses and took advantage of state support.

4.2 Forecasting the number of accommodation facilities in V4 countries

Forecasting is one of the tools for predicting the style in which the investigated quantities will develop over time. The number of accommodation facilities in V4 countries was selected for forecasting. The goal of forecasting in this contribution is to identify the assumption of the development of the number of accommodation facilities without considering the onset of the COVID-19 pandemic and then compare the obtained forecasts with the achieved impact of the crisis period on them.

In the first step, it is necessary to determine whether the investigated data are normally distributed, which is what the test for the normality of the distribution of residuals is used for. A histogram of the data distribution was created for each country and the number of accommodation establishments. Histograms of the distribution of data by country are shown below.

Fig. 2,3,4,5: Histograms

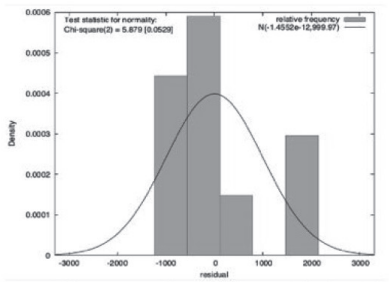


Fig. 2 Histogram of normality residuals of Czechia
Source: own processing

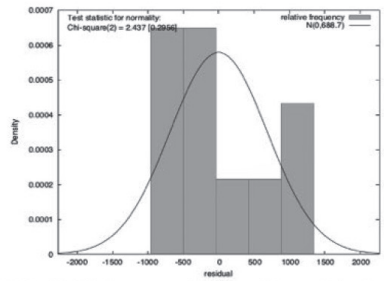


Fig. 3 Histogram of normality residuals of Hungary
Source: own processing

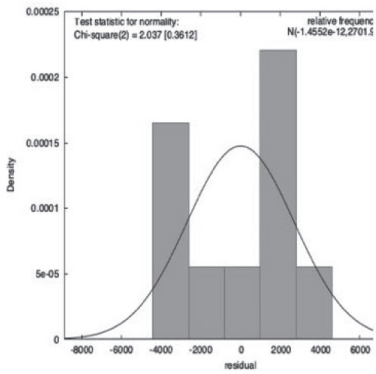


Fig. 4 Histogram of normality residuals of Poland
Source: own processing

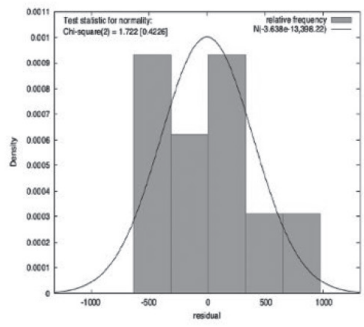


Fig. 5 Histogram of normality residuals of Slovakia
Source: own processing

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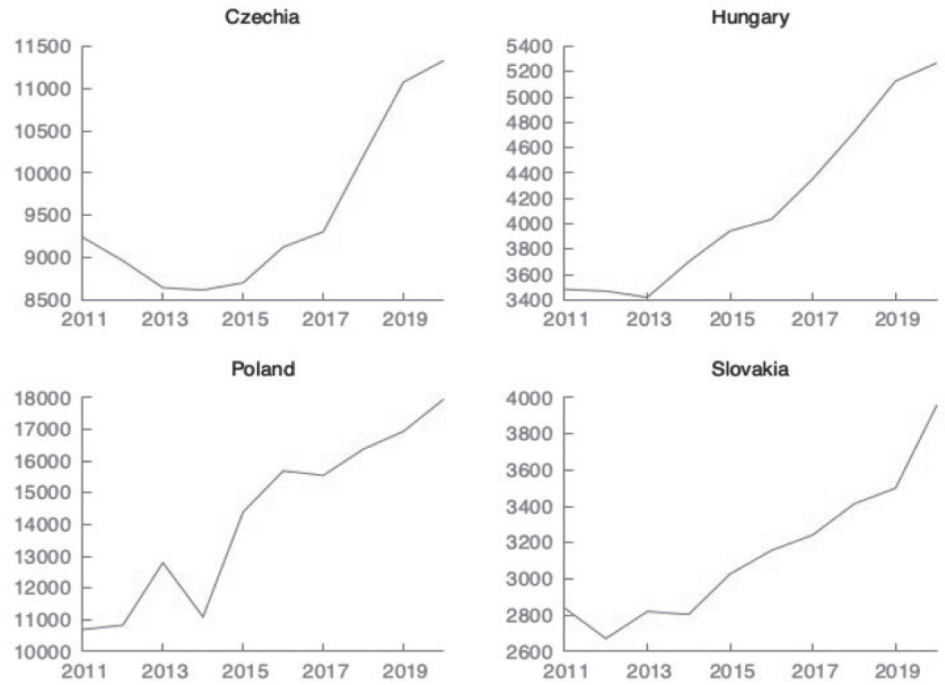
From the histograms shown, it can be said that the data examined in this paper are normally distributed. The data presented in the histograms are interpolated by a Gaussian curve, which has a normal shape, which also confirms the normal distribution of the data.

According to the assumption, the time series is considered stationary if the values in the time series evolve around one quantity. In that case, we are talking about stationary rows. The development of the number of enterprises over time is presented in the following figure 6.

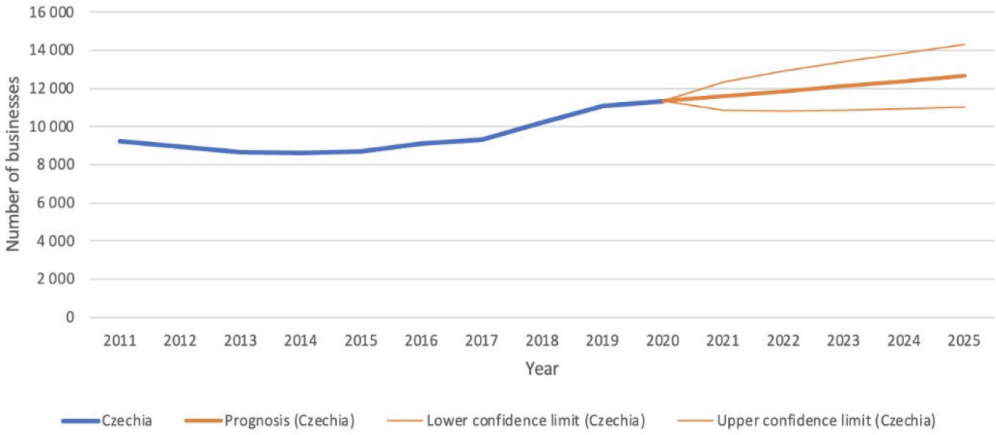
Fig. 6: Analysis of stationarity of time series



Source: own processing

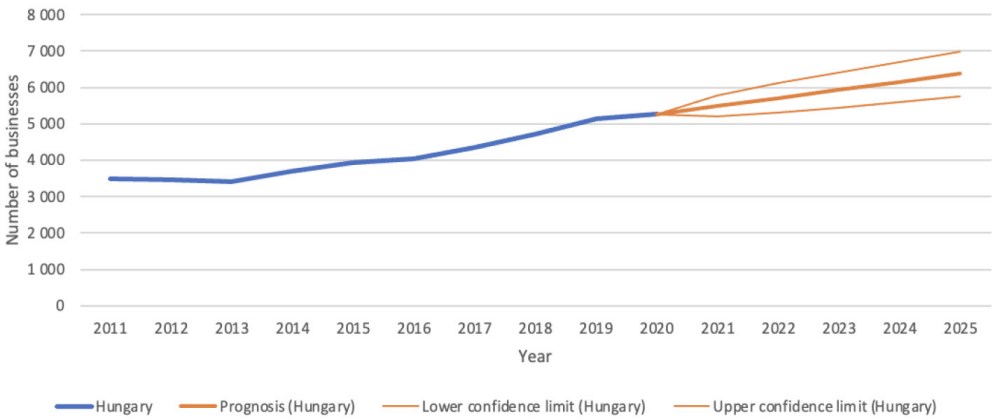
Non-stationarity is characteristic of trending time series, which are also those presented in this post, as they show an increasing trend in recent periods. On the basis of the above, and the fact that the time series are non-stationary and the data from them are normally distributed, we approach the actual forecasting of the development of the number of enterprises. Individual forecasts for the V4 countries are presented in the following figures.

Fig. 7: Forecast of the development of the number of accommodation facilities in the Czech Republic



Source: own processing

Fig. 8: Forecast of the development of the number of accommodation facilities in Hungary



Source: own processing

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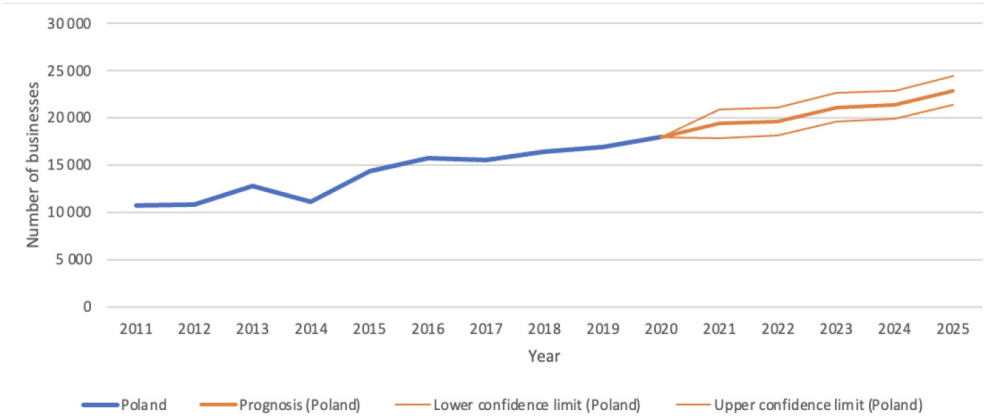
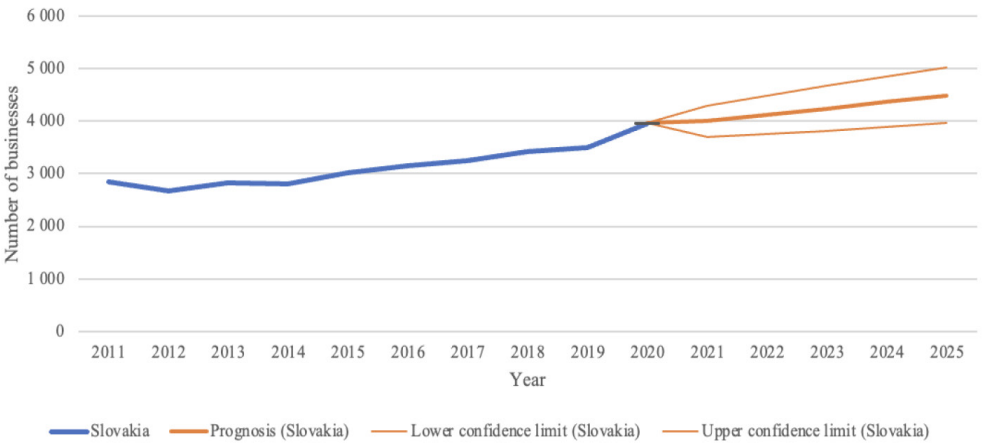
Fig. 9: Forecast of the development of the number of accommodation facilities in Poland



Source: own processing

Fig. 10: Forecast of the development of the number of accommodation facilities in the Slovak Republic



Source: own processing

From the above forecasts of the development of the number of accommodation facilities in the V4 countries, we can clearly summarize that, regardless of the outbreak of the COVID-19 pandemic, the number of businesses had an estimated constant growth. The onset of the pandemic period was expected to

negatively affect the number of businesses in this sector. It is clear from the available data that the forecasts mentioned above confirm the growth of the number of businesses even in 2020, which is the first year of the pandemic period. Poland will achieve the highest growth in the comparison of 2020 and 2025 forecasts. Slovakia should achieve the lowest expected growth, at the level of 533 enterprises. According to the forecast, the Czech Republic and Hungary will achieve comparable growth at the level of 1100-1300 enterprises in 2025. In the comparison of the forecast of development as well as the achieved growth in 2020 from figure no. 1, it can be assumed that the pandemic had a milder impact on the number of companies than was estimated by the professional public. The authors of the article assume that the impact of the pandemic period will be minimal, which means that in the post-pandemic period, the number of accommodation facilities will once again take on a growing trend.

According to the authors, the debatable period for assessing the impact of the COVID-19 pandemic on accommodation facilities is 2022-2025. Based on the assumption of a delayed impact of the environment on subjects. One of the influences is state support measures aimed at preserving and supporting businesses. In this regard, the period 2022-2025 appears to be the best period for impact assessment. However, since there are no comprehensive statistical data available regarding the number of investigated enterprises, it is not possible to estimate the prognosis in the post-pandemic period. To confirm the above, we state that the Statistical Office of Hungary states on its website that the data for the years 2021 and 2022 are not comprehensive precisely because of the impact of the pandemic as well as other factors. Based on the above, the forecast was created on the basis of available data from Eurostat until 2020.

5 Conclusion

The aim of the paper was to measure the impact of the COVID-19 pandemic on accommodation facilities in the V4 countries and to compile a forecast of their development. As we have shown, there was no decline in accommodation businesses, on the contrary, there was an increase of more than 2% in 2019/2020. The biggest increase was recorded in Poland and the Czech Republic. The forecast for the next period revealed a further increase in accommodation facilities and a minimal impact of the Covid-19 pandemic. According to the OECD forecast mentioned in chapter no. 1, that tourism will

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reach similar values in 2024 and 2025 as in the pre-pandemic period, we can confirm that according to the forecasts made, the number of accommodation facilities should not only reach the same value but grow even more. We evaluate the above as a very positive prediction of the development of some tourism businesses.

As Aldao, Blasco and Espallargas (2022) stated in their research study that tourism will grow in the post-pandemic period due to the motivation of tourists to travel, the predictions of the development of the number of accommodation facilities also indicate and at the same time confirm these forecasts. The authors of the article most closely identify with this study of the assumption of post-pandemic growth; however, it can be concluded that the study of the mentioned authors assumes the growth of tourism in general. However, even if their prediction is focused on tourism comprehensively, the author's collective identifies with its conclusions based on the results in this paper.

The presented paper creates space for future research into the impacts of the pandemic on accommodation facilities with a time delay of t+1, assuming a delayed effect and response to external influences. Based on the above and in comparison, with the presented forecasts of the development of the number of accommodation facilities, it will be possible to identify the clear impact of the COVID-19 pandemic on the investigated companies, as well as the impact on the potential that these companies in the V4 countries had in terms of the growth of tourism in Central Europe. The presented investigation as well as the investigation in the future period is limited by the quality and scope of the available data. Therefore, we recommend defining the exact methodology as well as the source of data selection necessary for future research, as the difference in available data and sources was one of the limits identified during the processing of the contribution.

Acknowledgment

This study is part of the PMVP internal grant no. I-23-109-00 of the University of Economics in Bratislava for young teachers, researchers, and doctoral students with the title "Possibility of solving crisis situations in spa enterprises using innovative systems" and VEGA 1/0271/23 “Sustainable renewal of spa tourism in Slovak Republic in the context of impacts of civilization crises.”

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