

# Analysis of job security and financial stability of households during COVID-19 in Slovakia and Europe

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**Abstract.** The presented paper provides analysis of job security and financial stability of households during COVID-19 in Slovakia and Europe. By analysing more than 135 000 answers from respondents across Europe we compare Slovakian jobs and financial situation with situation in other 26 EU countries during different phases of COVID-19 pandemic. Based on the data from questionnaire e-study named Living, working and COVID-19, we compare changes in EU citizens' perceptions of job security and financial stability during „first lockdown”, „reopening” and “year after” period of COVID-19's European outbreak. The results showed that most of citizens in most of EU countries though that it was unlikely or very unlikely that they lose their job in the next three months. These results were consistent during all three examined periods.

**Keywords:** COVID-19, Financial stability, Job security, Europe

**JEL classification:** J 81, E24

## 1 Introduction

The COVID-19 pandemic has triggered a public health crisis and government responses have triggered an employment crisis. The global exclusion, which limited the spread of the virus, also meant the necessary shutdown of much of the economy. (Ghose, 2020) Since the World Health Organization declared COVID-19 a pandemic on March 11, 2020, working life has changed drastically. As the government took steps to support the spread of COVID-19, many jobs had to be lost while some companies relocated as much work as possible online. (Qian-Fuller, 2020) The COVID-19 crisis could further increase long-term unemployment. The pandemic and other restrictions have brought about a sharp decline in activity and increased unemployment, especially for low-skilled workers who work from home. Otherwise, we expect the unemployment rate in Europe to rise from 6.3 percent in 2019 to 9 percent in 2020, at the same time through a comprehensive support program from the government. (European Commission, 2020)

There is an urgent need to find a solution to the economic impact of unemployment, which can be significant and widespread. Less employment means lower incomes for people, which in turn slows down demand. Due to lower demand for goods and services, the company will have lower revenues. The government's financial burden varies considerably because, in addition, employment taxes and demand will fall as the cost of the social system increases, which may lead to higher taxes. (Chinn, et al., 2020) Equally urgent is the need to find a solution because of the social consequences of unemployment, which are difficult to quantify but can also be significant. Increasing crime and social unrest are also potential consequences of rising unemployment. (Entorf - Sieger, 2014) How bad will be the economic impact of the current crisis will depend on two factors, i.e. from good human health and government decisions to alleviate pandemic restrictions. (Chinn et al., 2020)

## **2 Methodology and data**

The aim of the research presented in this article is to characterize the Slovakian working environment in comparison with other EU countries during the COVID-19 pandemic. We will focus on job security and financial stability of Slovakian citizens. Based on questionnaire studies which include more 135 000 answers from respondents across Europe we compare Slovakian job and financial situation with situation in other 26 EU countries during different phases of COVID-19 pandemic. The research in this paper is based on questionnaire e-study named Living, working and COVID-19 which was conducted during three different periods of COVID-19's European outbreak. For the purpose of the research, we named the periods: 1. First lockdown, 2. Reopening and 3. Year after. The first round of data were collected during the first lockdowns period from April 9, 2020 to April 30, 2020 and contained 63,354 completely answered questionnaires. The Reopening period were realized "when economies and societies were gradually reopening" from 22 June 2020 to 27 July 2020 (Living, working and COVID-19 data, 2021) and included 24,123 fully answered online questionnaires collected within the EU countries. The Year after period of data collection was conducted almost year since first Europe's COVID-19 outbreak, during the time when countries were implementing different levels of measures to reduce spreading of new variants of COVID-19 virus. The round included 46,800 online questionnaires collected from 15 February 2021 to 30 March 2021 within the EU. The target group of the online survey was in the 18+ age category. The research sample covered all EU-27 countries. The research data are available at: <https://data.europa.eu/data/datasets/living-working-and-covid-19-data?locale=en>. Although study covers 7 different areas, for the purpose of the research presented in this paper we focused only on areas named Working during COVID-19 and Financial situation and security during COVID-19. From these segments we extracted four questions which we used for our research. The overview of questions together with answers used for the research is presented in the Table 1 below.

**Table 1.** Overview of questions using for research

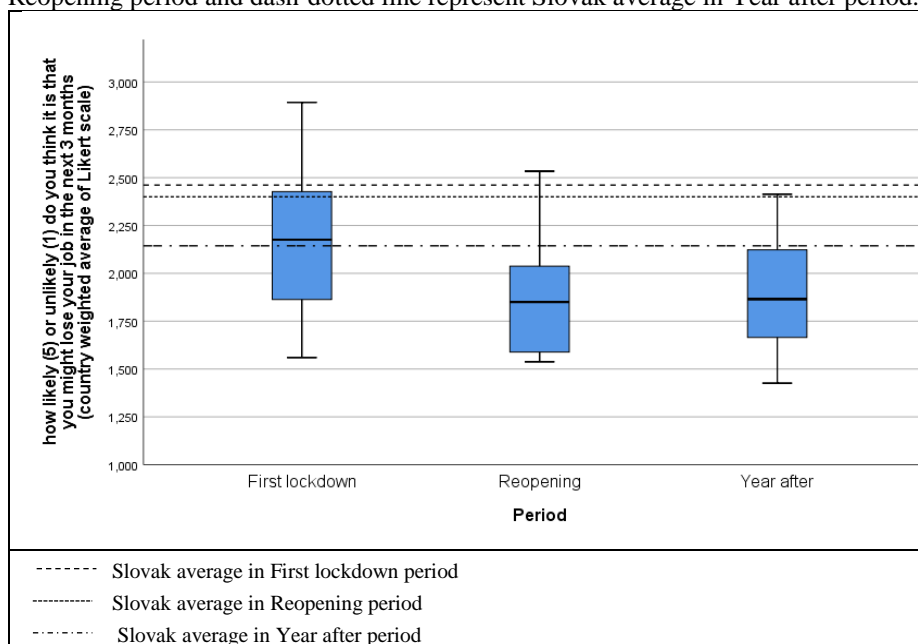
Question:	Possible answers	Answers used in the analysis	R.
Using this scale, how likely or unlikely do you think it is that you might lose your job in the next 3 months?	5. Very likely; 4. Rather likely; 3. Neither likely nor unlikely; 2. Rather unlikely; 1. Very unlikely; Don't know/ Prefer not to answer; Not answered	Weighted average of Likert scale	1, 2, 3.
During the COVID-19 pandemic have you lost your job(s)/contract(s)?	Yes_ permanently; Yes_ temporarily; No	Yes_ permanently; Yes_ temporarily	1.
When you compare the financial situation of your household 3 months ago and now would you say it has become better, worse or remained the same?	Better; The same; Worse	Worse	1, 2, 3.
Thinking of the financial situation of your household in 3 months time do you think it will become better, worse or remain the same?	Better; The same; Worse	Worse	1, 2, 3.

Source: Author

### 3 Results of the research

As was mentioned in the methodology the purpose of the research presented in this article is to analyze where Slovakia stands in term of job security and financial stability of citizens in comparison with other EU countries.

Firstly, we focused on job security. Motivation for this kind of research is to find out whether Slovakian citizens are more afraid of losing the job during the COVID-19 pandemic than other EU citizens. As a base, we used the question: “Using this scale, how likely or unlikely do you think it is that you might lose your job in the next 3 months?” and rank the answers to numbers on Likert scale from five (very likely) to one (very unlikely). Then we calculate weighted average for every country where, weight represent percentage of citizens of particular EU country which answered with particular answer and the rank of the answer represented the value. The box-plot analysis of the EU countries average is presented in Figure 1. The dashed line represents Slovak average in First lockdown period, dotted line represents Slovak average in Reopening period and dash-dotted line represent Slovak average in Year after period.

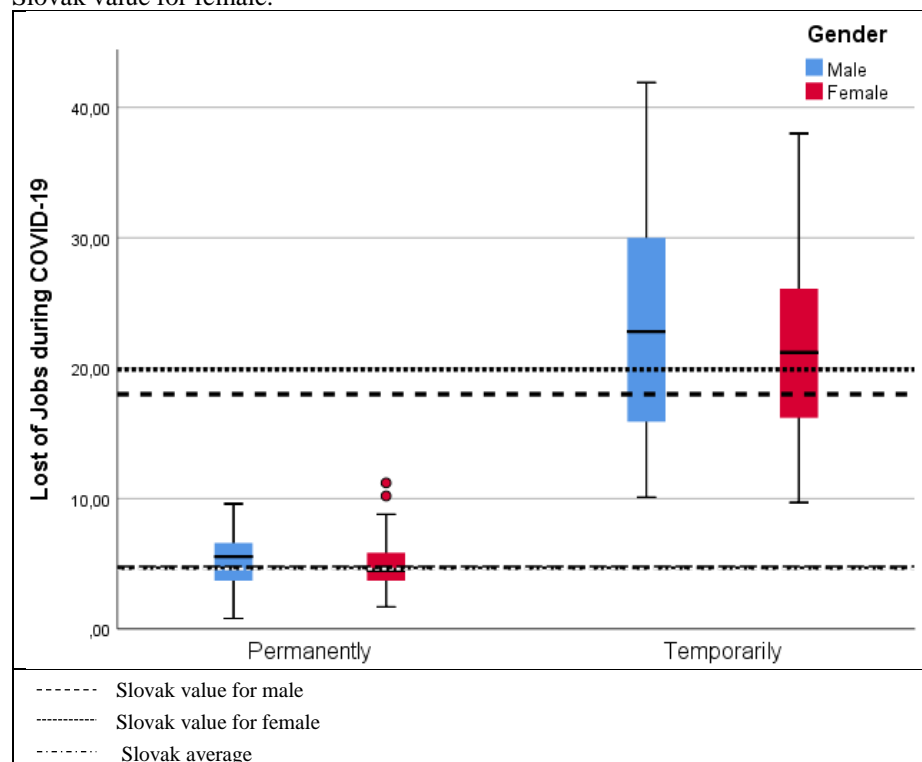


**Figure 1.** Box plot analysis of likeliness of losing job, *Source: Author*

As can be seen in Figure 1, European median in the first period of data collection is lower than 2,25, which is closer to answer 2. Unlikely than to answer 3. Neither likely nor unlikely. Moreover, the European medians for other two periods are lower than 2., that mean that they are within the area representing the answers 1. Very unlikely and 2. Unlikely. Situation is quite different when we analyze Slovakian values. The averages representing the Slovak responses are higher than 2 in all three researched periods. They are considerably higher than European medians in all three researched periods and there are also higher than third quartiles of particular periods. That means that more than 75% of countries have response average lower than Slovakian average during all three periods of COVID-19's European outbreak. The Slovakian value from third period represents 95% percentile, which mean that only 1 country (Greece) have higher average than Slovakia.

In the next step, we measured what percentage of respondents actually lost the job or contract during the first three months of COVID-19's European outbreak. The research was based on the question: During the COVID-19 pandemic have you lost your job(s)/contract(s)? The motivation behind this kind of research is to determine whether there was a higher probability for Slovakian citizens to lose a job than it is for citizens from other EU countries. We focused on answers Yes, permanently and Yes temporarily. To obtain more precise image about job security in Slovakian workplace, we decided to distribute analysis based on gender and age. The motivation for such approach is to determine whether one gender or age group of Slovakian citizens have higher probability of losing job than others in comparison with other EU countries. The EU countries' distribution of percentage of people who permanently or temporarily lost job of contract during first three months of COVID-19's European outbreak pandemic based on they genders is presented in the Boxplot analysis below.

(Figure 2) The dashed line represents Slovak value for male, dotted line represents Slovak value for female.



**Figure 2.** Box plot analysis of European countries' probability of losing job based on gender, Source: Author

As can be seen in Figure 2, boxplots representing permanent loss of jobs have significantly lower variability than boxplots representing temporarily loss. The medians of formerly mentioned boxplots are more than five times lower than median of lastly

mentioned ones. Moreover the performed Wilcoxon signed-rank tests could not confirmed at 5% significance level that there are statistically significant differences between genders both for samples representing permanent loss of jobs (H1) as well as temporarily ones (H2). The Table 2 shows overview of these tests.

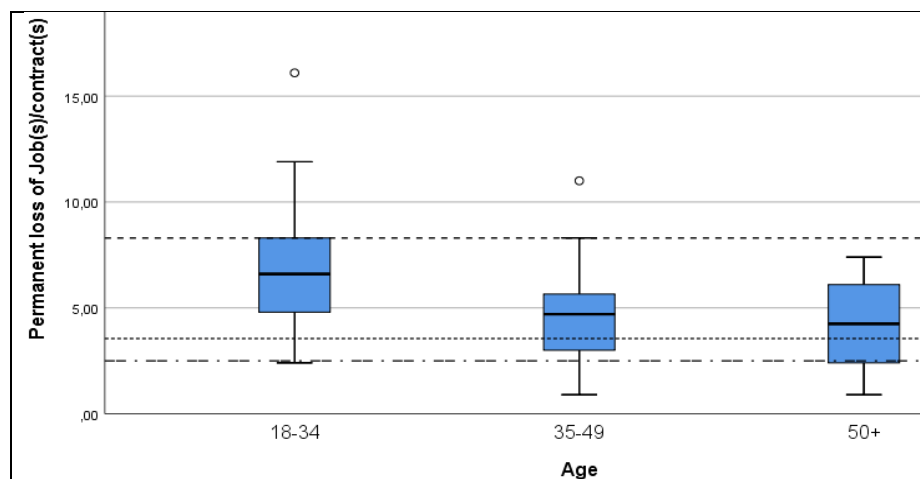
Analysis of Slovakian values showed that Slovakian values are below European medians for all groups except for females who permanently loss of job. The Slovak value representing this group is 0,1% higher than median.

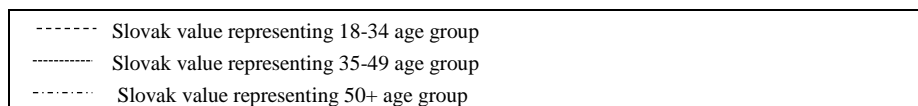
**Table 2.** Overview of tested hypotheses

	Null Hypothesis	Test	Sig.	Decision
H1	The median of differences between Permanently_M and Permanently_F equals 0.	Related-Samples Wilcoxon Signed Rank Test	,807	Retain the null hypothesis.
H2	The median of differences between Temporarily_M and Temporarily_F equals 0.	Related-Samples Wilcoxon Signed Rank Test	,745	Retain the null hypothesis.

*Source: Author*

Besides gender-oriented analysis, we also conducted age-oriented analysis, too. Here we studied only permanent job loss. The box plot analysis of the EU countries' distribution of percentage of people who permanently lost job of contract during first three months of COVID-19's European outbreak pandemic based on their age is presented below. (Figure 3) The dashed line illustrates Slovak value representing 18-34 age group, the dotted line shows Slovak value representing 35-49 age group and the dash-dotted line depicts Slovak value representing 50+ age group.

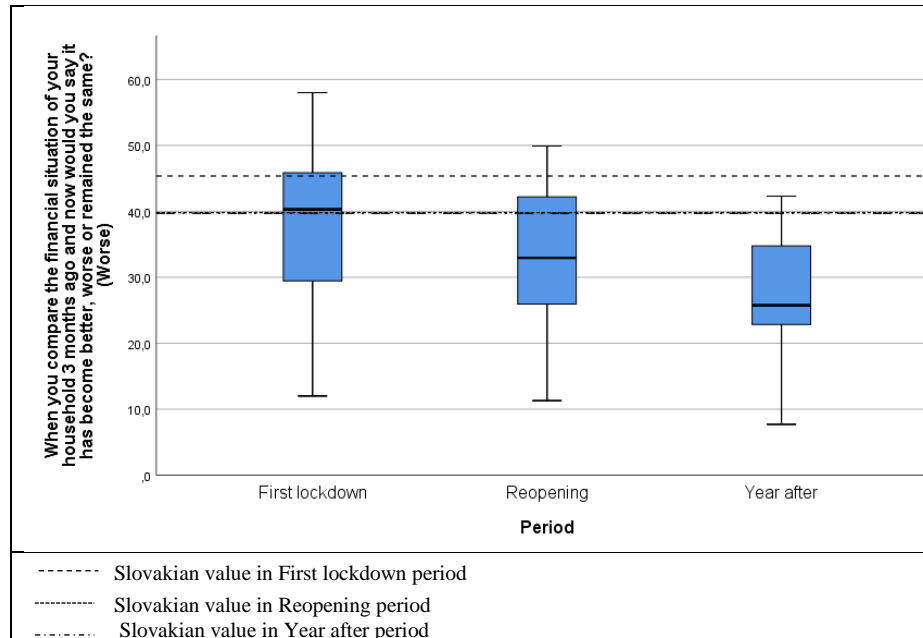




**Figure 3.** Box plot analysis of European countries' probability of losing job based on age, *Source: Author*

Boxplot analysis presented in the aforementioned graph showed that medians of distributions decline across ascending age group. The boxplot representing youngest group of respondents has highest median. Although the boxplot representing age group of 50+ has lower median, it has also highest variability. The results are quite different where we compare Slovak value to European distribution. For age groups 35-49 and 50+ the Slovakian values are considerably lower than European's medians. Moreover, Slovak value for age group 50+ is close to second quartile, which means that 75% EU countries have higher job loss percentage for age group of 50+ than Slovakia. Belgium, Sweden, Austria, Denmark, Finland and Estonia represent a lower percentage of job loss than Slovakia. In term of youngest age group, Slovak value is equal to third quartile of appropriate distribution which mean that 75% of EU countries have lower job loss percentage than Slovakia, for example Belgium, Austria and Hungary represent a higher percentage of job losses than Slovakia.

Second part of research is dealing with financial situation of EU citizens. Here we analyse current and future (expected) financial condition of EU household in different periods of COVID-19's European pandemic outbreak. In term of current condition, we use question: When you compare the financial situation of your household 3 months ago and now would you say it has become better, worse or remained the same? For the purpose of this study, we were focused only on samples which represent response: worse. Boxplot analysis presented in the Figure 4 showed EU countries' distributions of percentage of response worse for different period of COVID-19 outbreak. The dashed line represents Slovakian value in First lockdown period, dotted line represents Slovakian value in Reopening period and dash-dotted line represent Slovakian value in Year after period.



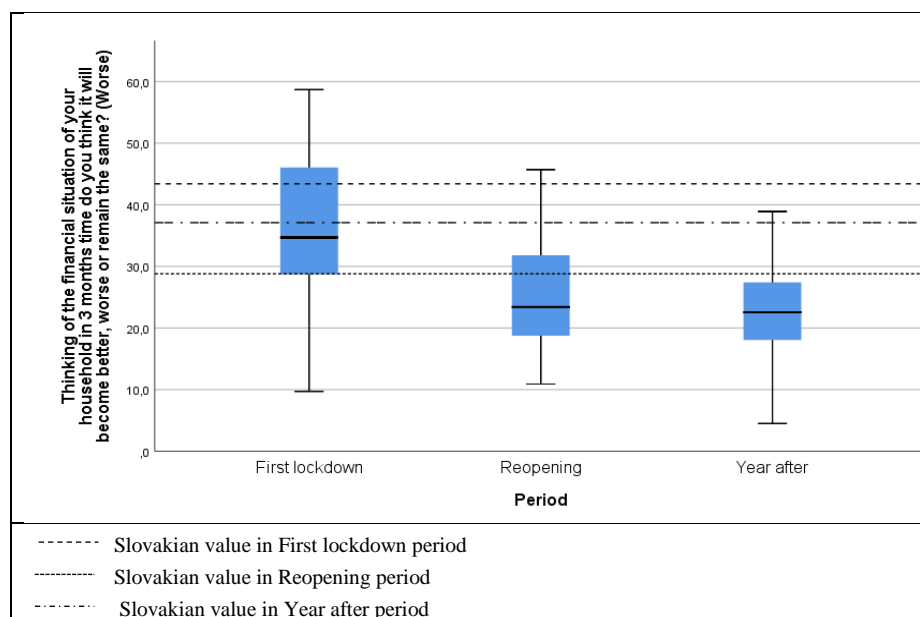
**Figure 4.** Distribution of EU countries' percentage of households with deteriorating financial condition, *Source: Author*

The boxplot analysis presented above showed that with continuation of outbreak median of European countries were decreasing around 5% per period. Also interquartile ranges of boxplots which represent answers of 50% countries were decreasing from one period to another. Analysing Slovakian results, we were able to spot decrease in values from 45,3% to 39,8% but only from first period to second one. On the other hand, difference in values between second and third period was not considerable because it was only 0,1%. Slovakian values from all three periods were considerable higher than appropriate European median. Results also showed that Slovakian value in first lockdown period is close to third quartile of made from European countries. In other words, that means that nearly 75% of EU countries have lower percentage of people, which perceive that their household's financial situation was worse than three months before first lockdown. Croatia, Hungary, Cyprus, Bulgaria, Greece and Romania have higher percentage of people, which perceive that their household's financial situation was worse than three months before first lockdown. Situation is even more unfortunate when we analyse data from Year after period. Slovakian value in the third period represents 95% percentile of distribution of European countries. This mean that out of 27 EU countries, each with the exception of Bulgaria, had a lower percentage of people, which perceive that their household's financial situation was worse than three months before Year after period of COVID-19 European outbreak (February/March 2021).

Next round of analysis covered expectation of European citizens regarding financial future of their households in the next three months. The research was based on the



question: Thinking of the financial situation of your household in 3 months' time do you think it will become better, worse or remain the same? This study focusses only on respondents, which answered worse. Motivation for this kind of investigation was determine how EU citizens' expectations of their incoming deteriorating financial situation changes during the different period of European COVID-19 outbreak. Other objective of the study is to compare expectation of Slovakian citizens with the expectation of citizens in other EU countries. The boxplot analysis of the results is presented below in the Figure 5. The dashed line represents Slovakian value in First lockdown period, dotted line represents Slovakian value in Reopening period and dash-dotted line represent Slovakian value in Year after period.



**Figure 5.** Distribution of EU countries' percentage of households which expect deteriorating financial condition, *Source: Author*

Boxplot analysis exhibited in Figure 5 shows decline in the medians with continuation of COVID-19 European outbreak. Biggest decline in medians reaching almost 10% was recognized between first and second period. Apart from this the difference in medians between second and third period was 3%. This result suggests that with ongoing outbreak, there is a declining percentage of people in EU countries who expect that financial situation of their household will be worse in three months. On the other hand this is not the case of Slovakia. Similar to previous results the Slovakian values are bigger than European median for all three periods. On the other hand, for first two periods, Slovakian values were within interquartile range of appropriate boxplots, Interquartile range (size of the box) represents answers of 50% countries around the median, which can be interpreted as values inside the range are not considerably high or considerably low. Situation is very different for last period

Year after. Here the Slovakian value represent 95% percentile. In other words, this mean that one year after COVID-19's European outbreak, every country in the 27 EU countries except Greece reports a lower percentage of people, which expect that financial situation of their household will be worse in three months.

Further analysis showed that results presented in Figure 5 are similar to results presented in Figure 4. This finding is also supported by conducted correlation analysis (see Figure 6). We use Spearman rank correlation coefficient to measure association between answers presented in Figure 4 and answers presented in Figure 5. The value of the coefficient was 0,875 (p-value<0,001). Such result led to assumption that in EU countries where high percentage of citizens perceive deterioration of their financial situation in last three months before taking study, there is also a high percentage of citizens which expect deterioration of their financial situation for the next three months and vice versa.

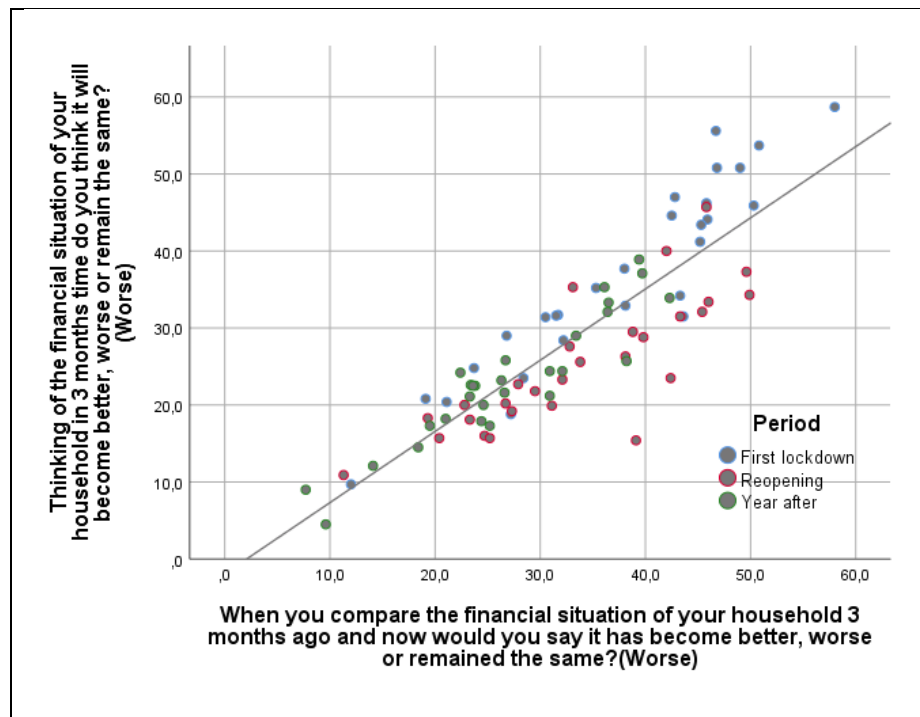


Figure 6. Scatterplot of questions used in correlation analysis, *Source: Author*

#### 4 The conclusion

The presented paper tries to measure impact of COVID-19's European outbreak on job security and financial stability of Slovakian citizens in comparison with other EU countries. Research is based on more than 135 000 answers from respondents across Europe which were collected during the three different periods of pandemic. In term

of job security, the results showed that most of citizens in most of EU countries thought that it was unlikely or very unlikely that they lose their job in the next three months. These results were consistent during all three examined periods. On the hand Slovakian averages were close or higher than third quartile for every sample in all three periods. It means that citizens of at least 75% of EU-27 countries decided that on average it is for them more unlikely (less likely) to lose job than it is for Slovakian citizens. Moreover, in last period, in each of the 27 EU countries except Greece decided that on average it is for them more unlikely (less likely) to lose job than it is for Slovakian citizens. This was analysis of the citizens expectations. The results were not so horrified for Slovakia when we study percentage of people who actually loss job in the first three months of pandemic. The percentage of Slovakian male and female, who permanently or temporarily lost their job or contract do not surpass European median. Percentage of respondents, who permanently loss their jobs was under the European median for age groups 35-49 and 50+. On the other hand, 75% of EU countries have lower percentage of 18-34 years old people, who permanently loss their job during first few months of pandemic. Bulgaria, Hungary and Poland have higher percentage of 18-34 years old people than Slovakia, who permanently loss their job during first few months of pandemic.

Second important part of research was financial stability of Slovakian and European households. Here we focused only on percentage of citizens whose household's financial situation worsen in last three months from taking the questionnaire. We also analysed citizens who expected that their household's financial situation will be worse in next three months from taking the questionnaire. Interestingly the results were very similar for both groups of previously mentioned citizens, which was confirmed by realized correlation analysis. Results showed that in term of Europe percentage of people whose financial situation worsen in last three months decline by 5% from one reviewed period to another. Decline was also present in data representing countries' percentage of people who expected that their household's financial situation will be worse in next three months. From one period to another, mentioned percentage decreased. On the other hand, this kind of decline was not present in Slovak data. The discrepancies between European data and Slovak dataset mainly occur in Year after period. The period includes data, which were collected roughly one year after COVID-19's European outbreak. This dataset's responses showed, that after Slovakia, only one country (Bulgaria) out of 27 EU countries have higher percentage of people who think that their financial situation worsen in last three months. Similarly, the data also showed that after Slovakia, only one country (Greece) out of 27 EU countries have higher percentage of people who think that their financial situation will be worse in next three months. The authors understand that COVID-19 spreads differently in every EU country and that these countries implement different countermeasures to fight this pandemic. This is the reason why the purpose of this paper was only to present changes in EU citizens' perceptions during three important periods of COVID-19's outbreak and compare them with situation in Slovakia. Only the further research based on aftermath data will be able to tell whether presented perceptions were justified or biased.

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