Original Paper

Statistical indicators of unemployment in the Slovak Republic

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ABSTRACT

One indicator of the economy is the unemployment rate. It is monitored in all countries of the world, especially in periods when it increases significantly in a short period of time. It is one of the highly debated problems of society. Countries around the world attempt to solve at least part of the problem through economic policy. The aim of this paper is to highlight the problem of unemployment in the Slovak Republic in all districts of the Slovak Republic. The research sample consisted of the unemployed in the individual districts of the Slovak Republic between 2019 and 2021. When we compared the years 2020 and 2021 with 2021, we found a significant difference in the number of unemployed, but when we compared the years 2020 and 2021, there was no significant difference.

KEYWORDS: unemployment rate, problem of unemployment, districts of the Slovak Republic, number of unemployed

JEL CLASSIFICATION: E010, E66

INTRODUCTION

The problem of unemployment has existed in the past, but it is now a major problem for our society. All the countries of the world are affected by this problem and are trying to tackle it in different ways. Obviously, there is no simple formula for dealing with unemployment. Unemployment depends on the current state of the economy, politics and other factors that affect it.

Slovakia has undergone significant political and economic changes since 1989. With the transition from a centrally planned economy to a market economy, the first data on the number of unemployed started to appear. By 1989 there was full employment, so there was almost no experience of unemployment. The first registration of jobseekers in the Slovak Republic appeared in February 1990, when 1949 jobseekers were registered at the labour

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offices and the unemployment rate reached 0.07% (Rievajová, 1996). At the end of 1990 there were 30,000 unemployed registered in Slovakia, the extreme growth came the following year and the number of unemployed exceeded 300,000 at an unemployment rate of 11.8% (Košta and Juríčková, 1995). Mass unemployment is usually considered when the unemployment rate exceeds 10%. The development of unemployment is influenced by both economic and social problems, such as poor mental and physical health, family breakdown, crime, etc. Essentially, unemployment results from a decline in economic growth and, as a consequence, a decline in the national economy.

Morrish (2022) et al. compare loneliness and unemployment in the working age. The impact of loneliness on unemployment is deepened further in the context of physical health. Particular attention should therefore be paid to loneliness with additional support from employers and the government to improve health and well-being. Similarly, Ikar et al. (2022) link unemployment to health. They compared the frequency of contact with GPs and patients' experiences of GPs among unemployed and employed people by using data from two surveys. They found out that unemployed people saw their GPs more often (65.9%) compared to employed people (42.9%).

Another problem is the transition between employment and unemployment. Liina et al. (2022) discussed the transition from unemployment to employment. They evaluated the association of various physical and psychiatric conditions with job search and job stability. They observed the Finnish population aged 30-60 with a period of unemployment between 2009-2018 within two years of the onset of unemployment. Poor health will reduce the unemployed's chances of finding a job, especially if they have alcohol or psychiatric problems. Park and Cho (2022) examined the economic impact of unemployment in the context of the pandemic and what greatest negative impacts were experienced by young people. Young people were significantly more likely to be economically inactive or discouraged job seekers after the COVID-19 outbreak compared to other age groups. In addition, through an analysis of employ support unitiesnity, young people reacted negatively to the possibility of future employment compared to middle-aged people after COVID-19. Galindo (2022) examined differences between firms created by unemployed people compared to firms created by employed people. He found that unemployed people are more likely to set up small firms but are not successful. He says that business assistance among the unemployed has little impact on job creation and shows low productivity.

The authors also addressed social issues in their works. Raimi, Fardeen and Sule (2022) dealt with social problems in the context of unemployment. They asked the question: "Are social enterprises in developed and developing countries characterized by the same social problems, social goals, social outcomes, and social impact objectives?" They reviewed 50 scholarly papers on social enterprises that provided an in-depth look at the topic. The first finding revealed that social enterprises in developed countries focused on "secondary-level social problems" such as education, health, environmental problems and property inequality. The second finding indicated that social enterprises in developing countries focused on 'primary level social problems' such as illiteracy, poor school enrolment, unemployment, poverty, social exclusion, gender inequality, and weak health care systems. Sengupta (2009) analysed the social bases of the various levels of unemployment available in the literature and listed measures to eliminate unemployment.

Unemployment is also a long-term problem in Slovakia; unemployment affects the economic situation and brings problems to individuals in various forms. Unemployment, as a concept, is a much mentioned concept in ascertaining the economic health and stability of a country. Fad'os and Bohdalova (2018) describe unemployment in four regions of Slovakia in 1999-2016. The highest unemployment rate was in eastern Slovakia, while the lowest unemployment rate was in the Bratislava region. They compared the differences in unemployment between men and women. They found that since 2016, the unemployment rate for women increased by 22.73% in the Bratislava region, 86.11% in Western Slovakia, 29.41% in Central Slovakia and 2.80% in Eastern Slovakia. Bajzik (2020) focused on the current problems related to unemployment in the Slovak Republic. He dealt with a brief definition of unemployment and its types, an overview and analysis of unemployment in Slovakia based on selected demographic factors. Caposova (2020) said that unemployment is now a worldwide problem, high unemployment rate affects the overall social situation and worsens the economic situation and development of regions in Slovakia. The assessment focused on economic indicators such as GDP per capita and unemployment in different regions. The evaluation was carried out on data from individual regions. Similar issues were also observed by Svecova and Rajcakova (2010), who examined regional differences in unemployment in Slovakia. Stolicna and Grozak (2018) specified on the problem of unemployment and the automotive industry.

MATERIAL AND METHODS

The study sample consisted of all 79 districts of the Slovak Republic. We also evaluated unemployment in all regions of the Slovak Republic. The basic data for processing were obtained from the website of the Central Office of Labour, Social Affairs and Family (2022). We evaluated unemployment in all regions of the Slovak Republic. Table 1 shows the evaluation of unemployment in all regions of the Slovak Republic.

Table 1 The number of unemployed in each year of all regions of the Slovak Republic (%)

Region	2019	2020	2021	Difference 2020 and 2019	Difference 2021 and 2020	Difference 2021 and 2019
Banská Bystrica Region	6.69	9.57	9.01	2.88	-0.56	2.32
Bratislava Region	2.83	4.65	4.38	1.82	-0.27	1.55
Nitra Region	2.93	5.36	4.80	2.43	-0.56	1.87
Prešov Region	8.19	11.06	10.75	2.87	-0.31	2.56
Trnava Region	2.63	5.05	4.16	2.42	-0.89	1.53
Žilina Region	3.96	6.30	5.32	2.34	-0.98	1.36
Trenčín Region	3.20	5.27	4.28	2.07	-0.99	1.08
Košice Region	7.45	10.17	9.80	2.72	-0.37	2.35
Slovak Republic	4.92	7.38	6.76	2.46	-0.62	1.84

Source: data from the Central Office of Labour, Social Affairs and Family, author processing

The largest increase in unemployment was seen in the Košice and Prešov regions. Table 1 we see several information. There has been a lot of variation over time in unemployment rates across Slovakia. In years 2019 to 2021 was rather muted effect on unemployment in much of Slovakia, being felt fairly strongly in the eastern regions. We see the large, persistent differences in unemployment rates across regions. The west-lying regions was the unemployment rate much lower than any other region.

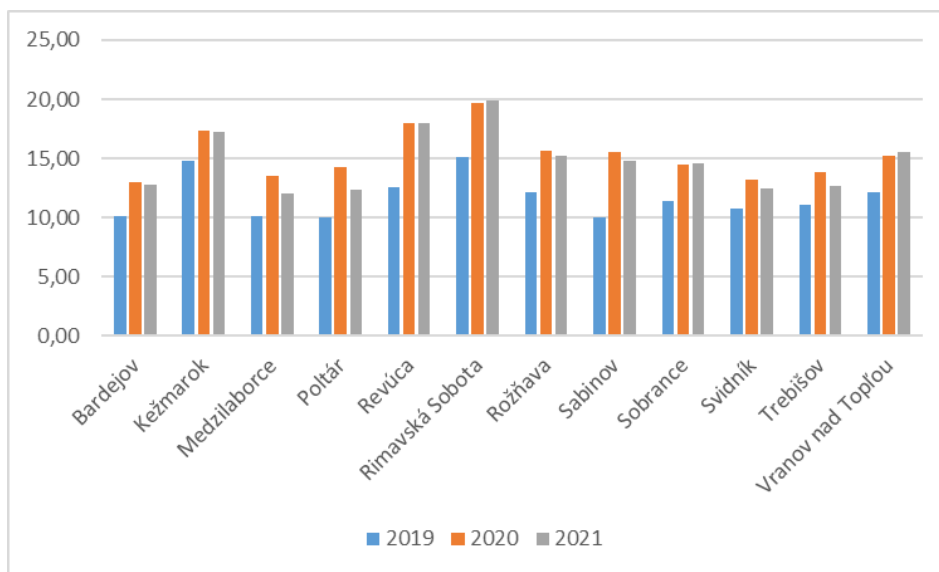In Figure 1 we see the high unemployment rate in the above-mentioned districts.

Figure 1 The high unemployment rate in the above-mentioned districts (%)
Source: Central Office of Labour, Social Affairs and Family, author processing

In all the years studied, the highest share of unemployed was in the districts in the east of Slovakia (Bardejov, Kežmarok, Medzilaborce, Poltár, Revúca, Rimavská Sobota, Rožňava Sabinov, Sobrance, Svidník, Trebišov and Vranov nad Topľou).

RESULTS AND DISCUSSION

We used basic methods of descriptive statistics and hypotheses testing. The values shown in Table 1 and Table 2 were applied as basic criteria to compare the number of unemployed in each year. Based on this, the objectives of the research were set:
- to determine whether the numbers of unemployed in each year are significantly different,
- to identify differences between districts.

We formulated the research hypotheses based on theoretical knowledge and economic practice. We want to test the hypothesis:
H0: The difference in the number of unemployed in 2019-2021 is not statistically significant.
H1: There is a significant difference in the number of unemployed in 2019 - 2021.

We use the z-test to evaluate the data. A z-test is a statistical test used to determine whether two population means are different when the variances are known and the sample size is large (Matejková et. al., 2013). Using z-test, we will test the null hypothesis. The z-test is

a statistical test used to determine if the means of two populations are different when the variances are known and the sample size is greater than 30.

In Table 2, we see the number of unemployed in each year of all 79 districts.

Table 2 The number of unemployed in each year of all 79 districts of the Slovak Republic (%)

District	2019	2020	2021	District	2019	2020	2021	District	2019	2020	2021
Bánovce nad Bebravou	2.85	5.26	4.55	Košice IV	3.14	5.38	4.99	Rimavská Sobota	15.14	19.69	19.90
Banská Bystrica	3.30	4.72	4.57	Krupina	5.09	7.53	7.09	Rožňava	12.14	15.68	15.19
Banská Štiavnica	6.06	8.59	7.41	Kysucké Nové Mesto	4.74	7.23	6.36	Ružomberok	4.61	7.08	6.28
Bardejov	10.07	12.95	12.72	Levice	3.82	6.58	5.86	Sabinov	10.00	15.57	14.78
Bratislava I	2.77	3.98	3.62	Levoča	7.99	9.89	9.88	Senec	3.25	5.93	5.39
Bratislava II	3.22	4.82	4.36	Liptovský Mikuláš	4.50	6.94	6.13	Senica	5.17	7.17	6.76
Bratislava III	3.24	4.94	4.39	Lučenec	8.31	11.78	11.00	Skalica	3.35	4.81	3.98
Bratislava IV	2.97	4.52	4.45	Malacky	3.31	5.18	4.62	Snina	7.48	10.64	9.22
Bratislava V	2.00	3.67	3.63	Martin	3.07	5.31	4.47	Sobrance	11.35	14.52	14.61
Brezno	4.42	8.20	6.70	Medzilaborce	10.07	13.54	12.07	Spišská Nová Ves	6.46	9.83	8.89
Bytča	5.25	6.71	6.66	Michalovce	8.40	11.71	13.95	Stará Ľubovňa	6.07	8.68	7.95
Čadca	4.00	6.83	5.59	Myjava	2.87	4.40	3.86	Stropkov	8.86	11.88	11.25
Detva	4.90	7.30	6.22	Námestovo	3.57	6.46	4.87	Svidník	10.78	13.21	12.50
Dolný Kubín	4.67	7.56	5.74	Nitra	1.97	4.06	3.21	Šaľa	2.11	4.59	4.20
Dunajská Streda	2.15	6.22	5.00	Nové Mesto nad Váhom	2.84	4.55	3.58	Topoľčany	2.90	5.19	4.52
Galanta	2.21	4.26	3.76	Nové Zámky	2.73	5.30	5.53	Trebišov	11.02	13.81	12.71
Gelnica	8.66	11.77	11.19	Partizánske	3.28	5.55	3.91	Trenčín	1.93	4.09	3.12
Hlohovec	2.06	3.67	3.15	Pezinok	2.41	4.87	5.13	Trnava	2.40	4.58	3.32
Humenné	5.81	8.24	7.93	Piešťany	2.07	4.18	3.25	Turčianske Teplice	4.56	7.09	6.22
Ilava	2.22	3.97	3.20	Poltár	10.01	14.23	12.29	Tvrdošín	4.23	6.06	4.80
Kežmarok	14.79	17.36	17.24	Poprad	4.74	6.95	6.39	Veľký Krtíš	6.40	10.10	9.11
Komárno	4.26	7.04	6.18	Považská Bystrica	4.09	6.46	5.39	Vranov nad Topľou	12.13	15.20	15.55
Košice - okolie	9.33	12.10	11.06	Prešov	5.60	8.46	8.44	Zlaté Moravce	2.95	4.75	3.69
Košice I	4.01	5.96	5.57	Prievidza	4.70	6.93	5.76	Zvolen	3.48	5.30	4.69
Košice II	4.51	6.64	5.52	Púchov	3.01	4.68	4.09	Žarnovica	6.45	8.71	8.09
Košice III	2.88	4.50	4.08	Revúca	12.58	18.00	18.00	Žiar nad Hronom	4.58	6.26	5.59
								Žilina	3.46	5.40	4.59

Source: data from the Central Office of Labour, Social Affairs and Family, author processing

In the table 3 we test the null hypothesis which states that there is a significant difference in the number of unemployed between 2019 and 2021.

Comparing 2020 and 2021 (Table 3), the z-test value is negative and the critical value is 1.96 at the chosen significance level. Since the value of the z-test is less than the critical value,

we do not reject the null hypothesis which states that the difference in the number of unemployed is not statistically significant. In Table 3, we see that the z-test value is 11.67 for 2019 and 2021, and the critical value is 1.96 at the significance level. For 2019 and 2020, the z-test value is 15.83, the critical value is 1.96 at the significance level. Since the z-test value is greater than the critical value in these two cases, we reject the null hypothesis. That is, we accept the alternative hypothesis that there is a significant difference in the number of unemployed.

Table 3 Results of z-test

	2019 and 2021		2019 and 2020		2020 and 2021	
Mean	7.23	5.38	5.38	7.90	7.90	7.23
Observations	79	79	79	79	79	79
z Stat	11.67		15.83		-4.15	
z Critical one-tail	1.96		1.96		1.96	

Source: data from the Central Office of Labour, Social Affairs and Family, author processing

CONCLUSIONS

The aim of this paper was to highlight a topical issue that is often discussed and related to the quality of employment services provided by public and private sector organizations. There is a significant difference in the number of unemployed between 2019 and 2021, according to our research. The study research results indicate an increase in the unemployment rate in Slovakia during 2020 by two to three percentages compared to the trend of its development, which would have occurred without a pandemic. This difference can be described as the impact of the COVID-19 pandemic. The main causes of the high unemployment rate in the above-mentioned districts are the overall stagnation of agriculture and industry, the closing down of enterprises and the inability to create new job positions. An important variable entering into the research analysis of unemployment trend analysis is the migration of labor force abroad.

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