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THE EFFECTS OF THE COVID-19 PANDEMIC ON UNEMPLOYMENT IN SLOVAKIA AND HUNGARY

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Abstract
Covid-19 pandemic has affected almost in every aspect peoples' personal and professional lives. Employment losses have become an everyday occurrence during the pandemic period. As an outcome of the global coronavirus crisis of 2020, unemployment has risen significantly worldwide. In the article, we try to quantify the effect of coronavirus pandemic on the development of the unemployment and unemployment rate in two EU member states. The aim of the article is to evaluate the impact of Covid-19 crisis on the labor market in the Slovak Republic and Hungary. In order to highlight the impact of the pandemic and make comparisons between the mentioned countries, concretely comparative research method was used. Analyses are based on labor market data during the pandemic (2019-2021). Differences in unemployment by gender were examined based on annual data. Differences in unemployment by age, economic sectors and territorial units were analyzed on a quarterly basis. The results of the study indicate a noteworthy increase in the unemployment rate in the Slovak Republic and in Hungary during the Covid-19 pandemic. As a result of the coronavirus crisis, the spreading of unemployment in territorial terms has been more unbalanced for both the Slovak Republic and Hungary. Furthermore, we found that the highest unemployment rate during the considered time period was reached in the industrial sector. The pandemic has significantly impacted the unemployment of the economically active people with a lower level of education. In Slovakia have been introduced stricter anti-pandemic measures, due to which more business enterprises have closed. Also, it has led to more intensive growth of unemployment rate.
KEY WORDS: Covid-19 pandemic; unemployment rate; labor market; level of education; sectors of the economy; territorial units.

Introduction

In December 2019, a new disease had spread throughout China which was called Coronavirus or Covid-19. The disease became a global pandemic within a few days (Agarwal et al. 2020). The coronavirus pandemic arrived even to Europe at the beginning of spring 2020 and created an unprecedented emergency situation with important consequences on health policies, economic and social policies (Wolff & Ladi, 2020). As a result of the pandemic and the adopted anti-pandemic measures, unemployment has been rising sharply in the EU since March 2020.

The issue of unemployment is an eternal problem and it has become an even more important topic in the recent years. For this reason, examining the impact of the Covid-19 crisis on the labor market is a highly relevant issue. Several researchers have studied the effects of the coronavirus pandemic on unemployment. Lambovska et al. (2021) analyzed the impact of the Covid-19 pandemic on the unemployment rate under the age of twenty-five in the EU. Aidukaite et al. (2021) documented and compared the social policies (extensive protection for jobs and enterprises) that the governments of Hungary, Lithuania, Poland and Slovakia implemented to combat the first wave of Covid-19 pandemic. Acheampong (2021) investigated whether the coronavirus epidemic impacted men and women in the Hungarian labor market differently. Svabova et al. (2021) examined the impact of anti-pandemic measures on the development of the registered unemployment rate in Slovakia. However, a detailed comparison of unemployment during the corona crisis in Hungary and Slovakia is not achieved.

The aim of the article is to evaluate the impact of Covid-19 crisis on the labor market of the Slovak Republic and Hungary. In case to illustrate the effects of the coronavirus pandemic on the labor market in the mentioned EU member states, the progress of the unemployment rate by sex, age, level of education and economic sectors was analyzed. We also analyzed the territorial and temporary distribution of unemployment during the time period 2019 and 2021. We have collected information from the data collections of the Statistical Office of the Slovak Republic and the Hungarian Central Statistical Office. Our analyses focus on the years 2019-2021, because these years have been directly affected by the pandemic. In our work we have used quantitative and even qualitative research methods. As a qualitative method, we have studied the related literature. After processing the relevant domestic and foreign literature sources, we used a comparative research method to process data. The results of the study can be perfectly used in practice to understand better the effects of the pandemic and anti-epidemic measures on unemployment rate.

Theoretical background

The first infected person with the Coronavirus or called SARS-CoV-2 was identified in December 2019. The rapid spread of the virus has caused a worldwide pandemic named as COVID-19. The virus is originated from animals, but its mutation has allowed its spread among humans through droplet infection as well. The disease is mostly associated with symptoms of various severity such as fever, cough,

breathing difficulties and muscle aches. The symptoms of the disease are unpredictable, in some cases the patient is asymptomatic, occasionally symptoms may be mild, but there are cases when the disease is fatal (Hopkins Medicine 2022). While the appropriate treatment was established, WHO has recommended mandatory mask wearing, social distancing and quarantine in case of infection on the global level.

All the states of the world have responded to curb the spread of the virus immediately, strict actions have become a new normal in people's daily lives. The restrictive measures have led to significant reductions in energy consumption. As a result of the lockdown, people had reduced their time of driving and travelling, clubs and restaurants had closed, factories were holding back their production to protect the health of their workers, and employees had been working remotely.

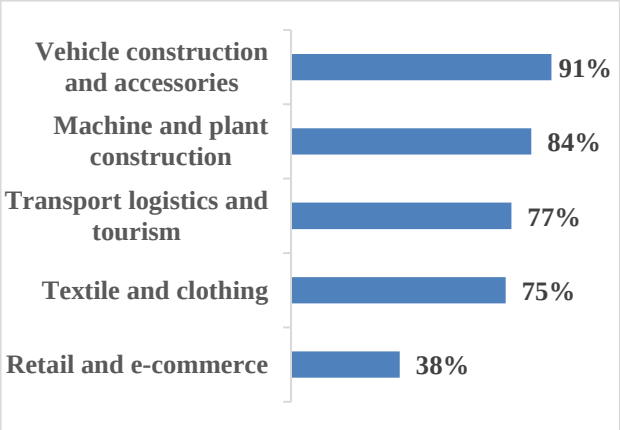
The significant decline in production has reduced energy consumption in all industries. The decrease in electricity demand in Europe is reported to be situated between 2.5% and 4.5%. The residential sector was the only industry reporting an increase in energy consumption. The reason is that people stayed at home for the biggest part of the day, since their work, and education process took place online (Priya, Cuce & Sudhakar 2021)

The epidemic has had a negative impact on almost all sectors. The decline in demand for crude oil has hit oil extraction. The three largest customers of oil industry - US, China, and India (39.14% of world oil consumption) - reported the highest number of cases during the epidemic. The second major oil consumers are the airlines. They have also been forced to reduce their use due to the travel bans. Out of all the industries, the manufacturing industry was the most affected. The epidemic started in China, which is an important supplier of raw materials and components to manufacturing plants all around the world. The shutdown of the Chinese factories has caused disruptions in the supply chain worldwide. The other severely affected sector is the sector of tourism, which is the third largest fare category after the oil and chemical industries. They are providing jobs to 1 out of 10 individuals in developed and developing countries as well (Thomas, Chakole 2021).

According to the analysis made by S&P (2022), the five most affected industries by COVID-19 between 2 January 2020 and 15 January 2022 were the Airlines, the Automotive Industry, the Energy Industry, Tourism, Restaurants and Leisure, and Specialty Retail. All five industries peaked in April 2020, but by January 2021 they had suffered a significant decline. Air traffic fell by almost 40% during the pandemic compared to pre-epidemic levels, which also negatively impacted the performance of tourism and hospitality. Automotive operators had to ignore their JIT principles and had to adapt to longer lead times and uncertainties. Due to the lack of a global semiconductor, excess orders and general stockpiling were observed in the automotive industry, generating price increases and inflation. The five the least affected sectors by COVID-19 were telecommunications, healthcare equipment and products, life science equipment and services, pharmaceutical products and mortgage and equity management.

According to the survey made by Statista (2022) in 2022 the five most affected sectors in Germany, Austria and Switzerland were the automotive industry, machine and plant construction, transport logistics and tourism, textile & clothing, and retail (Fig.1).

Fig. 1. Negatively impacted sectors by COVID-19



according to respondents, in percent, Source: based on Statista (2022)

The empirical results of Gavrilut, Grecu, and Chiriac (2022) showed a significant correlation in the financial situation of young people living in one of the 28 member states of the European Union. The most affected social group by the economic effects of the COVID-19 pandemic were young people with primary or secondary education. Education is an important variable in employability that needs to be considered in effort to maintain the balance of the labor market during the critical period. Based on the results of the research, higher level of education has a positive effect on employability. Other important factors are gender equality, economic and business freedom, which can also have positive effect on rising employability. By encouraging the private sector to invest in the economy and by supporting entrepreneurship the government plays an important role in reducing unemployment rate and inflation.

Slovakia has introduced critical restrictions on citizens' rights very quickly right after the outbreak. Measures included the reintroduction of border control and limited entry into the country, mandatory quarantine, restrictions on the free movement of citizens, and limited access to hospitals, prisons, and social facilities. Depending on the number of cases, the government opted for periodic blackouts and the possible activities of citizens were dependent on negative antigen tests. Restrictions on opening hours have been extended to sports facilities, libraries, galleries, shops, markets, services and retail. Thanks to the early epidemiological responses, the country has achieved positive preliminary results in terms of mortality in the first phase of the spread of the virus (Nemec Spacek 2020). According to WHO (2022) by 8th April 2022, the total number of people infected by the coronavirus were 1,745,268 of whom 19,523 cases were fatal. As a result of austerity measures, Slovakia's GDP fell from 2.6% in 2019 to -4.4% in 2020 (Slovak Statistics 2022b).

The first case of COVID-19 in Hungary was confirmed on March 4, 2020. Measures were introduced at the very early stage in case to curb the spread of the virus, such as

social distancing, switching to online education and wearing masks, have shown a drastic reduction in the number of contacts and mobility. The SARS-CoV-2 virus has caused problems in health care facilities and long-term care facilities. Nearly two-thirds of reported cases showed a similar pattern to other countries, 89.1% of deaths reported by 10 May belonged to the population of age group +65. Strict social distance measures, such as school closures and staying at home, also have a very serious impact on society and the economy and are therefore unsustainable in long term (Röszt et al 2020). According to WHO (2022) by 8th April 2022, the total number of confirmed cases in Hungary were 1,868,007 of whom 45,721 cases were fatal. Hungary's GDP fell from 4,55 % in 2019 to -4.67 % in 2020 (World Bank Data 2022)

According to Eurostat (2022) data, Slovakia and Hungary followed the European Union in terms of GDP, which showed a sharp decline in the first year of the covid 19 pandemic in 2020 (Fig. 2.).

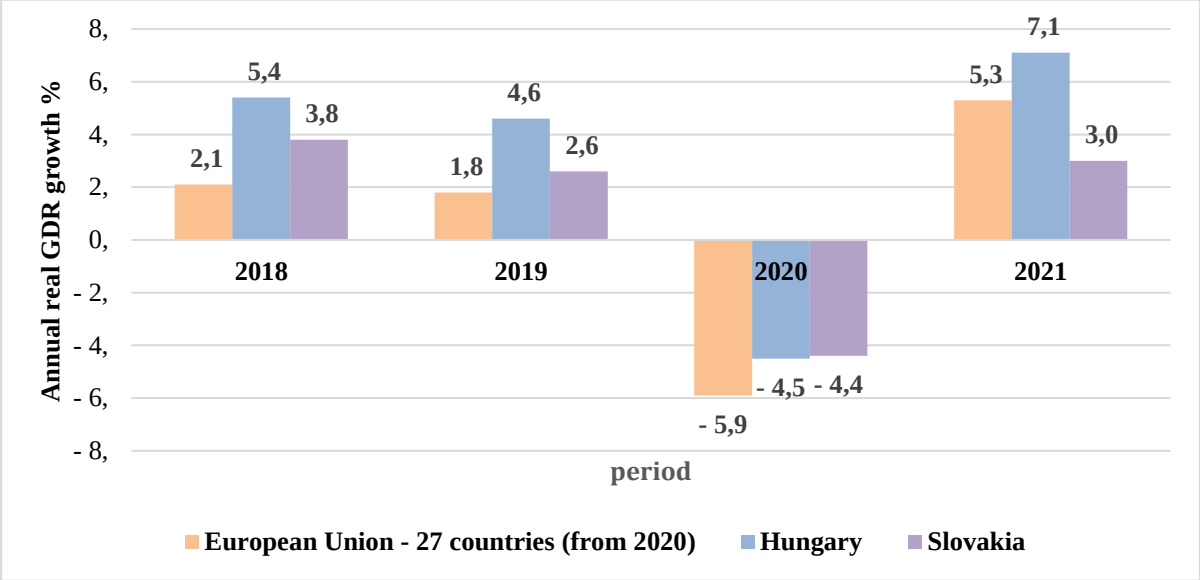


Fig. 2. Annual GDP growth rate % in selected countries
Source: based on Eurostat (2022)

Mitigation strategies and policies during Covid-19 have had a significant impact on the level of employability and on the whole labor market. Macroeconomic indicators provide the framework for a deep economic crisis characterized by economic turndown and unemployment. According to the theory of latent deprivation, employment serves universal psychosocial needs, so involuntary unemployment - also identified as a lack of work - is expected to have a negative impact on the mental and physical well-being of individuals. According to other theories, unemployment can be seen as a disruption for life plans designed to prevail. Unemployment limits workers of the resources they should meet, social needs and achieved goals set by the society. The psychological impact of unemployment depends on whether employment plays a central role in determining the social identity of workers. More and more longitudinal panel studies are drawing attention to the fact that the psychological impact of getting unintentionally unemployed lasts even for years. The longer the unemployment period of a person lasts, the lower people's satisfaction with life get (Mousteri Daly Delaney 2018).

Job availability can be considered as a conditional resource that helps individuals to access other types of resources such as objects and energies (i.e., food, housing, money) and personal resources (e.g., a sense of control). Without the right conditions and enough energy, individuals are unable to cope with environmental threats and they suffer from the declining well-being. Furthermore, individuals with only few resources become more vulnerable as they lose some of their existing resources. While those with greater resources source have access to additional resources. To sum up, those with low levels of resources are expected to experience greater anxiety during the unemployment period compared to the individuals with more resources (Achdut Refaeli 2020).

Considering the past recessions and the current pandemic situation, all macro indicators have been affected in each case. Research on previous financial crises highlights that the recession during the economic crisis is having severe impact on the employment of young people, women, and the low-skilled workers. Employers to minimize their losses caused by the drop in demand began to compensate with layoffs. Slovakian industry, as the driving force of the Slovakian economy, is particularly exposed to foreign market developments. Measures taken by the Slovak government to mitigate the negative effects of pandemic were compensation for the ones with declining income, concretely among the self-employed. The government has adopted legal changes in the field of employment such as working in home office or 'kurzarbeit'. Several support instruments have also been

adopted in the field of loans to businesses, such as lending loans with low interest rate or deferrals of ongoing loan repayments (Svabová et al 2021).

Methodology

For our study we analyzed the data of the Hungarian Central Statistics Office and Datacube. However, we had to take into account some difficulties. In Slovakia, the number of unemployed is usually available in thousands. For efficient comparison, we analyzed the rate calculated from the number of unemployed and the number of economically active population. When it came to comparing data by regions, it should be taken into consideration that in Slovakia the data for the capital city are included in the regional data. In Hungary, Budapest and Pest regions represent separate values. We study the mentioned region in the time period between 2019 and 2021. Differences according to genders were analyzed on annual basis, and differences by age, industry, and region were analyzed on quarterly basis. In case the provided information is not clearly visible from the tables extra information can be provided and shared with other parties in interest.

Results of the research

Table 1. was prepared based on several statistical databases in Hungary and Slovakia. Our goal is to compare the average annual unemployment rate by gender. First of all, let´s take a look at the last year of peace before the COVID-19 pandemic started. At that time, typically female unemployment is higher in Slovakia and male unemployment is higher in Hungary. The probable reason is that the majority of women usually works in the hospitality sector, and the mentioned sector was struggling with a labor shortage in Hungary (Zerényi, 2019). The fact in 2019 the unemployment was higher for both sexes in Slovakia, but it does not mean that the economy was operating at a lower level. It is well known that unemployment rate and inflation rate move in opposite directions (Nordhaus, Samuelson, 2021). The high rate only can be cause by that the Slovak government's economic policy has focused on keeping inflation low. In Slovakia, by 2020, the unemployment of men has increased by 0.78 percentage points, while for women it has increase by 1.1 percentage points. In Hungary, the situation is very similar in the case of the men population, it was 0.7 percentage points for men and 0.83 percentage points for women. The explanation for the observed changes is that stricter restrictions have been introduced in Slovakia, also more enterprises had to be closed, and this has ultimately led to a higher rise in unemployment. Furthermore, the closure did not affect the car factories, construction companies, machine-building plants, but rather the trade and hospitality dominated by the female workforce. In 2021, only few restrictions remained, Hungary was characterized by greater freedom in the virus-free period, however, the overall unemployment rate was 1.22 times higher than in 2019, while in Slovakia it was 1.18 times higher compared to the pre-pandemic period. The unemployment rate for men in 2021 was 1.15 times higher than in 2019 and 1.19 times higher than in Slovakia. The unemployment rate for women in 2021 was 1.08 times higher than in 2019 in Hungary and 1.17 times higher than in Slovakia. Hungarian women felt the boom in labor market demand the most. Partial opening in 2021 has also created more opportunities for men.

Table 1. Comparison of unemployment data in Slovakia and Hungary based on various indicators, 2019-2021

Indicator	Country	Man			Woman			Total		
		2019	2020	2021	2019	2020	2021	2019	2020	2021
Number of unemployed (1000 persons)	Slovakia	83,9	94,5	97,4	73,9	86,9	90,2	157,8	181,4	187,6
	Hungary	86,1	104,2	99,9	72,8	93,4	95,8	158,9	197,6	195,7
Number of economically active (1000 persons)	Slovakia	1501,2	1481,4	1457	1240,2	1231,3	1291	2741,4	2712,7	2748
	Hungary	2566,2	2566,3	2571,7	2237,3	2234,5	2258,6	4803,5	4800,8	4830,2
Unemployment rate (%)	Slovakia	5,6	6,4	6,7	5,9	7,1	6,9	5,8	6,7	6,8
	Hungary	3,4	4,1	3,9	3,3	4,2	4,2	3,3	4,1	4,1

Source: prepared by the authors based on Datacube and the Hungarian Central Statistics Office (2022)

The distribution of unemployment was neither territorially nor temporally identical (Table 2). Maximum values per row and per column are highlighted in bold in the table. In 2019, before the implementation of the restrictions, the highest unemployment rate was measured in Q3 in Jász-Nagykun-Szolnok county, and in Q4 Szabolcs-Szatmár-Bereg county took over this negative leading role. This year, the highest regional unemployment rate was 8.8%, related to Q1. The mentioned counties are engaged in agricultural activities in a higher proportion than the others. For this reason, the

decline in employment rate at the beginning of the year is understandable. Restrictions began in Q1 of 2020, that time we measured 9% unemployment rate in Baranya county. The stated county borders with Croatia, which is bordered by Italy, and the unemployment has risen significantly in the initially affected area by the virus and the epidemic. In the other quarters of 2020, Szabolcs-Szatmár-Bereg county provided the worst data (8.5%, 9.1%, 8.8%). The situation changed significantly in Q1, Q2, Q3 of 2021. In this period, Nógrád county holds the negative record (11%, 11.3%, 11.4%). The reason is that the counties economy is strongly connected to the neighboring areas of Slovakia in virus-free periods. Unfortunately, in 2021 these connections were broken due to the protection of health. During this period, the obligation for a compulsory vaccination for the possibility of crossing the border also emerged as an obstacle. In the Q4 of 2021, the highest value was measured again in Szabolcs-Szatmár-Bereg county. Looking at the summary, we can state that the Q2 of 2020 was the weakest period for Budapest and Western Hungary. The worst datas of Somogy, Tolna and Heves, Szabolcs-Szatmár-Bereg, Békés, Baranya and Jász-Nagykun-Szolnok county are connected to the beginning of 2020. In the last quarter of 2021, Borsod-Abaúj-Zemplén county struggled the most with unemployment.

Table 2. Unemployment rate in Hungary by county, quarterly, 2019-2021 (%)

Counties	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
Budapest	2,5	2,2	2,1	2,6	2,5	**3,8**	3,1	3,5	3,5	3,0	2,4	2,8
Pest county	2,4	2,4	2,7	1,7	2,5	3,5	3,5	3,4	**3,8**	2,9	2,6	2,5
Fejér county	3,1	2,4	2,8	2,4	1,5	**3,2**	2,7	2,5	2,5	1,9	2,3	2,0
Komárom-Esztergom county	2,2	1,7	1,1	1,1	2,9	**4,5**	2,9	1,4	1,9	3,2	2,3	1,2
Veszprém county	0,8	1,0	1,2	1,9	2,5	**3,9**	2,1	2,5	2,7	2,3	1,4	1,5
Győr-Moson-Sopron county	1,5	0,7	1,1	1,1	0,7	**2,6**	2,1	1,4	1,0	1,4	1,7	1,6
Vas county	3,0	2,4	2,4	1,9	1,3	**3,1**	1,6	1,9	2,5	2,7	2,5	1,2
Zala county	2,1	2,5	1,9	1,9	2,9	**4,7**	4,4	2,5	4,7	4,0	3,2	3,2
Baranya county	6,4	5,9	5,8	7,7	**9,0**	7,2	6,4	6,3	6,2	5,1	5,1	5,8
Somogy county	3,1	4,1	3,4	3,8	5,2	4,2	4,3	3,4	5,6	**6,2**	4,9	5,0
Tolna county	3,1	2,3	3,3	3,4	2,3	2,7	3,4	3,0	**3,7**	1,2	3,5	2,2
Borsod-Abaúj-Zemplén county	4,7	4,7	4,3	3,5	4,3	4,4	5,6	5,0	5,0	5,0	7,0	**7,1**
Heves county	2,2	2,8	2,5	2,8	2,1	3,5	3,6	3,3	3,6	**4,1**	3,1	3,7
Nógrád county	6,7	7,4	7,3	6,0	7,4	6,2	8,8	8,6	**11,0**	**11,3**	**11,4**	8,6
Hajdú-Bihar county	4,6	5,0	4,4	3,8	4,1	4,7	**6,4**	5,5	5,1	6,2	5,3	5,1
Jász-Nagykun-Szolnok county	5,3	4,7	**7,8**	4,7	**8,2**	7,1	7,8	7,2	7,2	6,1	6,5	5,3
Szabolcs-Szatmár-Bereg county	**8,8**	**8,2**	7,4	**7,8**	8,7	**8,5**	**9,1**	**8,8**	**9,6**	9,4	8,6	**9,2**
Bács-Kiskun county	2,0	2,6	3,3	3,6	4,5	**5,9**	4,3	4,2	4,6	4,0	4,7	4,6
Békés county	6,2	4,3	6,7	5,0	4,5	7,0	5,8	6,0	**8,2**	7,0	5,7	4,8
Csongrád-Csanád county	2,5	1,7	2,0	2,5	2,5	3,4	3,5	3,4	**4,9**	3,0	2,4	1,1
Country in total	**3,4**	**3,2**	**3,4**	**3,2**	**3,6**	**4,5**	**4,3**	**4,1**	**4,5**	**4,1**	**3,9**	**3,7**

Source: prepared by the authors based on the Hungarian Central Statistics Office (2022)

Already in October 2021, Russian tanks were gathering along the Ukrainian border (The Washington Post, 2021). Investors reacted sensitively to this, and no new job-creating investments were made along the border. Throughout analyzing the unemployment rate in Slovakia by regions and quarters, was noted that the lowest productivity was observed in Prešov region until 3Q of 2021 (Table 3) (World Bank, 2019). Maximum values per row and per column are highlighted in bold in the table. It is probably caused by the lack of vaccination which led to the strong negative effects of the third wave in Banská Bystrica region. In this region the unemployment rate was weightier than in Prešov region (today 7SK, 2021). Regarding to the COVID regulations at the end of May and at the beginning of June 2021, Trnava region was significantly in a bigger risk than its neighbors. In addition, in the surrounding areas, like Trenčín, Bratislava and Nitra districts, we could observe a reduction of local restrictions and a boom in tourism. The worst period in the districts of Bratislava, Trenčín, Nitra and Žilina was the Q3 of 2020. These districts rely deeply on tourism, but it did not welcome and receive the traditional number of visitors during this period.

Table 3. Unemployment rate in Slovakia by regions, quarterly, 2019-2021 (%)

Region	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
Bratislava region	2,0	2,4	2,7	2,3	3,2	3,1	**3,6**	3,5	3,4	2,4	2,6	1,9
Trnava region	4,9	4,8	4,6	4,0	3,4	5,0	5,8	5,7	6,1	**6,3**	6,2	5,4
Trenčín region	3,0	3,0	2,8	2,6	2,9	3,4	**5,1**	4,2	3,7	3,7	3,7	3,4
Nitra region	4,5	4,7	4,6	4,7	4,4	5,0	**6,8**	4,8	4,6	4,7	4,7	3,9
Žilina region	3,5	4,4	5,1	4,9	4,8	5,6	**5,9**	5,8	5,6	4,6	5,0	4,5
Banská Bystrica region	8,7	8,1	7,4	7,2	7,4	8,5	8,1	7,8	9,8	9,8	10,2	**11,0**
Prešov region	**10,4**	**9,4**	**10,1**	**10,6**	**11,7**	**12,0**	**12,2**	**12,6**	**12,4**	**12,3**	**10,6**	10,4
Košice region	8,2	7,7	8,4	7,2	8,1	8,9	8,8	9,6	9,7	10,4	10,2	**10,8**

Source: prepared by the authors based on the Statistical Office of the Slovak Republic (2022a)

Unemployment rate data divided and focused on the economic sectors were found only in the Slovak statistical database, broken down by quarters. Looking at the disaggregated data, we can state that the highest unemployment rate was always observed in the industrial sector during the period analyzed by us. The worst situation was reached in the Q3 of 2020, concretely 50.8%. We also observed consistently high unemployment rate in the wholesale and retail trade sectors, where we found the highest rate of 21.2% in the Q2 of 2021. In the accommodation and food sector, the unemployment rate was low in 2019, with 22.2% in Q1 of 2021.

If we are observing the table by age in Hungary, it is noted that the economically active population with age 15-19 has low level of education, therefore the unemployment rate is always the highest among them in the under reviewed period (Table 4). Maximum values per row and per column are highlighted in bold in the table. For the 20-24 and 25-29 age groups, the worst statistics were observed in Q2 of 2020. For the population group aged 39, the Q1 of 2021 was the period with the worst results, for the age group 40-49, the Q1 of 2020, for the age group 50-54, the Q2 of 2021, and for the population over 55, the Q3 was the period which has resulted the highest unemployment rate. The explanation for the previously mentioned facts is that the very first actions in the companies, when it comes to firing, hit the younger and the middle-aged people. The most important people and the main drivers of the companies are between 30 and 39. During this period, companies with the pre-retirement age groups acted with empathy and they were less affected by the downsizing. In the Q1 of 2021, people between 30 and 39, who were previously the pullers, started to receive their letter of resignation as well. In the Q2 of 2021, the unemployment rate among the working age groups 15-19 and 50-54 has increased.

To sum up, this period has been very difficult for both employers and HR professionals in a human and corporate way. Unfortunately, by the time humanitarian interests were forced to be ignored and company's long-term interests were no longer decisive.

Table 4. Unemployment rate in Hungary by age groups, quarterly, 2019-2021 (%)

Age group	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
15-19	**26,3**	**20,6**	**21,0**	**25,3**	**25,8**	**27,0**	**23,4**	**23,6**	**30,5**	**32,5**	**30,4**	**24,0**
20-24	8,9	9,3	9,9	10,4	9,6	**13,2**	11,7	9,9	11,8	11,2	12,2	11,1
25-29	4,3	4,2	4,8	4,2	4,8	**6,6**	5,5	5,9	5,8	5,5	4,6	4,1
30-34	2,6	2,3	2,4	2,5	2,8	3,7	3,8	3,3	**5,2**	3,9	3,6	3,7
35-39	3,1	2,8	2,3	2,5	3,6	3,5	4,2	3,9	**4,4**	3,8	3,5	3,2
40-44	2,8	3,0	3,3	2,3	2,9	**3,9**	3,5	3,4	3,4	2,7	2,9	2,9
45-49	2,8	2,6	2,2	2,6	3,1	**3,7**	3,3	2,8	3,3	2,9	2,3	2,5
50-54	2,7	1,7	2,7	2,5	2,5	3,3	2,7	2,7	2,6	**3,5**	3,1	2,9
55-59	2,5	2,8	2,1	1,7	2,0	3,2	3,5	**3,8**	3,0	2,9	3,1	3,5
60-64	2,1	2,5	2,1	1,9	2,3	2,4	2,9	**3,4**	3,2	2,9	2,3	2,1

Source: prepared by the authors based on the Hungarian Central Statistics Office (2022)

Also, Slovakia in age group 15-19 had the highest unemployment rate. These values exceed those in Hungary (Table 5). Maximum values per row and per column are highlighted in bold in the table. The highest data was reached in Q1 of 2021. For age group 30-34, the COVID-19 pandemic did not cause an increase in unemployment, the worst results were observed in Q1 of 2019. The Q3 of 2020 caused the most significant increase in unemployment for age group 60-64, which sometimes led to tragedies due to the hopeless situation. In Q3 of 2020, 35-39-year-olds were laid off in terms of redundancies; Q2 of 2021 was a period of rising job losses for people aged 50-54 and the Q3 for age group 55-59. In Q1 and Q2 of 2020, companies refrained from layoffs, and in the Q3 of 2020, they started the line with those ahead of retirement

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Table 5. Unemployment rate in Slovakia by age group, quarterly, 2019-2021 (%)

Age group	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
15-19	**35,8**	**39,5**	**46,8**	**56,1**	**41,9**	**41,1**	**50,1**	**43,0**	**60,4**	**52,7**	**41,0**	**51,5**
20-24	11,8	12,1	14,8	13,3	13,4	16,6	18,7	18,6	19,0	18,1	**19,5**	15,9
25-29	6,5	6,1	5,9	5,8	6,1	8,9	9,7	9,7	**9,8**	9,2	8,4	8,9
30-34	**7,6**	7,4	6,8	7,0	6,6	5,6	7,2	6,2	5,5	6,0	6,3	6,5
35-39	5,5	5,0	5,8	5,9	7,3	8,0	7,6	**8,1**	7,2	7,1	5,6	5,4
40-44	4,7	4,3	4,0	4,1	4,5	6,0	6,3	6,0	**7,4**	6,5	6,0	6,0
45-49	4,2	4,6	4,2	4,0	4,2	5,0	4,8	4,8	**5,6**	5,3	5,4	5,3
50-54	3,7	4,4	5,0	4,5	4,5	4,7	4,9	3,9	4,1	**5,4**	5,0	5,1
55-59	6,2	5,8	5,2	4,3	5,2	4,5	4,6	5,7	5,8	5,9	**6,3**	5,7
60-64	3,2	3,0	3,2	3,4	4,4	4,2	**5,5**	4,1	4,0	4,3	4,9	4,3
65-74	0,0	0,0	0,4	0,3	0,8	1,3	0,8	0,9	0,0	0,9	1,4	**1,7**

Source: prepared by the authors based on the Statistical Office of the Slovak Republic (2022a)

Based on Figure 3, we examined Hungary's unemployment rate over the past three years. The number of unemployed people with higher education level was extremely low as a starting point, and the values of those with high school diploma and a vocational qualification are very low. As expected, the population with elementary education level found it harder to find work. As a result of the COVID-19 pandemic, we could observe a minimal increase in the unemployment rate among the unskilled in the first year. However, there was a significant increase in the other groups. In 2021, we detected a minimal decrease in the case of graduates and a more significant decrease in the case of those with a vocational qualification. Unemployment rate of the population with diploma and the population with less than eight classes has risen minimally.

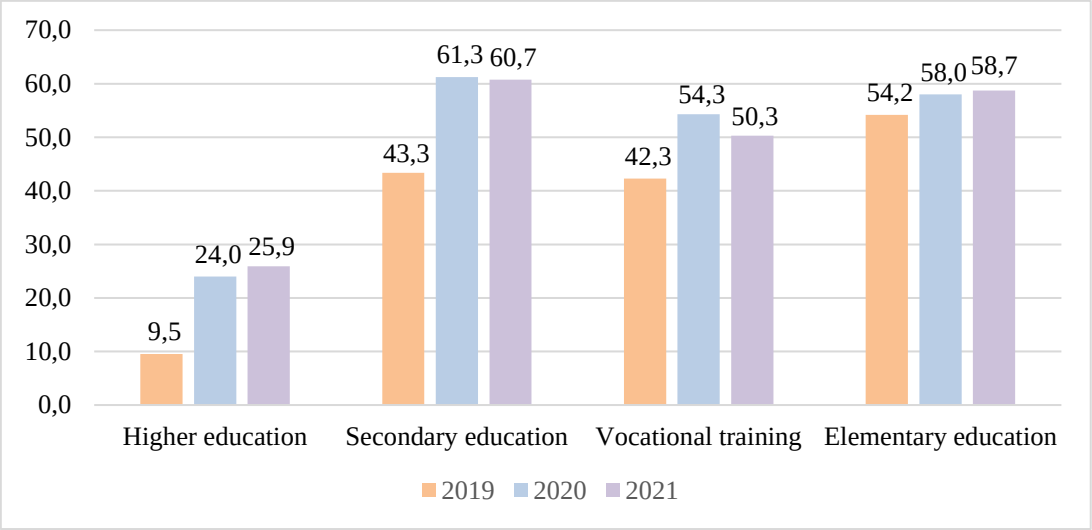

Fig. 3. Unemployment rate in Hungary by level of education, 2019-2021 (thousand people) in percent
Source: prepared by the authors according to the Hungarian Central Statistics Office (2022)

According to Figure 4, unemployment among the population with diploma was also low in Slovakia, with a slightly higher value for skilled workers. Remarkably, the unemployment rate of high school graduates and graduates of up to eight grades was essentially the same. In the first year of the crisis caused by the coronavirus, unemployment among the population with elementary school fell, for two possible reasons. First, the fear of stricter controls, since not all the employees were legally employed. Secondly, according to our previous research, we can declare that the role of hygiene has increased during a pandemic. Therefore, the demand after cleaners has increased significantly. Noteworthy growth can be detected in the other groups. In 2021, the unemployment rate of the population with higher education, i.e. with at least high school diploma decreased, while the rate of skilled workers and those with up to eight classes increased.

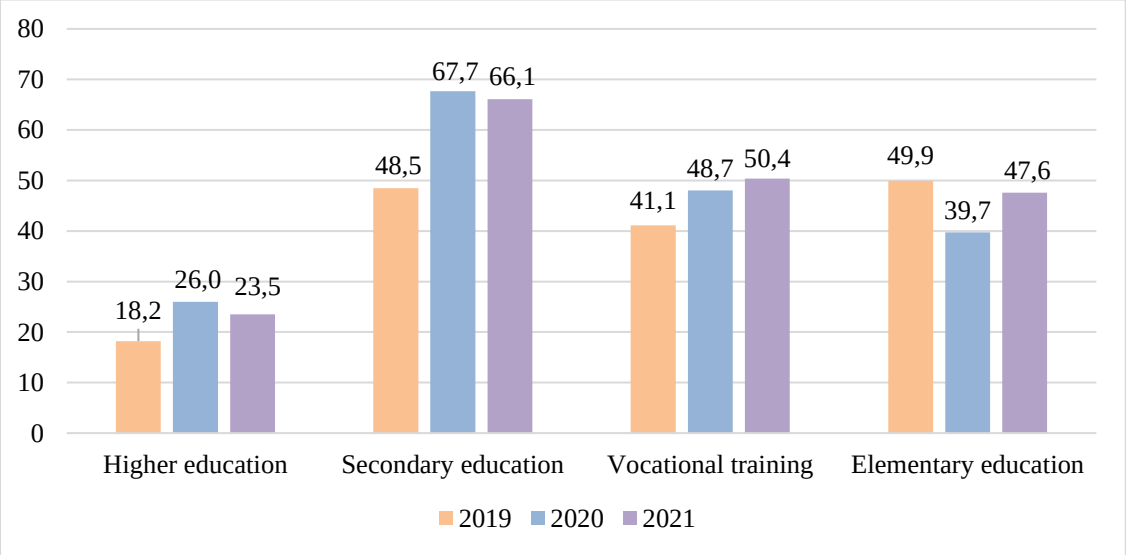

Fig. 4. Unemployment rate in Slovakia by level of education, 2019-2021 (thousand people) in percent
Source: prepared by the authors based on the Statistical Office of the Slovak Republic (2022a)

Conclusions

Although both countries publish comprehensive statistical analyzes, it was difficult to find data with the same duration and dimension or to edit them with calculations. Sometimes the transformation process of the information has become the limit of our study. In the future further publication could be done by comparing the V4 country group (Hungary, Slovakia, the Czech Republic, Poland) and by comparing the unemployment data of the countries with a historical past and innovation potential along the Baltic Sea (Latvia, Lithuania, Estonia).

We were able to discover interesting regional connections. In Hungary, the two counties with the worst unemployment rates maintained their negative positions. The employment rate was the most favorable in Veszprém and Győr-Moson-Sopron counties in Q1 2019. In the fourth quarter of 2021, Csongrád-Csanád county took the first place, and Komárom-Esztergom county and Vas county finished in second place.

There has been no change in the regions with the highest employment rates in Slovakia. Bratislava is in the best position, followed slightly by Trenčín region. The most disadvantaged before the pandemic was the Prešov region, with a similar but lower unemployment rate in Banská Bystrica region. The former mining area slipped back to the last place after the pandemic and in the penultimate place finished Košice region. The reasons for the change of order are manifold. These include proximity to borders, infection, vaccination, economic expectations.

Restrictions imposed due to the coronavirus can be interpreted as negative demand, amplified by supply-side weaknesses. The sudden cessation of manufacturing activities has triggered the collapse of the global supply chain, which has spread to areas less affected by the virus. Production processes in countries with higher economic exposure have also collapsed. As a result of the mandatory distance measures, the catering industry was closed down and tourism ceased, which distributed an immediate blow to businesses and workers in the tourism sector. During examining the labor market data in Slovakia, the decline in employment rate was most noticeable in the industrial sector, followed by retail and wholesale trade, and finally in the tourism and catering industry.

Similar results can be observed in the two analyzed countries in terms of age groups and educational level. The highest unemployment rate was detected in the young adult age group. In terms of education, both countries have the lowest unemployment rates in tertiary education. Based on the data, we observed the problem of compatibility of the company's short- and long-term interests with the humanitarian aspects poses for the experts in charge of labor relations. The most interesting result of the study, which is also true in both countries, is that the most difficult group to employ is the group with secondary education, in which the unemployment rate is even higher than in primary education level. Based on the data, we saw that employers evaluate professional qualifications, only if the knowledge covers innovative procedures, the ability to document the work done by computer, and professional language skills. It would be worthwhile to examine in which field the unemployment rate with diploma was the highest and whether there is a link between job loss and language skills. The analysis confirms the theories and statement of other researches, in the long-term resources invested in education contribute to the stability of the country and reduce the vulnerability of workers in recession.

Working capital investment is extremely beneficial for the host country, but there is a serious disadvantage compared to nationally owned companies. During the recession, the capital received may retreat to the mainland. Like previous financial crises, the pandemic highlights the vulnerability of industry and export-driven economies during the recession and highlights the importance of diversification.

References

Achdut N. and Refaeli T. (2020) Unemployment and Psychological Distress among Young People during the COVID-19 Pandemic: Psychological Resources and Risk Factors, *Int. J. Environ. Res. Public Health*, 17, doi:10.3390/ijerph17197163

Acheampong, Y. T. (2021). A gender analysis of Covid-19 impacts on the Hungarian labor market. *Journal of Economics-Special Issue*, 6(2021), 45-57. https://doi.org/10.46763/JOE21600145a

Aidukaite, J., Saxonberg, S., Szelewa, D. and Szikra Dorottya (2021). Social policy in the face of a global pandemic: Policy responses to the COVID-19 crisis in Central and Eastern Europe. *Social Policy & Administration*, 55(2), 358-373. https://doi.org/10.1111/spol.12704

Agarwal, K. M., Mohapatra, S., Sharma, P., Sharma, S., Bhatia, D. and Mishra, A. (2020). Study and overview ot the novel corona virus disease (COVID-19). *Sensors International*, 1 (2020), 1-14. https://doi.org/10.1016/j.sintl.2020.100037

Eurostat (2022) Annual GDP growth rate % (revised 2022.04.09) https://ec.europa.eu/eurostat/databrowser/view/tec00115/default/table?lang=en

Gavrilut N, Grecu S.P and Chiriac H. C. (2022) Sustainability and Employability in the Time of COVID-19. Youth, Education and Entrepreneurship in EU Countries, *Sustainability* 14, 1589. https://doi.org/10.3390/su14031589

Hopkins medicine (2022) Conditions and diseases, [revised 2022.04.07] https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus

Hungarian Central Statistics Office (2022). Workforce. [revised 2022.03.29] https://www.ksh.hu/stadat?lang=hu&theme=mun

Lambovska, M., Sardinha, B. and Belas, J. (2021). Impact of the Covid-19 pandemic on youth unemployment in the European Union. *Ekonomicko-manazerske spektrum* 15(1), 55-63. https://doi.org/10.26552/ems.2021.1.55-63

Mousteria V, Dalya M. and Liam Delaney L. (2018) The scarring effect of unemployment on psychological well-being across Europe, *Social Science Research* 72, 146–169

Ma7.SK (2021) Covid automat https://ma7.sk/aktualis/friss-itt-az-uj-covid-automata-egyetlen-narancssarga-jaras-sem-maradt-piros-csak-negy (revised 2022.04.09)

Nemec J. David Spacek D. (2020) The Covid-19 pandemic and local government finance: Czechia and Slovakia J*ournal of Public Budgeting, Accounting & Financial Management,* 32 (5), 837-846

Nordhaus W. D. and Samuelson, P. S. (2021) Economics. Budapest: *Akadémiai Publishing House*.

Priya S.S., Cuce E. and Sudhakar K. (2021) A perspective of COVID 19 impact on global economy, energy and environment, *International Journal of Sustainable Engineering* 14(6), 1290-1305 https://doi.org/10.1080/19397038.2021.1964634

Röst G., Bartha, F.A., Bogya, N., Boldog, P., Dénes, A., Ferenci, T., Horváth, J.K., Juhász, A., Nagy, Cs., Tekeli, T., Vizi, Zs. and Oroszi, B. (2020). Early Phase of the COVID-19 Outbreak in Hungary and Post-Lockdown Scenarios. *Viruses* 12(7), 708; https://doi.org/10.3390/v12070708

S&P Global (2022) Industries Most and Least Impacted by COVID-19 from a Probability of Default Perspective - January 2022 Update [revised 2022.04.08] https://www.spglobal.com/marketintelligence/en/news-insights/blog/industries-most-and-least-impacted-by-covid-19-from-a-probability-of-default-perspective-january-2022-update

Statista (2022). Negatively affected sectors (revised 2022.04.09) https://www.statista.com/statistics/1107416/industries-most-negatively-affected-due-to-coronavirus-covid-19-private-equity-investors-dach/#professional

Statistical Office of the Slovak Republic (2022a). Unemployment rate (revised 2022.04.08) https://slovak.statistics.sk/wps/portal/ext/home/!ut/p/z0/04_Sj9CPykssy0xPLMnMz0vMAfIjo8ziA809LZycDB0NLPyCXA08QxwD3IO8TAwNTEz1g1Pz9AuyHRUBtph-Sw!!/

Statistical Office of the Slovak Republic (2022b). GDP data (revised 2022.04.08) https://slovak.statistics.sk/wps/portal/ext/home/!ut/p/z0/04_Sj9CPykssy0xPLMnMz0vMAfIjo8ziA809LZycDB0NLPyCXA08QxwD3IO8TAwNTEz1g1Pz9AuyHRUBtph-Sw!!/

Svabova, L., Tesarova, E.N., Durica, M. and Strakova, L. (2021). Evaluation of the impacts of the COVID-19 pandemic on the development of the unemployment rate in Slovakia: counterfactual before-after comparison. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 16(2), 261-284. https://doi.org/10.24136/eq.2021.010

The Washington Post (2021). Russian troop movements near Ukraine border prompt concern in U.S., Europe. [revised: 2022.03.15]. https://www.washingtonpost.com/world/russian-troop-movements-near-ukraine-border-prompt-concern-in-us-europe/2021/10/30/c122e57c-3983-11ec-9662-399cfa75efee_story.html

Thomas B. and Chakole S (2021) Covid-19: A Review of Economic Impacts on Different Sectors and Industries *Bioscience Biotechnology Research Communications* 14(6), 148-152

WHO (2022) Coronavirus (COVID-19) Dashboard [revised 2022.04.08] https://covid19.who.int/

Wolf, S. and Ladi, S. (2020). European Union Responses to the Covid-19 Pandemic: adaptability in times of Permanent Emergency. *Journal of European Integration*, 42 (8), 1025-1040. https://doi.org/10.1080/07036337.2020.1853120

World Bank Data (2022) GDP data [revised 2022.04.08] https://data.worldbank.org/indicator

World Bank Data (2019) Slovakia Catching-up Regions, [revised 2022.04.09] https://documents1.worldbank.org/curated/en/887561549525534560/pdf/134436-WP-PUBLIC-POLISH-P166954-Slovakiapresovregionskweb.pdf?fbclid=IwAR3eFOClYZfTFH5vVO75xuEtDP8PW8G-4Q4PiCAwZ1Xr-GHgl2_8OKXWWe4

Zerényi K. (2019) Characterization of labor shortage at home and abroad, In Hungarian, *Prosperitas*, 6 (2). 95-115. ISSN 2064-759X

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