

UNEMPLOYMENT DEVELOPMENT IN THE GROUP OF VISEGRÁD COUNTRIES AS A RESULT OF THE COVID-19 PANDEMIC

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Abstract

In our study, we examine the development of unemployment data in the Visegrád countries. The topicality of our study was given by the coronavirus disease, which was widening into a pandemic and a global economic crisis in 2020. In our research, we used the ARIMA modeling procedure using the database of the Organization for Economic Co-operation and Development (OECD). Using a decade-long analysis of the time series, we used the model to make a forecast of the development of unemployment, and then we compared our forecast with the actual data measured as a result of the pandemic. Reviewing the results, we examined the reasons for the different successes of countries in the fight against unemployment. We found that key conditions for success include disciplined civil defense, compliance with restrictions, state involvement, and a successful vaccination campaign; the latter contributes to the relaunch of the economy. Our present research reviewed the effects of government intervention and vaccination, finding that the strongest impact is on the main direction of government involvement in the development of unemployment.

Key words: Visegrád Group, Unemployment, Pandemics, Recession, Governmental Intervention

JEL Code: E24, E62, R23

Introduction

The pandemic caused by the coronavirus, which started in China at the end of December 2019 and will become a pandemic in 2020, marked the beginning of a new period in many areas of life. We have had to deal with a hitherto unknown type of crisis in the economy. The virus attacks health and, through it, human resources. Therefore, one of the important consequences was the introduction of short-term control and prevention measures prior to the discovery of vaccines. These measures, in turn, have led to job closures, closures and at least a periodic increase in unemployment. Unemployment has caused problems in all countries, but these have

occurred to a degree that depends on the state and performance of each national economy. In the present study, we examine the evolution of unemployment data in the group of Visegrád countries, as well as how these countries responded to the economic challenge.

1 Literature review

In 2020, the countries of the Visegrád Group (V4) overcame the first wave of the coronavirus epidemic and by the end of the year their economic situation had stabilized. Due to forced closure, people bought goods instead of services, and the increase in industrial production favored the export-oriented, supplier-like economies of the V4s (Morawski, 2021). Of the EU countries, just two Visegrád countries, Slovakia and Hungary, started their first mass vaccination campaign at the end of December 2020 (MTI, 2020; Németh, 2020). These measures served to protect human resources, which is a major driver of growth in modern economies (Tsai et al., 2010). The pandemic has sharply increased the unemployment rate in most European economies, which is one of the harmful effects of the virus on the European labor market. Active labor market policies are needed to recover from the workplace crisis (Su et al., 2021). The role of government measures has been reinforced by studies that analyze the links between the epidemic and unemployment (M. Hezam, 2021).

Factors influencing unemployment and their effects have been studied in a wide range of multidisciplinary research (Blustein et al., 2020). These have shown that, in parallel with job losses, quality of life is declining, while work-life balance is also changing negatively. It has also been demonstrated that vaccination is essential for recovery from the economic downturn, but it is important that without appropriate stimulus policies, a return to the pre-crisis trend does not begin (Barbieri Góes & Gallo, 2021). Another consequence of unemployment in the V4 countries is the weakening of precisely the circular economy, the strengthening of which is an important step in post-COVID-19 recovery (Lacko et al., 2021). Because of its wide-ranging and spill-over effects, the fight against unemployment has played a central role in shaping both government and corporate HR policies.

2 Methodological summary

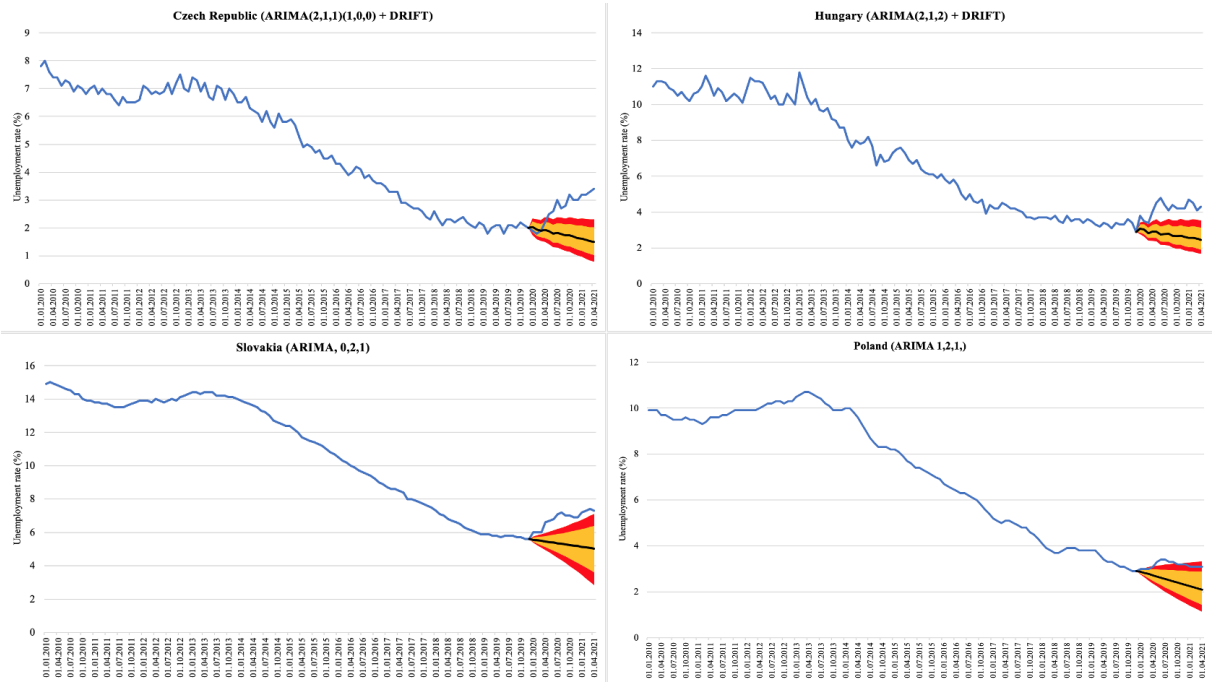
For our study, we used the OECD database (<https://data.oecd.org>). We analyzed the time series of unemployment data back to 2010. We used ARIMA modeling, which is well adapted to the characteristics of the time series and was performed in several steps. In the first step, we determined the most optimal ARIMA model based on the Akaike criterion (AIC), which showed

the most accurate fit with the time series of monthly unemployment data between January 2010 and December 2019 (we created a seasonal ARIMA model if necessary). If a trend-like change could be detected in the examined period, the extent of this was also estimated by incorporating it into the model (drift - DRIFT). Based on a stochastic time series model fitted to the time series preceding the time of the outbreak, an estimate was made for the period up to April 2021, and then the projected monthly unemployment data were compared with the observed values. With this method, the discrepancies between the 16-month data estimated on the basis of a 10-year trend and the changes due to the viral situation became detectable. Calculations were performed using RStudio 1.3.1093.

3 Results

Our results are shown in Fig. 1 graphs summarize. In the figure, the blue line indicates the actual unemployment data, which are joined from 2020 onwards by the point estimate based on the trend of the previous ten years, as well as the 80 and 95 percent confidence intervals, respectively. In fact, they can also be considered as estimates according to the optimistic and pessimistic scenarios.

Fig. 1 ARIMA models based on Visegrád Group unemployment data



Source: Authors' own elaboration

The similar curves of each country are clearly visible, with the most significant difference between the level at which the decline started. The Czech and Hungarian curves are less even than those of Slovakia and Poland, ie the Czech and Hungarian economies are more sensitive to environmental impacts. In the case of Slovakia, one possible explanation for the lower sensitivity may be the country's membership of the euro area, while in the case of Poland, the automotive assembly and supply sector is less dominant in the economy than the other three countries.

The coronavirus has also ended a decade of declining unemployment and favorable economic growth in the V4 countries. Unemployment has risen in all four countries as a result of the restrictions. This initial growth later turned into a decline in Poland and stagnation in Hungary. In the Czech Republic and Slovakia, initial success was followed by overall growth due to new waves of the epidemic. Of the countries examined, only Poland remained within the limits of the most pessimistic scenario, while the data of the other three countries were significantly worse due to the viral situation.

The following is a brief overview of each country's response to the epidemic. In all cases, the focus of our review is on fiscal and monetary responses, in addition to information on vaccination and, where available, other specific responses. Financial measures are reviewed based on an IMF report (IMF, 2021) and the vaccination situation is analyzed using the database of Our World in Data (<https://ourworldindata.org/covid-vaccinations?country>).

The first case was registered in the Czech Republic in March 2020 and the government declared the emergency almost immediately. The strict restrictions were eased in early summer due to an improvement in the epidemic situation. In the early fall, with the arrival of the second wave of the virus, tightening was again needed, which was only resolved in mid-April 2021, with an increase in vaccination. The government rescue package has earmarked almost CZK 230 bn for epidemic management, an amount equivalent to 4 percent of 2019 GDP. A further CZK 330 bn went to tax breaks, subsidies and public health expenditure. The budget paid the wages of the workers in the closed jobs in full, supported part-time forced employees by 60 percent and received a quarantine amount of CZK 370 per day. The scope of the tax benefits included the acceleration of the accounting of depreciation, the reduction of corporate tax and personal income tax. From 2021, companies whose performance fell by at least 50 per cent in 2020 may be eligible for additional support. With nearly CZK 30 bn, the government supported tourism, hospitality, culture, transport, agriculture and other particularly affected sectors. The Czech National Bank cut the key interest rate to 0.25 percent in several steps to ease the economy and also eased borrowing conditions. The vaccination campaign started in January

2021 and the number of weekly vaccinations increased steadily until July. By the end of July 2021, 53 percent of the population had received at least one dose, with 45.5 percent fully immunized.

In Hungary, the first restrictions came into force in mid-March 2020, followed by easing in early summer and tightening again in autumn. The government provided rescue packages from the budget in several stages. For the first time since March 2020, it has supported the sectors most affected by the epidemic in the amount of HUF 245 bn (0.6 percent of GDP) and has also eased the situation of companies and workers with tax breaks. In April, it supported job creation and job protection investments with another rescue package (450 bn HUF), announced new tax breaks and received a 1-week extra pension. In the same month, Eximbank provided € 800,000 and the Magyar Fejlesztési Bank nearly HUF 1,500 bn for export support. From May, the government made new budget funds available through tenders to support job protection and infrastructure development investments. The main direction of monetary policy was to maintain liquidity and slow down inflation. The base interest rate and the securities purchase strategy of the Magyar Nemzeti Bank were developed accordingly. A new credit line has also become available for small and medium-sized enterprises (FGS GO!) At favorable interest rates. Vaccinations were started by Hungary on December 27, 2020, ahead of the other member states of the European Union. Vaccination increased rapidly until May 2021, which is also due to the fact that Hungary was able to vaccinate not only with vaccines recognized in the EU, but also with Russian and Chinese vaccines. By the end of July, 58 percent of the population had received at least one vaccination and 56 percent had full protection.

In Poland, the first wave of the epidemic started in March 2020, the second in September and the third in February 2021. Direct costs cost the budget PLN 116 bn (5.2 percent of GDP). This was complemented by a PLN 74 bn corporate loan guarantee package and the PLN 100 bn PLN business liquidity program. An additional PLN 12 bn has been made available to local authorities, which can be used to finance applications submitted for investment purposes until the end of 2022, and an additional PLN 1 bn is available for infrastructure development. Both the increase in consumption and the operation of domestic businesses were helped by the PLN 50 voucher, which can be used within Poland and received by all Polish families with children. Each teacher received the same amount for the purchase of IT equipment. The National Bank of Poland has cut the key interest rate in several steps, easing lending conditions, buying securities and foreign currency to stimulate the economy and maintain financial market balance. The first vaccinations were still given at the end of December 2020, but really only between April and June 2021 was there an intensive increase in the vaccination rate. By July 2021, the

proportion of those vaccinated at least once in the population was 48 percent and those fully immunized were 46 percent.

In Slovakia, wage subsidies, the cost of health care for the epidemic and tax breaks in 2020 amounted to EUR 1.9 bn (2.1 percent of GDP). This was complemented by a EUR 4bn loan guarantee fund for companies. Businesses and families were also supported by the moratorium on loan repayments and relief from corporate and personal income taxes. The amended budget for 2021 provided for an additional EUR 4bn to address the problems caused by COVID. In the area of monetary measures, the room for maneuver of the National Bank of Slovakia was rather narrow because, as a member of the euro area, it had to react in accordance with the decisions of the European Central Bank. The vaccination campaign, launched in January, accelerated in late March. By the end of July 2021, the proportion of partially protected people within the population was 41.5 percent. The rate of fully vaccinated was 36.5 percent.

Conclusion

Based on the experience gathered to date, it can be said that the fight against the economic effects of the epidemic has three important pillars: the disciplined defense of the population, the involvement of the state and the increase of vaccination. These pillars can only succeed together, they are not enough in themselves to solve problems. Of the three pillars, our article examined two, we did not address public discipline in our present research.

The states of the Visegrád Group between 2010-2020 were characterized by an improving economic situation, declining unemployment and positive future growth expectations. This trend was halted by the recession caused by the forced economic downturn due to COVID-19. One of the earliest indicators of the decline is the increase in the unemployment rate, which was also the main direction of our research. The fight against unemployment was organized at government level in all Member States: wage subsidies, tax breaks, job-retaining investments were the typical policy responses. States that have devoted a significant portion of the economic rescue package to facilitating economic relaunch (infrastructure development, job creation, export subsidies, asset subsidies) have also been more successful in tackling unemployment. As a result, unemployment data have been kept within expectations (Poland) or at least stagnated (Hungary). In those states that focused more on wage supplements and unemployment benefits (Czech Republic, Slovakia), the current difficulties of the population and businesses have been alleviated, but the unemployment trend in these states continues to rise. The success of vaccination campaigns is important from an

economic point of view, mainly because of the timing of reopening: the higher the proportion of people who are fully immunized within the population, the more people can get back to work and take up a full-fledged activity. In our study, we examined pandemic-induced unemployment in the V4 countries. We hope to be able to contribute new information to the increasingly detailed picture of research on the subject.

References

- Barbieri Góes, M. C., & Gallo, E. (2021). Infection Is the Cycle: Unemployment, Output and Economic Policies in the COVID-19 Pandemic. *Review of Political Economy*, 33(3), 377–393. <https://doi.org/10.1080/09538259.2020.1861817>
- Blustein, D. L., Duffy, R., Ferreira, J. A., Cohen-Scali, V., Cinamon, R. G., & Allan, B. A. (2020). Unemployment in the time of COVID-19: A research agenda. *Journal of Vocational Behavior*, 119, 103436. <https://doi.org/10.1016/j.jvb.2020.103436>
- IMF. (2021). *Policy Responses to COVID19*. International Monetary Fund. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>
- Lacko, R., Hajduová, Z., & Zawada, M. (2021). The Efficiency of Circular Economies: A Comparison of Visegrád Group Countries. *Energies*, 14(6), 1680. <https://doi.org/10.3390/en14061680>
- M. Hezam, I. (2021). COVID-9 and Unemployment: A Novel Bi-level Optimal Control Model. *Computers, Materials & Continua*, 67(1), 1153–1167. <https://doi.org/10.32604/cmc.2021.014710>
- Morawski, I. (2021, January 21). *Unleashing Economic Demand after the Virus*. Visegrád Insight. <https://Visegradinsight.eu/virus-versus-growth-economic-demand/>
- MTI. (2020, December 26). *Beadták az első védőoltást Magyarországon*. <https://koronavirus.gov.hu/cikkek/beadtak-az-első-vedooltast-magyarorszagon>
- Németh A. (2020, December 22). *Szlovákiában vasárnap kezdik a tömeges oltást*. https://index.hu/kulfold/2020/12/22/szlovakianban_vasarnap_kezdik_az_oltast/
- Su, C.-W., Dai, K., Ullah, S., & Andlib, Z. (2021). COVID-19 pandemic and unemployment dynamics in European economies. *Economic Research-Ekonomska Istraživanja*, 1–13. <https://doi.org/10.1080/1331677X.2021.1912627>
- Tsai, C.-L., Hung, M.-C., & Harriott, K. (2010). Human Capital Composition and Economic Growth. *Social Indicators Research*, 99(1), 41–59. <https://doi.org/10.1007/s11205-009-9565-z>

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