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Would it have been cheaper to let them become unemployed?
Costs and benefits of First Aid intervention for companies in Slovakia during the COVID-19 pandemic

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Keywords: active labour market policy; unemployment; COVID-19 pandemic; cost-benefit analysis; financial impacts

Abstract

Research background: The global COVID-19 pandemic, which started in the first quarter of 2020, triggered unprecedented economic challenges, prompting governments worldwide to implement intervention measures to mitigate its impacts on business and employment. Without the state’s financial help, many companies were forced to lay off their employees. Among these measures was the First Aid intervention program introduced in Slovakia in April 2020, aimed at providing financial support to companies facing operational disruptions and potential layoffs of their employees.

Purpose of the article: This study assesses the impact of the First Aid intervention program during the COVID-19 pandemic on unemployment in selected sectors, with an emphasis on the financial aspect, emphasising the international relevance and long-term implications of the state intervention in the crisis period. By analysing its effectiveness in preserving jobs and mitigating unemployment in selected sectors, the research seeks to offer valuable insights that can inform crisis response strategies and labour market policies in the country and beyond national borders.

Methods: Employing a counterfactual approach, we quantify the financial consequence of the First Aid+ intervention program on the state budget, comparing unemployment costs against the benefits of maintaining employment in targeted sectors. Through this methodological framework, we aim to provide a replicable model for evaluating the efficacy of intervention programs in different socio-economic contexts.

Findings & value added: Our analysis reveals not only the immediate impacts of the First Aid+ program on mitigating unemployment during the pandemic, but also its broader implications for policy and crisis management strategies. By elucidating the cost-benefit analysis of intervention measures, the research contributes to the effective labour market policies in times of crisis.

Introduction

The world economy had recovered from the financial crisis after several years when suddenly in 2019, a turning point occurred. A new disease, COVID-19, caused by the Sars-Cov-2 coronavirus, which began to spread unstoppably around the world, unexpectedly entered daily life. No country worldwide was able to defend against it. The World Health Organization declared a global pandemic (Van Vo et al., 2021). The disease that affected people’s lives affected the functioning of households, businesses, and ultimately, the functioning of the states — the entire national economies (Kozak & Wierzbowska, 2022; Valaskova et al., 2021; Valaskova et al., 2023). The new situation and the destabilisation of the economy had to be faced. The governments of individual countries began to adopt protective
measures, which served to eliminate or even stop the spread of the disease /COVID-19. This goal was followed by an effort to return the economy to full operation as quickly and smoothly as possible. However, despite the efforts of the government or the established crisis team, it was impossible to avoid the negative impacts of the COVID-19 pandemic in almost all areas, both in the sphere of personal experience and the national economy (Belas et al., 2021).

One of the strongest impacts of the pandemic, or rather of the introduction of anti-pandemic (non-medical) measures, was the impact on unemployment. Unemployment is generally considered a complex socio-economic problem. It is not easy to deal with it neither individually nor from the state’s point of view, which is trying to reduce it and eliminate its causes as best as possible. We should also not forget the economic, social, or political impacts caused by the change in the level of unemployment. Unemployment could have even worse consequences when its development is affected by the COVID-19 pandemic.

To sum up, the COVID-19 pandemic has had a far-reaching global economic consequence, compelling governments to implement intervention programs aimed at mitigating its impact on companies and employment. In this article, we focus on the financial consequences of the pandemic on the state budget, focusing on selected sectors of the national economy. Specifically, we analyse the efficacy of the First Aid intervention program, introduced in Slovakia in April 2020, as a measure to alleviate the pandemic’s financial pressure on companies. By December 2021, investments in the First Aid system had reached almost 2.2 billion €. Therefore, it is important to evaluate the effectiveness of this aid not only in terms of job preservation, but also in terms of the allocation of public funds.

Additionally, there is a pressing need to analyse the pandemic’s impact on individual industries, both domestically and abroad. While existing research has provided insights into the impacts of the pandemic on businesses or unemployment (Barrot et al., 2020; Bartik et al., 2020; Czapski & Janczuk, 2020) and the effects of intervention programs (Mangan, 2020b, 2020a; Mayhew & Anand, 2020; Sachs, 2020; von Wachter, 2020; Zinecker et al., 2021), there remains a lack of analysis regarding their financial implications and cost-efficiency over the short to medium term. This study seeks to fill this gap by assessing the First Aid program in Slovakia. Such analysis is crucial for forming future responses in the event of a similar unexpected situation in the labour market caused by unpredictable factors to ensure the
most possible prompt and rational reaction. Here we see the practical purpose, but also the long-term value of this study. By examining past data, we can reveal the strengths and weaknesses of previous measures and corporate behaviour. These insights enable better preparation and management of future challenges.

While our primary focus is on the Slovak context, the insights derived from the analysis hold broader implications for policymakers and researchers worldwide. By quantifying the financial impacts of the First Aid program and the COVID-19 pandemic on unemployment in selected sectors on the state budget, we contribute to the state of the knowledge on crisis response strategies and labour market policies. Our study aims to evaluate existing measures and identify opportunities for improvements to enhance the resilience of economies in facing future crises. By comparing the financial costs of the First Aid program with the hypothetical scenario of unemployment in selected sectors, where the aid was not paid, and the employees in these sectors would have become unemployed, we offer insights into the cost-effectiveness of intervention measures. We specifically examine sectors such as construction (NACE F), accommodation and catering services (NACE I) and art, entertainment and recreation (NACE R), which were among the most significantly affected by the pandemic and associated anti-pandemic measures. Through this targeted analysis, we aim to shed light on challenges faced by these sectors and empower evidence-based policy measures and crisis management strategies. Thus, the study offers lessons for policymakers and researchers internationally. Elucidating the long-term implications of intervention programs and crisis response strategies would enable economic resilience and recovery in a post-pandemic world.

The rest of the paper is organised as follows. First, the literature review section highlights the current state of the studies aimed mainly at the pandemic impact on unemployment, but also mentions the studies aimed at the analysed measure in Slovakia or similar ones in other countries. Then, the research methodology section describes in more detail the methodology of the study. The results section shows the most important results of the analyses, and in the discussion section, we compare the methodologies and the results of the already published studies with the results of our study. The last section concludes.
Literature review

Impacts of the COVID-19 pandemic on unemployment

Unemployment as a negative phenomenon is solved as a social problem by several scientific disciplines: economics, sociology, social pathology, social work or social policy and pedagogy (Achdut & Refaeli, 2020; Azolibe et al., 2022; Bennett & Ouazad, 2020). In 2019–2022, a new determinant — the COVID-19 pandemic — began to affect unemployment (Privara, 2022). In their study, Ahmad et al. (2023) predicted that the impacts of the pandemic on unemployment will persist for at least five years. To prevent its spread, many measures were gradually adopted, which fundamentally impacted the development of economic indicators, including unemployment. Its economic and social impact on unemployment began to be investigated by scientists, academics, and economists.

Since the beginning of the pandemic, several studies have been published worldwide that deal with the impact of COVID-19 on unemployment and other areas of the economy. By evaluating the containment measures in Germany using the difference-in-difference estimation, Bauer and Weber (2021) calculated that the shutdown anti-pandemic measures caused 60% of the increase in inflows to unemployment. The additional 82% of the unemployment effect came from the loss of the new hires, which in sum means approximately 117,000 newly unemployed persons.

Geranios et al. (2022) conducted a study on a sample of almost 368 thousand respondents in the US. The authors found that unemployment increased due to the coronavirus to a greater extent in groups of residents with lower annual incomes. These were mostly people whose nature of work did not allow them to work from home. The authors have also identified the groups that are most likely endangered by the unfavourable economic situation, such as low-educated, low-aged women and some national minorities. These results are consistent with Almeida and Santos (2020), who similarly concluded that the impact of the pandemic on the labour market in Portugal varies across geographical regions, age groups, sectors of activity and labour ties. The authors have also identified vulnerable groups of young people and women in temporary work. Couch et al. (2020) also came to partially similar conclusions when the increase in unemployment after adopting government measures mainly concerned national minority members. Alwin and Schramm (2020) also pointed out the unde-
niable impact of COVID-19 on unemployment. However, they focused their research on the elderly population, employees at the age of 50 and over. Many workers from this age group lost their jobs due to insufficient technological skills when they could not adapt to changed working conditions and fully perform work from home. According to the authors, this group of jobseekers will have significant problems with finding new jobs.

Autin et al. (2020) prepared a study from which it follows that unemployment caused by COVID-19 has been suffering mostly the vulnerable groups of the working population, such as people of pre-retirement age, graduates, disadvantaged or low-skilled persons. In his study, Ruiz Estra- da (2021) designed a new economic tool, “COVIDeconomics-19”, a simulator for evaluating the pandemic impact on unemployment and inflation. His effort was that this simulator would be able to evaluate the COVID-19 impact on selected indicators at any time and in any country through five key indicators.

The impact of the pandemic on the labour market in Poland is analysed in the study of Adamowicz (2022). The author describes the changes in the Polish labour market, such as the popularisation of remote work on one side and the significant changes in employment structure. Moreover, the author also mentioned the actions taken by the government to save the companies from bankruptcy and their employees from layoffs. According to the authors, thanks to this anti-crisis shield, the unemployment rate growth fell, and the minimum wage in Poland increased.

Kovacs and Zsigmond (2020) dealt with the economic impacts of COVID-19 on unemployment and gross domestic product in the V4 countries. This issue was also addressed by Ahmad et al. (2023), who evaluated and predicted the further development of unemployment in selected European countries.

Shameem and Rajeswari (2022) analysed the impact of the COVID-19 pandemic on unemployment in India by comparing the unemployment rates before and after the pandemic. Before the pandemic in 2019, the unemployment rate in India was between 7–8%, while in April 2020, it jumped to 23.5%. The economic impact of the pandemic caused severe consequences for India’s economy by plunging it into recession. A similar approach was used in the study by Svabova et al. (2021). Based on monthly data from the pre-pandemic period, the authors estimated the theoretical expected development of unemployment without the pandemic and compared it with the real development of the unemployment rate in 2020.
Their results indicate that the unemployment rate increased by approximately 2 to 3% during 2020 compared to the trend of its development that would have occurred without the pandemic. According to the mentioned authors, this difference can be described as the impact of the COVID-19 pandemic. A similar, but more complex, study was conducted by Kramarova et al. (2022), who also investigated the impact of the COVID-19 pandemic development of the unemployment rate in Slovakia. By analysing unemployment trends during the pandemic’s 1st and 2nd waves and modelling the hypothetical situation of its development in the absence of the pandemic, the authors aim to assess how anti-pandemic measures have influenced labour market dynamics. Moreover, the authors identify the groups mostly affected by the crisis and quantify the impact on their unemployment.

Slovak and Hungarian authors Mura et al. (2022) also quantify the impact of the COVID-19 pandemic on the development of unemployment in Hungary and Slovakia. The analysis is based on data on the Slovakian and Hungarian labour markets during the pandemic years 2019–2021. The results show a remarkable increase in the unemployment rate in both countries during the pandemic.

In order not to mention only the negative perception of the pandemic, Autin et al. (2020) in their study considered the COVID-19 crisis as an opportunity and offered an extensive recommendation for policy and practice to recover from the crisis. These contain not only unemployment, but also other aspects of pandemic impacts, such as workers’ mental health or employment disparities.

Intervention programs during the COVID-19 pandemic and their impacts

So far, there exist several studies about various state aid programs which aimed to mitigate the impact of anti-pandemic measures on the threat of bankruptcy of the companies or the layoffs of their employees.

Germany’s short-time work program, Kurzarbeit, is widely credited and inspired aid programs for many European countries. Kurzarbeit provides a government subsidy to employees working for reduced hours due to the state restrictions when the employers place them on the reduced schedule rather than laying them off. With this support, the employees earn regular wages for the hours worked and some percentage of the regular wage as a replacement for the hours not worked. Such a job-retention
scheme as a first help is considered functional enough, but according to Dao and Aiyar (2022), it is surprisingly understudied. In fact, a cross-country comparison of their effects is very challenging because of very large differences among countries concerning the eligibility or entitlement criteria or costs and benefits for the employers. In this study, the authors quantified the effectiveness of the Kurzarbeit scheme during the pandemic crisis in Germany. The study results indicate that the program was crucial for mitigating unemployment and boosting domestic demand.

In their study, Dias et al. (2020) described the aid system in the UK, where the policy response was based on efforts to prevent employment ties from being severed in struggling sectors. The government provided cash grants to subsidise up to 80% of workers’ wages. According to the authors, the aid system was well-designed and allowed workers to resume working in their original jobs. However, from the long-term perspective, it slows or even prevents natural temporary or permanent relocation of workers into the sectors with labour shortages.

Merikull and Paulus (2023) analysed the situation in Estonia, where a job retention scheme was also based on the principle of German Kurzarbeit. Their study used a counterfactual approach based on the selection of participants of the scheme and their matched controls among the non-participants. The results showed that the job losses would have been higher, and the employment would have been lower without the support.

Jurajda and Dolezelova (2021) offered evidence from the Czech Kurzarbeit aid system during the first pandemic wave. The government introduced this measure as a reaction to decreased paid hours caused by the anti-pandemic measures. The authors found that manufacturing companies were the most frequent participants of this support, even though a share of them exhibited a wage decline even before the pandemic.

Garcia-Clemente and Congregado (2022) used new Spanish experimental statistics published by the statistics institute. These data contain information on the number and rate of surviving companies across a year. The authors found an association between the companies’ survival rate during the first year of COVID-19 with the Spanish short-time work scheme widely used during the pandemic. However, this relationship varies across sectors and company sizes.

Lam and Solovyeva (2023) connected the job-retention schemes in European countries with household data, seeking the impact of the aid programs on stabilising household income. They found the schemes effective
and concluded that they also helped mitigate the increase in the unemployment rate.

The assessment of the First Aid program, which we aimed at in this study, was carried out in Slovakia in some studies, which were devoted to measures supporting company employees (measures 1, 3A and 3B) during the first wave of the COVID-19 pandemic (until autumn 2020). These studies were carried out under the auspices of The Ministry of Labour, Social Affairs and Family of the Slovak Republic (MLSAF SR) and the Ministry of Finance of the Slovak Republic (MF SR), evaluating the effectiveness of individual measures within it on the companies according to their size. Moreover, Belin and Veselkova (2023) showed that during a worsening epidemic situation, unsupported small firms were relatively unaffected by the pandemic, and the dismissal was low. On the other hand, the participating firms preserved endangered jobs during the intensification of the epidemic. Lalinsky and Pal (2021) in their study focused on the very first wave of the pandemic and the wage subsidies under the First Aid program and analysed the size of the support and its consequences on profits, risk of illiquidity and insolvency. The authors emphasised that many of the firms survived the short-term liquidity shock during the pandemic thanks to the effectively allocated government support, but there still was an increased share of companies with huge losses caused by sales drops during the pandemic, absorbing their equity. A different view of the matter directly from the sight of the companies was brought by the study of Szeiner et al. (2023), where the authors analysed the challenges in Slovak businesses and their human resources solutions used during the pandemic. Using the questionnaire, the authors conclude that the companies did not want to solve the situation by decreasing the number of their employees but rather wanted to survive with their existing workforce. Moreover, the authors also stated that during the first wave of the pandemic, mostly corporations with more than 250 employees applied for state subsidies.

In the light of current research and existing studies, it is evident that there is a pressing need for further evidence regarding the efficacy of the supporting measures. The German Kurzarbeit scheme stands out as a notable example, as the evidence from previous crises has demonstrated its significant positive impact on mitigating the rise in unemployment during the crisis period, and during the COVID-19 crisis, it inspired most of the
European aid programs. Such evidence can help identify and highlight the most effective programs for future unexpected situations.

*First Aid program*

In Slovakia, the unemployment rate had a decreasing trend from the end of the world financial crisis in 2008 until 2019, with the growing GDP and the prosperity of the national economy. The turning point in the decline of unemployment occurred unexpectedly in 2020 with the beginning of the COVID-19 pandemic. Limiting and reducing production forced many employers to reduce the number of their employees, to take mandatory vacations or to pay proportional wages, which with a high probability also caused the increase in unemployment. Figure 1 shows the development of the registered unemployment rate from 1993 to 2021, according to the National Bank of Slovakia’s macroeconomic database.

The development of the unemployment rate during the COVID-19 pandemic is shown in Figure 2. It can be seen that the registered unemployment rate increased by leaps and bounds in the period from March 2020 to July 2020, when it gradually increased from 5.19% to 7.65%. It remained at an elevated level approximately until April 2021, when it peaked at 8%, the highest measured unemployment rate in the last three years. From this point, unemployment in Slovakia slowly decreased until December 2021, when it recorded a slight increase.

After the pandemic outbreak, Slovakia introduced measures aimed at maintaining job positions. The mechanism was called First Aid (later First Aid+ and First Aid++). It was a part of the active labour market policy, which played an important role during the pandemic through the efforts to help minimise the increase in unemployment. Active labour market measures are regulated by Act No. 5/2004 Coll. on employment services and the amendment of some laws and are realised under the responsibility of MLSAF SR. Active labour market policy has played an important role during the COVID-19 pandemic through efforts to help minimise the increase in unemployment.

The Central Office of Labour, Social Affairs and Family of the SR states that the monthly number of supported jobs peaked during the first wave of the COVID-19 pandemic in April and May 2020, when approximately 465 and 459 thousand jobs were supported. The number of supported workers in May 2022 was up to 19.8% of all employees in Slovakia. The authors
state that this was ten times more intensive support for jobs than during the crisis in 2009, when the state supported the maintenance of 38 thousand jobs through active labour policies (only the absolute number of supported job positions are compared, not the aid schemes). The extent of First Aid was very similar to the EU average and comparable to Germany and the Czech Republic.

The conditions of the First Aid program changed during individual waves of the pandemic in Slovakia. The program was introduced in March 2020; measures 1 and 2 (Table 1) were introduced within it, and additional measures 3A, 3B, 4A and 4B were added in April 2020. From October 2020, with the beginning of the second pandemic wave, it switched to First Aid+ and, from February 2021, to First Aid++. During the period of operation of the programs, eligible applicants for assistance were expanded, the program was connected to the so-called COVID-automat or other minor changes were made. An overview of individual measures within the program is in Table 1.

To support the maintenance of job positions, the amount ranging from almost 30 million € (July 2021) to almost 213 million € (February 2021) has been paid every month since March 2020. On average, the monthly amounts were from 224 € up to 628 € per worker on average for all measures of the program. The highest total amount was spent on measure 3B, but the highest average monthly contribution was per job position in measure 1.

The payment of contributions ended in September 2022. MLSAF SR states that during the two years of intervention operation, the state supported 176 thousand business entities in the amount of almost 2.5 billion €, while 5.7 million monthly payments were paid for more than 770 thousand employees. First aid represents the largest assistance for employment protection in history, which was personally felt by every third citizen of the SR. (MLSAF SR, 2020)

For the reasons mentioned above, we consider it important to focus on a more similar assessment of the financial impact of the payment of this contribution from the point of view of the state budget.
Research method

This study aims to evaluate the immediate impacts of the First Aid intervention program aimed at mitigating the rise in unemployment by supporting companies not to lay off employees during the COVID-19 crisis. For this purpose, we employed a Cost-Benefit Analysis (CBA). This methodology serves to evaluate the pros and cons of projects, investments or policy changes by quantifying and comparing costs and benefits in monetary terms (Fackler et al., 2017). CBA In this case, the costs are not viewed from an accounting point of view but are rather perceived as a certain form of “damage” falling on the subject concerned. Conversely, benefits represent positive effects from the program on the subject concerned (Haveman & Weimer, 2015).

By analysing costs and benefits, we determined the impact of state intervention in First Aid+ on the state budget. Given the period included in this analysis, we are considering the First Aid+ phase of the intervention program, which is related to the availability of the data we used in the study. The principle of construction of the analysis was as follows. On the one hand, we considered a hypothetical situation where the state had not provided financial subsidies to companies to maintain jobs during the COVID-19 pandemic. This would have led to increased unemployment, non-subsidised job positions would have been cancelled, and workers would have become unemployed, officially registered as jobseekers in the database of the Central Office of Labour, Social Affairs and Family of the SR. Consequently, it would have been necessary to provide them with unemployment allowance, benefits, and support, to pay contributions to the Social Insurance Office for them, etc., which would have caused an increase in claims to the state budget.

In theory, CBA involves several key steps (Morosan-Danila, 2018):

1. Identification of the Costs and Benefits. This first step is to identify and quantify all relevant costs and benefits associated with the program or intervention. Costs typically include expenses such as initial investments, operating costs, and maintenance expenses. In our case, the costs of the real situation of the existence of the First Aid program include the allowance paid under it. Then, costs in the case of the hypothetical situation without state aid include the unemployment allowance and insurance paid by the state. In this analysis, we abstract from the indirect unemployment costs, for example health costs of involuntary job loss.
On the other hand, benefits usually include positive outcomes such as revenues, cost savings or another desirable project outcome. In our case, we included income tax, levies, and value-added tax to the benefits of the real situation with the intervention program, where the supported employees persist in their employment. All these items are described below in more detail.

2. *Monetisation*. All the included costs and benefits need to be expressed in monetary terms. This step involves assigning a monetary value to each cost and benefit. This could sometimes be challenging, especially in the case of unmeasurable benefits. In our analysis, all the monetary values have been assigned by using the publicly available data. As already mentioned, we used average values and, where possible, the specific values for the analysed sectors. The sources of the monetary values are explained below.

3. *Comparison*. Once all costs and benefits have been identified and quantified, they are compared to determine the net value of the program, given by

\[
NPV = \sum \text{all the expected benefits} - \sum \text{all the associated costs}
\]  

If this value is positive, the program is economically favourable. Sometimes also, a benefit-cost ratio should be calculated by

\[
BCR = \frac{\sum \text{all the expected benefits}}{\sum \text{all the associated costs}}
\]  

4. *Sensitivity analysis*. This analysis involves examining how changes in key variables affect the results of CBA. This helps to identify the factors with the greatest impact on the economic value of the program.

In this analysis, we include the following costs of the state in the case of a hypothetical situation where there was no First Aid program and the companies laid their employees:

- Unemployment allowance, according to the Social Insurance Agency of the SR determined as the product of 50% of the daily assessment base (DAB) and the number of days in a month. We determined the average DAB as a share of the sum of the assessment bases in the decisive period and the number of calendar days of the decisive period. We used average wages for individual years in selected sectors for assessment bases.
In calculations of the number of days in the decisive period, we counted on the 30T/360 standard.

- Material needs benefit provided according to Act no. 417/2013 Coll. in calculated periods for an individual. The entitlements of the entitled person are determined in more detail by this act. We calculated its amount as the product of the average monthly percentage of registered jobseekers supported by the allowance in material need and the amount of the monthly allowance per individual determined by law for the individual for the analysed periods. In these calculations, we used the sector-based values.

- Health insurance paid by the state for the jobseekers registered in the database of jobseekers, since they are considered insured by the state. The amount of insurance is 4% of the DAB multiplied by the number of days in the month, with the DAB values valid for the selected sectors.

- Social insurance, which is also paid by the state for registered jobseekers. It consists of old-age insurance (18% of the DAB), disability insurance (6% of the DAB) and a solidarity reserve fund (2% of the DAB). In total, the state reimburses the social insurance in the amount of 26% of the DAB multiplied by the number of days in the month, where the DBA is valid for the individual sectors.

Besides these costs, it is a fact that without the existence of the First Aid intervention program, there would have been no request for the state budget to pay the allowance for the companies within this program.

The second situation for comparison in the analysis is the real situation with the pandemic. Here, we were considering a real situation where the state supported job positions and achieved retention. The employees remained working in the companies and did not become unemployed. On the one hand, this situation meant the state had to spend money under the First Aid program to subsidise job positions. So, in the CBA, we include the allowance under the First Aid program as the costs. In this case, we used the average values valid for individual sectors. But on the other hand, the existence of the program meant that the state paid no costs mentioned above for the jobseekers. Instead, we considered the following benefits for the state budget in the CBA:

- Income tax is paid from the gross salary. We used the average incomes in the selected sectors in individual years. As these annual incomes did not exceed the given multiple of the subsistence minimum in all the sec-
tors and years, we used personal income tax in the amount of 19% of the tax base.
- Levies for the employee, paid by the employer in the amount of 35.2% of the employee’s gross salary. We again used the average salaries in individual sectors and years.
- Value-added tax (VAT), which we estimated through the difference between the annual income of the state budget from the VAT of the employed and the unemployed individuals. The calculation of the average monthly amount in individual years is shown in Table 2.

From the listed costs and benefits, we quantify the financial impact for both situations: the real situation under the COVID-19 pandemic and a hypothetical counterfactual situation that would have occurred in a situation without the pandemic. We consider the difference between these two results to be the financial impact of the First Aid (+) program on the state budget. Thanks to this, we found out the average amount the state would have lost if the First Aid+ program had not been implemented. We carried out a comparison of CBA results for the three selected sectors: construction (NACE F), accommodation and catering services (NACE I) and art, entertainment, and recreation (NACE R).

As mentioned, in all the calculations, we use the average values published for the given industries, and for monthly calculations, we use the 30E/360 standard everywhere. That is, we consider each month of the year as 30 days. All the amounts in the analyses are in € for a period of one month per individual.

Results

Cost-benefit analysis of the Construction sector

We came to the following findings using the CBA described above in the construction field (Table 3). In 2020, the Slovak government spent, on average, 410.52 € from the state budget through the national project First Aid+ to maintain one employee’s job. The average cost per unemployed person was 619.51 € in 2020. After considering the costs of First Aid+ in 2020 paid from the state budget and the benefits of job position retention, we dare to say that the money for the intervention program was spent effectively in this sector. More benefits flowed into the state budget than costs, on aver-
age 28.74 € per employed person per month. The difference in CBA between the real situation (existence of the First Aid+ program) and hypothetical counterfactual (no intervention program) is 648.25 € as an income to the state budget.

In 2021, the average amount spent on maintaining one job position increased to 608.48 €. The average cost per unemployed person was 665.72 €.

After considering the taxes and levies, the existence of the intervention had a negative impact on the state budget because more funds were spent from the state budget than flowed into it. On average, the difference was 135.57 € per month. Therefore, comparing the real and the hypothetical situation shows that the financial impact of First Aid+ in 2021 was -530.15 € per job position monthly.

However, if we compare the real situation with the intervention program for saving the job position with the possibility when the support from the state would not have been provided, and for this reason the job position would have been cancelled, it would probably have led to the situation that the individual would have become unemployed, which would have caused higher unemployment costs for the state. Therefore, the existence of the program First Aid+ had a positive effect in both years. In 2020, in the form of a financial benefit for the state budget and in 2021, in the form of lower costs compared to the possibility of job positions cancelling.

In Table 3 (also in the other tables of costs and benefits), the costs of the state budget are marked with negative signs and the budget revenues with a positive sign.

Cost-benefit analysis of the Accommodation and food service activities sector

The CBA carried out in the field of accommodation and food service activities (Table 4) led us to the following conclusions. In 2020, the government of the Slovak Republic spent through the First Aid+ program on average of 382.62 € from the state budget to maintain the job of one employee. In 2021, it was, on average, 572.11 €. Assuming that this intervention fulfilled its purpose and the job position was preserved, revenues from income tax, value-added tax and employer levies for the employee flowed into the state budget. Thus, in this case, maintaining a job, after considering the costs of the intervention and the benefits for the state budget, represented a final average monthly expenditure of 19.31 € per supported employee in 2020 and €166.34 in the second pandemic period in 2021.
On the contrary, in a hypothetical situation where First Aid+ had not existed, which would have led to unemployment, the state would have had to bear the costs for the unemployment of the people. In 2020, the monthly costs for an unemployed person were 501.91 € on average. In 2021, these costs increased to 561.72 €.

By comparing these two situations, by saving one job position, the state budget “saved” an average of 482.60 € per month in 2020 and 395.58 € per month in 2021 per retained employee. The resulting financial impact of the introduced intervention is positive, as through the maintained job position, the state would not have had to spend financial resources on the payment of unemployment benefits, health and social insurance or benefits in material need for persons whose jobs would not have been able to be maintained without state support.

Cost-benefit analysis of the Arts, entertainment, and recreation sector

We can conclude the following from the CBA in the Arts, entertainment, and recreation sector (Table 5). Through First Aid+, the state spent, on average, 400.95 € per month in 2020 to maintain one job position. In 2021, it was 608.48 € per month on average. If this led to the preservation of a job position, the benefits from income tax, value-added tax at a higher value than from unemployed persons, and employer’s levies for employees flowed into the budget. After taking into account the costs and the benefits of the intervention, the benefit from the preserved place was, on average, 120.42 € monthly in 2020. In 2021, the difference was negative. Thus, it means the costs for the state budget are in the average amount of 29.91 € monthly.

On the other hand, if the First Aid+ program had not existed and the job position had not been preserved, the state would have incurred costs per unemployed person in 2020 with an average amount of 746.71 € per month. In 2021, the average monthly cost for an unemployed person was 817.72 €. In this situation, the resulting financial impact on the state budget would be 867.13 € per person monthly in 2020 and 787.81 € per person monthly in 2021.

We were unable to collect data on the exact number of unemployed people whose jobs were not maintained even through financial support from the state in the form of the First Aid+ allowance. However, if we consider the average number of unemployed people in selected sectors for the
years 2020 and 2021, we could state the following. If every job position of the average number of unemployed could be maintained thanks to the state intervention in First Aid+, the state budget would save monthly in 2020 and 2021, the average amounts shown in Table 6. Of course, this is only a very rough estimate, as we do not consider how many of these unemployed people were due to the pandemic.

Discussion

Through the CBA carried out in the Construction (NACE F), Accommodation and food service activities (NACE I) and Art, entertainment, and recreation (NACE R) sectors, we concluded that the national project First Aid+ played an important role in minimising the financial impact on the state budget, through the support of job positions retention.

This result is in accordance with the studies published so far in Slovakia on the impact of this intervention. Lalinsky and Pal (2021) showed that the direct economic support in Slovakia was distributed efficiently as the companies from the most affected sectors received wage subsidies with higher probability. Further, the authors show that a significant share of financially healthy companies has been affected by the sales drop during the pandemic, but many of them were able to survive owing to government support. The authors consider even relatively small-scale support in Slovakia to be effective in keeping employment and avoiding liquidity crises in the short term. Belin and Veselkova (2023) found that state aid in Slovakia significantly reduced the number of layoffs. In the group of supported companies, the number of layoffs was significantly lower than among the unsupported companies. Moreover, the aid was well-targeted to the companies that really needed it, as the layoffs were not higher in the group of unsupported but financially vulnerable companies. The supported companies survived the crisis in a higher ratio than the unsupported ones, which suggests that the contribution level was sufficient to avert the risk of failure.

As several studies have been published in the field of government support for companies or employees during the pandemic, we can generally compare their functioning across countries. Mangan (2020a) studied three types of income support in Ireland: a temporary wage subsidy of up to 85 % of the employee’s wage, unemployment payment for workers who lost their jobs due to the crisis and sick pay as an increased illness payment.
The wage subsidy was similar to measure 1 in the Slovak First Aid scheme. However, the mentioned study does not evaluate the impact of these schemes on Ireland’s unemployment, although there is detailed information on the conditions, their changes during the pandemic and also eligible participants. For the purpose of such evaluation, our study can be considered helpful, providing valuable methodological framework. A similar study was carried out by (Mangan, 2020b), focused on the situation in the United Kingdom. The UK also operates sick payments for those with the disease, alongside with unemployment allowance with specific conditions regarding COVID-19 disease, the so-called Coronavirus Job Retention Scheme (JRS) as a temporary wage subsidy granting employers up to 80% of the monthly wage of employees and income support for self-employed individuals of up to 80% of average monthly income. The last two mentioned schemes are similar to the First Aid scheme in Slovakia. However, although the author discusses some details about the schemes, the numbers of employees supported by them and general functioning, there still remains a need for quantification of their short or mid-term impact from the financial point of view. For this purpose, our study can serve as a replicable model for such evaluation.

The situation in the UK and its policy response to the pandemic situation compared to other OECD countries is discussed in Mayhew and Anand (2020). In the UK, as mentioned above, under the JRS scheme, the employers received 80% of employees’ wages to avoid large-scale redundancies and the subsequent high number of unemployed people. According to the authors, it has been calculated that the JRS is much more expensive than paying the benefits for the people out of work, but in comparison with our study, the authors did not make approximate calculations. Finally, the authors conclude that the scheme may moderate the rise in unemployment, but it is questionable to what extent. Different situations in unemployment growth during the pandemic can be explained by different policy responses. Nevertheless, higher unemployment’s long-term consequences and costs must not be omitted.

The study by Sachs (2020) describes the income support during the pandemic period in France. According to the author, the greatest effort was devoted to protecting the employees. In France, the temporary wage subsidies scheme allowed the maintenance of employees’ wages of up to 70% of gross salaries. This scheme was similar to the First Aid program analysed in this study, with a difference in the payments. In France, the employer
first paid the remuneration, and the state later refunded them. Although the scheme mainly benefited the employees who avoided becoming unemployed, the author states that although the scheme cost more than 1 billion € daily, unemployment nevertheless increased. The approximate calculation of the costs and benefits of the program is not made, but according to the author, the state tried to avoid redundancies together with encouraging the recovery of the business activity.

In the study of von Wachter (2020), an extensive analysis of the COVID-19 crisis in the US and California labour market is conducted. Among the other points of view, the author focusses also on the costs of unemployment and calculates the approximate total costs of job losses during the pandemic crisis. Anyway, the author does not consider the pandemic labour market programs to support employment as a part of his analysis.

Zinecker et al. (2021) used a qualitative trend analysis to understand the impact of the pandemic and targeted policy measures on GDP. The authors proposed a trend model based on the transitional tree, considering the variables likely to affect the GDP and others, focusing on assessing the impact of the policy measures. As the authors mentioned in their study, government programs for maintaining employment during recessions are beneficial in the phase of economic recovery, but on the other hand, they can also cause market inefficiency.

More concrete results are presented in Dao and Aiyar (2022), where the authors calculated that the unemployment rate would have been, on average, 3% higher and the consumption contraction 2-3 times larger without the intervention program in Germany. A similar situation was observed in Estonia, where the unemployment rate would have been 2-4% higher than without the support and about one job in five supported was really saved, as Merikull and Paulus (2023) reported.

Jurajda and Dolezelova (2021) present evidence from the Czech Republic in their study. The author found out that medium-sized and large companies from the manufacturing sector were the most likely to receive the support (60% of the total support), and their support was almost five times higher than their employment share.

In all the mentioned studies, the particular schemes for mitigating unemployment in specific countries or their effect on unemployment and saving jobs were analysed, but in most cases, without focusing on the financial point of view. Compared to the mentioned studies, our research aims to elucidate the approximate financial implications of state interven-
tions during the crisis period. Employing a counterfactual approach offers insight into the effectiveness of the intervention program on the financial side of preserving jobs in selected sectors. The model is replicable in diverse socio-economic contexts. By elucidating the cost-benefit analysis of intervention measures, our research adds to the state of the knowledge necessary for effective policy formulation.

Despite the fact that in this study we were unable to find out the exact number of job positions maintained thanks to this intervention, we can say with certainty that every position preserved across selected sectors of the national economy brought a positive impact on the state budget in the form of saved unemployment costs and the form of uninterrupted tax income from the income of the retained employee, from the employer’s levies for the employee and from the difference between the income from the value-added tax of the employed and the unemployed person, where it applies that the higher a person’s income, the more he consumes, and thus pays more in value-added tax.

Conclusions

The COVID-19 pandemic plagued the world during the years 2020–2022. In addition to human health, the pandemic affected people’s daily lives, the functioning of the business sector and the entire national economies worldwide. Unemployment was the area significantly affected by the pandemic, with several negative consequences of the increase of the unemployment rate across several sectors. This study aimed to assess the efficacy of the First Aid program in Slovakia, introduced to mitigate the impacts of the COVID-19 pandemic and prevent an increase in unemployment. Focusing on the three sectors, namely Construction, Accommodation and food service activities and Art, entertainment and recreation, which were the hardest hit by the pandemic and primary recipients of the First Aid support, we conducted a cost-benefit analysis to evaluate the program’s financial impact.

Our findings highlight the critical role of state intervention in preserving jobs and alleviating the pandemic’s economic impact on the state budget. Through the cost-benefit analysis in individual sectors, we concluded that the intervention program played an important role in minimising the financial impact of the pandemic and the related increased unemployment
on the state budget. The retention of job positions through the First Aid program not only saved the state budget in the form of averted unemployment costs, but, at the same time, sustained revenues from income taxes of the retained employee, employer levies for the employee and VAT. This is also a response to the question in the study’s title, whether it would have been better to leave people to become unemployed instead of supporting the retention of jobs from the state budget.

Of course, we have to admit that this study has several weaknesses. As the main one, we consider that we do not work with specific data on companies that received support from the First Aid+ program and control companies that did not apply for support or were not eligible recipients. All calculations are based on average numbers and average values, valid for selected sectors of the national economy. Average values were used to calculate both costs and benefits, thereby distorting the actual results. For example, we assume that every subsidised job position is saved, and the given individual does not become unemployed. Of course, we must abstract from the fact that some such job positions will nevertheless be cancelled after the end of the subsidy and the economic recovery.

On the contrary, some positions would not have been cancelled even without the intervention allowance. We assume that using average values, the impact of the First Aid+ program quantified in this study is overestimated compared to reality. We acknowledge that the use of average values of costs and benefits may have biased the actual results of the CBA. However, considering the availability of publicly published data, we nevertheless consider the results of this study to be very interesting and important. We also dare to say that the results can be used both for more detailed studies and for deriving practical consequences in case of the need to introduce a similar support program in case of the same or another unavoidable situation in the future. The research contributes to the broader disclosure of labour market policies, highlighting the unique challenges and opportunities faced by different countries. The case of Slovakia serves as a reference point for comparative analysis and cross-country learning.

Possible further research should focus on a more detailed analysis, incorporating data on supported and non-supported enterprises, which would bring a deeper insight into the program’s impact and form the design of more targeted interventions. Additionally, exploring other sectors not covered in this study and updating our findings with new publicly available data after their publication would enhance the relevance of the
research. By understanding the impact of crisis response strategies, we can better prepare for future challenges in times of crisis.

References


**Acknowledgments**

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Annex

Table 1. Measures in the First Aid program

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
<th>First Aid</th>
<th>First Aid+</th>
<th>First Aid++</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (kurzarbeit)</td>
<td>financial support for employers whose activity has been limited by an official decision; support provided to the employer for an employee on an obstacle; eligible applicants: employers (legal entities and self-employees)</td>
<td>80% of the gross salary; a maximum of 1100 €</td>
<td>80% of the total price of the work; a maximum of 1100 €</td>
<td>100% of the total price of the work; a maximum of 1100 €</td>
</tr>
<tr>
<td>2</td>
<td>a graduated financial contribution depending on the decrease in sales, eligible applicants: self-employees with sickness and pension insurance</td>
<td>contribution graduated (4 levels) according to the decrease in sales, from 180 € for a decrease of 20% to 540 € for a decrease of more than 80%</td>
<td>contribution graduated (4 levels) according to the decrease in sales, from 270 € for a decrease of 20% to 810 € for a decrease of more than 80%</td>
<td>contribution graduated (8 levels) according to the decrease in sales, from 330 € for a decrease of 20% to 870 € for a decrease of more than 80%</td>
</tr>
<tr>
<td>3A (kurzarbeit)</td>
<td>financial support for employers whose activity has been limited by the economic downturn: support provided to the employer per employee at a disadvantage; eligible applicants: employers (legal entities and self-employees)</td>
<td>80% of the gross salary; a maximum of 880 €</td>
<td>80% of the total price of the work; a maximum of 1100 €</td>
<td>100% of the total price of the work; a maximum of 1100 €</td>
</tr>
<tr>
<td>3B</td>
<td>graduated financial contribution to employees depending on the decrease in sales; eligible applicants: employers (legal entities and self-employees); for December 2021 - February 2022; decrease in sales of at least 40% and eligible applicants are micro and small companies</td>
<td>80% of the gross salary; contribution graduated (4 levels) according to the decrease in sales, from 180 € for a decrease of 20% to 540 € for a decrease of more than 80%</td>
<td>80% of the gross salary; contribution graduated (4 levels) according to the decrease in sales, from 270 € for a decrease of 20% to 810 € for a decrease of more than 80%</td>
<td>100% of the gross salary; contribution graduated (8 levels) according to the decrease in sales, from 330 € for a decrease of 20% to 870 € for a decrease of more than 80%</td>
</tr>
<tr>
<td>4A</td>
<td>financial contribution in a uniform amount for each eligible applicant; eligible applicants: self-employees without other income and without social insurance (income from employment and agreements is allowed)</td>
<td>210 €</td>
<td>315 €</td>
<td>360 €</td>
</tr>
<tr>
<td>4B</td>
<td>financial contribution in a uniform amount for each eligible applicant; eligible applicants: one-person companies meeting the conditions of minimum turnover and maximum profit before tax</td>
<td>210 €</td>
<td>315 €</td>
<td>360 €</td>
</tr>
</tbody>
</table>

Source: Baliak et al. (2022).
Table 2. The average amount of VAT attributable to the employed, exceeding the VAT of the unemployed individual

<table>
<thead>
<tr>
<th>VAT / year</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual amount of VAT attributable to the employee</td>
<td>2 574 €</td>
<td>2 664 €</td>
<td>2 703 €</td>
</tr>
<tr>
<td>The average monthly amount of VAT of an employee</td>
<td>214.50 €</td>
<td>222 €</td>
<td>225.25 €</td>
</tr>
<tr>
<td>Annual amount of VAT attributable to the unemployed individual</td>
<td>1 223 €</td>
<td>1 265 €</td>
<td>1 241 €</td>
</tr>
<tr>
<td>Average monthly amount of VAT of the unemployed individual</td>
<td>101.92 €</td>
<td>105.42 €</td>
<td>103.42 €</td>
</tr>
<tr>
<td>Difference (yearly)</td>
<td>112.58 €</td>
<td>116.58 €</td>
<td>121.83 €</td>
</tr>
</tbody>
</table>

Table 3. Cost-benefit analysis of the sector F in €: Construction

<table>
<thead>
<tr>
<th>Situation</th>
<th>Costs and benefits</th>
<th>Pandemic year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unemployment benefit</td>
<td>2020 2021</td>
</tr>
<tr>
<td>hypothetical - no First Aid+ program</td>
<td></td>
<td>-380 -409</td>
</tr>
<tr>
<td></td>
<td>Material needs benefit</td>
<td>-11.51 -11.32</td>
</tr>
<tr>
<td></td>
<td>Unemployment health insurance</td>
<td>-30.4 -32.72</td>
</tr>
<tr>
<td></td>
<td>Social insurance for unemployment</td>
<td>-197.6 -212.68</td>
</tr>
<tr>
<td></td>
<td>Total costs of the unemployed person</td>
<td>-619.51 -665.72</td>
</tr>
<tr>
<td>real - existence of First Aid+ program</td>
<td>First Aid +</td>
<td>-410.52 -608.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55.16 63.16</td>
</tr>
<tr>
<td></td>
<td>Income tax</td>
<td>267.52 287.92</td>
</tr>
<tr>
<td></td>
<td>Levy for the employee from the employer</td>
<td>116.58 121.83</td>
</tr>
<tr>
<td></td>
<td>Value-added tax (consumption)</td>
<td>28.74 -135.57</td>
</tr>
<tr>
<td></td>
<td>The cost of maintaining a job position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>648.25 530.15</td>
</tr>
</tbody>
</table>

### Table 4. Cost-benefit analysis of the sector I in €: Accommodation and food service activities

<table>
<thead>
<tr>
<th>Situation</th>
<th>Costs and benefits</th>
<th>Pandemic year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2020</td>
<td>2021</td>
</tr>
<tr>
<td>hypothetical - no First Aid+ program</td>
<td>Unemployment benefit</td>
<td>-306.50</td>
<td>-344.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material needs benefit</td>
<td>-11.51</td>
<td>-11.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unemployment health insurance</td>
<td>-24.52</td>
<td>-27.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social insurance for unemployment</td>
<td>-159.38</td>
<td>-178.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total costs of the unemployed person</td>
<td>-501.91</td>
<td>-561.72</td>
<td></td>
</tr>
<tr>
<td>real - existence of First Aid+ program</td>
<td>First Aid +</td>
<td>-382.62</td>
<td>-572.11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income tax</td>
<td>30.97</td>
<td>41.77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Levy for the employee from the employer</td>
<td>215.76</td>
<td>242.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value-added tax (consumption)</td>
<td>116.58</td>
<td>121.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The cost of maintaining a job position</td>
<td>-19.31</td>
<td>-166.34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>648.25</td>
<td>482.60</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Cost-benefit analysis of the sector R in €: Arts, entertainment, and recreation

<table>
<thead>
<tr>
<th>Situation</th>
<th>Costs and benefits</th>
<th>Pandemic year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2020</td>
<td>2021</td>
</tr>
<tr>
<td>hypothetical - no First Aid+ program</td>
<td>Unemployment benefit</td>
<td>-459.50</td>
<td>-504.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Material needs benefit</td>
<td>-11.51</td>
<td>-11.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unemployment health insurance</td>
<td>-36.76</td>
<td>-40.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social insurance for unemployment</td>
<td>-238.94</td>
<td>-262.08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total costs of the unemployed person</td>
<td>-746.71</td>
<td>-817.72</td>
<td></td>
</tr>
<tr>
<td>real - existence of First Aid+ program</td>
<td>First Aid +</td>
<td>-400.95</td>
<td>-600.97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income tax</td>
<td>81.32</td>
<td>94.42</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Levy for the employee from the employer</td>
<td>323.47</td>
<td>354.81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Value-added tax (consumption)</td>
<td>116.58</td>
<td>121.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The cost of maintaining a job position</td>
<td>120.42</td>
<td>-29.91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>648.25</td>
<td>867.13</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. The average financial impact of the First Aid+ intervention on the state budget in €

<table>
<thead>
<tr>
<th>Sector / Year</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>7 065 961.33</td>
<td>7 435 400.50</td>
</tr>
<tr>
<td>Accommodation and food service activities</td>
<td>6 310 038.58</td>
<td>6 197 633.75</td>
</tr>
<tr>
<td>Arts, entertainment and recreation</td>
<td>1 669 231.67</td>
<td>1 713 494.00</td>
</tr>
</tbody>
</table>

Figure 1. Long-term development of the registered unemployment rate in Slovakia

Source: Own elaboration based on National Bank of Slovakia – annual macroeconomic indicators.

Figure 2. Registered unemployment rate in Slovakia during the pandemic

Source: Own elaboration based on National Bank of Slovakia – annual macroeconomic indicators.