

# **MA Dissertation**

## ***The Impact of COVID-19 on People's Lives and Its Economic Impact in Four European Countries***



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# MA Dissertation

## *The Impact of COVID-19 on People's Lives and Its Economic Impact in Four European Countries*



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## 1. INTRODUCTION

The topic of my dissertation is to examine the impact of COVID-19 on the international labor market. Its topicality is mainly since, although several vaccines are available and some countries, such as Hungary, Israel, or Bhutan, have already achieved higher vaccination rates than others, the virus is expected to remain with us for a long time to come. Therefore, I formulated as a basic goal the research of the factors that influence the most important consequence for people, the decrease of labor income. Although I examine the issue of labor income, my topic can be placed in a broader context. The primary effect of an epidemic is to attack man himself. Therefore, personal contact had to be restricted before vaccination. While at the macro level, it was the responsibility of the state to address the plight, the micro-level management of the effects of short-term measures was the responsibility of human resource management (HR). Put more broadly, my present research seeks to contribute to this area with new information and perspectives that can contribute to an appropriate response to current and future crises. I hope I have been able to uncover contexts through which further waves of epidemics, or other similar situations in the future, will no longer reach professionals as unprepared as a coronavirus pandemic. In the remainder of the introduction, I will recall how the set of problems caused by the coronavirus began and reached its present state.

While residents of the world celebrated New Year's Eve 2019, the city's fish market in Wuhan, China, closed on that day, which was localized as the hub of an outbreak in the city. On January 3, the Chinese authorities officially notified the epidemic to the World Health Organization (WHO). By the end of January, the disease had already been registered in Thailand, making it certain that the world was facing a new pandemic<sup>1</sup>. Initially, there was only one tool against a pathogenic virus called COVID-19: isolating the infected and minimizing the number of personal encounters. To this end, almost all states concerned have introduced exit restrictions. Jobs and institutions were closed and all activities (education, work, trade) where possible were moved to the online space. This practically meant the shutdown of the economy,

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<sup>1</sup> Associated Press. (January 22, 2021.). *Timeline: China's COVID-19 outbreak and lockdown of Wuhan*. ABC News. Retrieved from: <https://abcnews.go.com/Health/wireStory/timeline-chinas-covid-19-outbreak-lockdown-wuhan-75421357>

which was felt by all sectors and sectors<sup>2,3,4</sup>. The biggest losses were in the tourism, hotel and hospitality sector and trade that could not switch online<sup>5,6,7</sup>.

Examining the problems caused by the European pandemic, a north-south and an east-west axis can be discovered, on both sides of which various problems and impacts have become significant. The main difference between North and South stemmed from economic development. The results of the survey covering all EU-27 Member States illustrate this well<sup>8</sup>: while only one third of the population of the Scandinavian countries (Sweden, Denmark) thought that the EU should contribute financially to the costs of epidemic control, in the southern countries (Greece, Cyprus, Portugal and Spain) expected more than 70% of respondents to receive higher amounts of EU assistance. The Greeks, Spaniards and Italians were also the least satisfied with EU solidarity. The North-South difference also occurred within a country. The best example of this is Italy, whose more developed northern region was one of the most critical areas of the spring epidemic, where health and the economy also virtually collapsed. The loss would have been greater if the epidemic had spread at a similar rate in southern Italy, where much less developed capacities are available.

The reasons for the east-west differences are partly of an economic nature and partly of historical origin. For nearly forty years, the eastern half of Europe was part of the Soviet sphere of interest, and its legacy even left its mark on the so-called regime change. While the above-mentioned EU survey found that public health problems were the main problem in the more economically developed western countries, unemployment and loss of income in the less

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<sup>2</sup> Organisation for Economic Co-operation and Development. (2020a). *OECD Economic Outlook 2020*(1). <https://doi.org/10.1787/0d1d1e2e-en> [hereinafter referred to as OECD (2020a)]

<sup>3</sup> Poór, J., Balogh, G., Dajnoki, K., Karoliny, M., Kun, A. I., & Szabó, S. (Eds.) (2020). *Koronavírus-válság – kihívások és HR-válaszok – Magyarország 2020 (A kutatás első fázisának kiértékelése)*. Szent István Egyetem Menedzsment és HR Kutató Központ. Retrieved from: [https://mkik.hu/ckfinder/files/KoronaHR\\_kutata%CC%81si-jelente%CC%81s.pdf](https://mkik.hu/ckfinder/files/KoronaHR_kutata%CC%81si-jelente%CC%81s.pdf) [hereinafter referred to as Poór et al. (2020a)]

<sup>4</sup> Taskinsoy, J. (2020). Cost Implications of the Great Lockdown due to the Novel Coronavirus Outbreak. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3604573>

<sup>5</sup> Coldiretti. (November 18, 2020). *Covid, il Natale senza turismo costa 4.1 mld*. Coldiretti. Retrieved from: <https://www.coldiretti.it/economia/covid-il-natale-senza-turismo-costa-41-mld>

<sup>6</sup> Forbes. (2020). *Kijöttek a számok: Nem kérdés, ki a koronavírus-járvány legnagyobb nyertes Magyarországon*. Üzlet. Retrieved from: <https://forbes.hu/uzlet/kijottek-a-szamok-nem-kerdes-ki-a-koronavirus-jarvany-legnagyobb-nyertes-magyarorszagon/>

<sup>7</sup> MSZÉSZ. (2020). *A hazai és nemzetközi szállodaipar teljesítményéről – 2020 április* (Trendriport). Retrieved from: [http://www.hah.hu/files/1215/9169/2329/Trendriport\\_2020.\\_prilis.pdf](http://www.hah.hu/files/1215/9169/2329/Trendriport_2020._prilis.pdf)

<sup>8</sup> European Parliament. (2020). *Uncertainty | EU | Hope – Public opinion in times of COVID-19* (pp. 1–23) [Public Opinion Survey]. European Parliament. Retrieved from: <https://www.europarl.europa.eu/resources/library/media/20200713RES83231/20200713RES83231.pdf> [hereinafter referred to as European Parliament. (2020)]

developed eastern countries. Twenty-one EU Member States have seen a decline in household income, but the extent varies from state to state. That is why governments have launched job and economic protection programs, with more or less success. I also focused on income reduction in my dissertation. I examined the issue and the factors influencing it in four different countries (UK, Hungary, Montenegro and Spain). When selecting the countries, I also aimed to have a north-south (from the United Kingdom to Spain) and an east-west (United Kingdom, Spain - Hungary, Montenegro) perspective. I chose the specific countries because of the nature of the sampling procedure, as I used the help of my personal acquaintances to complete my questionnaire. It is advantageous for the possibilities of further research that two of the examined countries are members of the EU, but two are not. This will give a broader picture of the situation in Europe caused by the epidemic and how it will be dealt with. On the other hand, one of the two non-member countries (UK) is a former EU member and the other (Montenegro) is seeking membership. In addition, Montenegro is in a special situation in that it is not part of the Eurozone and uses the single European currency as its currency without a separate agreement. The biggest danger in this regard is that the European Central Bank will have no influence over the country's monetary policy; and this could jeopardize the euro area as a whole. In the present research, I was primarily interested in how the extent of personal income decline caused by the epidemic developed in the studied countries and what factors (e.g., gender, position, level of workload, changes in working conditions) influenced this. After the present introduction of my dissertation, I examine the topic, its literature and look for the research area in which I can add new information to the already formed scientific picture. I describe my research questions and hypotheses in detail in Chapter 2.3. After that, I review the methodology of the research and then analyze the results obtained from each set up model. I then compare these findings with data from the literature. I will conclude my dissertation with a short summary.

## 2. PROBLEM AT ISSUE

### 2.1. Literature Review

#### 2.1.1. Epidemics and the economy

In 1922, Kondratiev, a Russian economist, wrote about the cyclical nature of economic history. According to this, the great booms and busts of the world economy alternate in a cyclical manner. He was not the only one to delve deeply into the subject<sup>9,10</sup>. Kondratiev cycles may suggest that recovery will sooner or later arrive anyway, at the latest in 45-60 years. However, the reality is more complex. This is because the coronavirus epidemic ended in 2020 one of the longest periods of continuous growth in economic history. The recession due to COVID-19 is different from the previous ones. This was not due to overproduction, over-lending or a loss of investor confidence.

The current pandemic is not the first in the history of the world economy. Typical examples of epidemics are that the cyclical nature mentioned above is not automatic<sup>11,12</sup>. A pandemic causes a lasting recession through both loss of production due to deteriorating health, rising health costs and anti-epidemic measures to be taken. The role of human resource management (HR) becomes particularly important in such situations. Indeed, economically developed countries have already reached a level where effective economic growth is not based on further investment in production, but on added human value, so-called human capital. Human capital theory and the human factor-based role of economic growth were discovered in the second half of the last century by Nobel Prize-winning research<sup>13,14,15</sup>. Pandemics occupy a

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<sup>9</sup> Kuznets, S. (1971). Modern economic growth: Findings and reflections. *The American Economic Review* 63(3), 247–258. <http://www.jstor.org/stable/1914358?origin=JSTOR-pdf>

<sup>10</sup> Schumpeter, J. (1939). *Business cycles. A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. New York and London: McGraw-Hill. [hereinafter referred to as Schumpeter (1939)]

<sup>11</sup> Almond, D. (2006). Is the 1918 Influenza Pandemic Over? Long-Term Effects of *In Utero* Influenza Exposure in the Post-1940 U.S. Population. *Journal of Political Economy* 114(4), 672–712. <https://doi.org/10.1086/507154>

<sup>12</sup> Correia, S., Luck, S., & Verner, E. (2020). Pandemics Depress the Economy, Public Health Interventions Do Not: Evidence from the 1918 Flu. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3561560>

<sup>13</sup> Fogel, R. W. (1994). Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy. *The American Economic Review*, 84(3), 369–395. <https://doi.org/10.3386/w4638> [hereinafter referred to as Fogel (1994)]

<sup>14</sup> Schultz, T. W. (1961). Investment in human capital. *The American Economic Review* 51(1), 1–17. <https://www.jstor.org/stable/1818907> [hereinafter referred to as Schultz (1961)]

<sup>15</sup> Schultz, T. W. (1980). The Economics of Being Poor. *Bulletin of the Atomic Scientists*, 36(9), 32–37. <https://doi.org/10.1080/00963402.1980.11458781> [hereinafter referred to as Schultz (1980)]



special place among the causes of crises because they attack precisely this human capital, human health.

Its previous major epidemics in economic history differ from the current pandemic in that the latter has forced almost every country in the world to a global economic halt. This is because, due to fear of infection and restrictions on relationships, absence from work has reached a social scale. Educational institutions, manufacturing companies and almost the entire service sector have also shut down. In the past, the bankruptcy of the financial system caused a global crisis and a general recession, mainly due to overproduction and over-lending<sup>16,17,18</sup>, but in the case of COVID-19, the reduced reproduction became permanent. Accordingly, the way out of previous crises was also taken by measures of a monetary and fiscal nature, which meant a paradigm shift in their day. In the 1930s, instead of the economic theories known until then<sup>19</sup> it was Keynes' theory, which meant a real New Deal for Roosevelt in the United States.<sup>20</sup> After the oil price explosion of the 1970s, Friedman's monetarist, free-market approach was the key to recovery<sup>21,22</sup>, which, of course, was not supported by general support<sup>23,24</sup>.

### 2.1.2. The global economic implications of COVID-19

Today, the situation has fundamentally changed. The most conservative estimates, based on global downtime and sustained narrowed reproduction, have predicted a fall in GDP of at least 1 percent, and more pessimistic scenarios of up to double digits. The reality is between the two extremes, with the global GDP decline in 2020 at 4.2 percent<sup>25</sup>. This value was basically

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<sup>16</sup> Bernanke, B., & James, H. (1990). *The Gold Standard, Deflation, and Financial Crisis in the Great Depression: An International Comparison* (No. w3488). National Bureau of Economic Research. <https://doi.org/10.3386/w3488>

<sup>17</sup> Calomiris, C. W. (1993). Financial Factors in the Great Depression. *Journal of Economic Perspectives* 7(2), 61–85. <https://doi.org/10.1257/jep.7.2.61>

<sup>18</sup> Shaikh, A. (2011). The First Great Depression of the 21st Century. *Socialist Register* 47. Retrieved from: <https://socialistregister.com/index.php/srv/article/view/14330>

<sup>19</sup> Batchelder, R., & Glasner, D. (2012). Pre-Keynesian Monetary Theories of the Great Depression: What Ever Happened to Hawtrey and Cassel? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2029813>

<sup>20</sup> Cole, H. L., & Ohanian, L. E. (2004). New Deal Policies and the Persistence of the Great Depression: A General Equilibrium Analysis. *Journal of Political Economy* 112(4), 779–816. <https://doi.org/10.1086/421169>

<sup>21</sup> Boyer, R. S. (2009). Reflections on Milton Friedman's contributions to open economy money/macro. *Journal of International Money and Finance* 28(7), 1097–1116. <https://doi.org/10.1016/j.jimonfin.2009.06.006>

<sup>22</sup> Rothbard, M. N. (2002). Milton Friedman Unraveled. *Journal of Libertarian Studies* 16(4), 18. Retrieved from: <https://www.rothbard.it/articles/friedman-unraveled.pdf>

<sup>23</sup> Block, W. E. (2010). Milton Friedman on Intolerance: A Critique. *Libertarian Papers* 2. 41. Retrieved from: <https://mises.org/library/milton-friedman-intolerance-critique>

<sup>24</sup> Krugman, P. (2009). *How Did Economists Get It So Wrong?* – New York Times. Retrieved from: [http://faculty.econ.ucdavis.edu/faculty/kdsalyer/LECTURES/Ecn200e/krugman\\_macro.pdf](http://faculty.econ.ucdavis.edu/faculty/kdsalyer/LECTURES/Ecn200e/krugman_macro.pdf)

<sup>25</sup> OECD (2020a)

determined by two components. One is the extent of the shutdowns around April, the other is the timing and extent of the restart of national economies. The degree of the spring fall was related to the severity of state short-term measures. In the most strictly closing Italy and France, GDP fell by almost 30 per cent year-on-year in April, while in the less stringent United Kingdom the same decline was 25 per cent. However, a similar figure for Germany, which has long taken milder measures, is “only” 15 percent. The reductions have had a GDP-increasing effect mainly through changes in consumption patterns. At the time of the spring closures, weekly reports from the OECD database cited in the Introduction show that demand for interaction-based services (such as events, performing arts, travel, hotels, sports and restaurants) fell by about 30 per cent in the second quarter of 2020, while food and drink, home appliances and health-related areas grew by about 20 percent.

Lower service consumption was only partially offset by additional product consumption, which explains the negative estimates for GDP growth. In countries where restrictions were permanent, this pattern remained for the rest of the year. In countries that have opted for opening, contact-based services have also resumed operations, contributing to GDP growth in the second half of the year. The statistical indicators determining GDP are usually not available at the end of the reference month, but only one or two months later, which makes it difficult to draw up short-term forecasts. Therefore, within quarterly time horizons, economic statisticians use alternative indicators available on a daily basis. These include e.g. number of departing flights, restaurant table reservations, power consumption, credit card transactions.

### **2.1.3. The pandemic and Hungary**

How are the prospects of the Hungarian economy developing? Domestic growth is mainly related to vehicle production, tourism and public investment. In the case of the automotive industry, any external crisis can disrupt the supply chain, the import of parts, thus hindering assembly here. In addition, the demand for passenger cars is among the first to fall in times of crisis. In the same way, travel is one of the first to stop. Part of the public investment is construction, which will stimulate the construction industry in times of crisis. In a crisis, however, despite the subsidies, people are rethinking whether to take out a loan. The problems were therefore significant, fortunately the actual data during the crisis gave a more favorable picture than the estimates.

The country was in a relatively good position by the pandemic. The Hungarian economy has performed well in the last ten years, especially in the period 2017-2019. At that time,

Hungary's growth was the highest in the European Union. Fiscal consolidation, public debt below 70 percent of GDP, refinancing of maturing external debt from domestic sources, and significant fiscal reserves all significantly increased the economy's resilience to shocks. Therefore, our exposure to the crisis is lower than that of indebted countries.

Another favorable phenomenon is that in Hungary the exposure of households and companies to foreign currency loans has disappeared. Moreover, as a result of favorable fiscal and monetary policies, a significant reserve remained for the population, which made it easier to weather the recession. Although most analysts also talk about sectoral crisis exposure, in the spring the whole economy went into crisis. Not only has tourism fallen, but car factories have also shut down. The health crisis is therefore having significant economic effects. The general pessimism about the rising mortality rate threatens not only the maintenance of economic activity but also the resumption. Therefore, healthcare is one of the most important sectors that received maximum support during the pandemic.

In addition to health, tourism, hospitality, small and medium-sized enterprises, and the service sectors needed help the most. The measures introduced in the area of lending and central bank refinancing were important and provided significant assistance to the survival and rapid regeneration of the SME and large corporate sectors. Preserving jobs as much as possible was of great importance, to which the government reallocated about HUF 3,000 billion in 2020-2021. All these measures provided the basis for effective crisis management.

With the spread of the COVID-19 epidemic, social and economic assistance, including fiscal stimulus and the expansion of social safety nets, is essential to prevent the spill-over effects of the epidemic<sup>26</sup>. Of course, money is needed to solve the economic problems caused by a pandemic, but it is no longer necessary to invest in production, but to protect and develop human capital. It is no coincidence that government-level measures are also primarily about protecting health and jobs<sup>27,28</sup>. At company level, the same measures fall within the remit of HR. Currently, Hungarian experts are processing the experiences of the third phase of the epidemic. An extensive company-level survey was also conducted on the topic during the spring

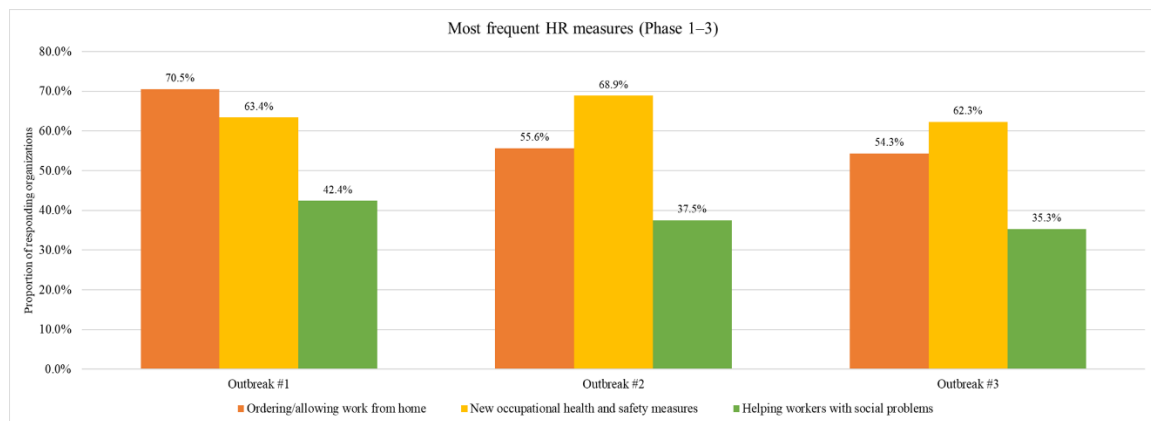
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<sup>26</sup> Laborde, D., Martin, W., Swinnen, J., & Vos, R. (2020). COVID-19 risks to global food security. *Science* 369(6503), 500–502. <https://doi.org/10.1126/science.abc4765>

<sup>27</sup> HRPortal.hu hírszerkesztő. (May 2020a). *Majdnem 10 ezer vállalat vette igénybe a munkahelyvédelmi bértámogatást*. HR-portál. Retrieved from: <https://www.hrportal.hu/c/majdnem-10-ezer-vallalat-vette-igenybe-a-munkahelyvedelmi-bertamogatast-20200526.html>

<sup>28</sup> HRPortal.hu hírszerkesztő. (June 2020b). *Naponta több ezer kérelem érkezik a munkahelyvédelmi bértámogatásra*. HR Portál. Retrieved from: <https://www.hrportal.hu/hr/naponta-tobb-ezer-kerelem-erkezik-a-munkahelyvedelmi-bertamogatasra-20200619.html>

and autumn waves<sup>29,30</sup>. Based on the three research reports, in addition to the usual measures, new solutions have emerged and even been given a central role, which HR professionals have specifically adapted to the epidemic as a cause. (Figure 1).



**Figure 1 The three most common HR solutions for crisis management in the three outbreaks of the pandemic**

(Source: Author's own elaboration, based on Poór et al. 2020)

As we can see, health measures played a major role in the second phase of the epidemic. At that time, the experience gained in the first stage was used by the professionals in restarting the company's operations. Working from home is also linked to the epidemic of shortages, while personal social care in third place clearly indicates a paradigm shift in the field of HR in Hungary. In the past, cost-cutting and redundancy measures were a classic response to a crisis. The change was probably also aided by the recognition that the coronavirus epidemic has given human resources professionals a number of new tasks. For example, the fear of income and job loss, as well as the fear of infection at work and the forced increase in the frequency of working from home, give HR professionals a number of tasks to be treated. Interestingly, according to surveys, teleworking has not led to a strengthening of family relationships, but has made it more

<sup>29</sup> Poór et al. (2020a)

<sup>30</sup> Poór et al. (2020b)

difficult to separate work and private life.<sup>31</sup> Workload and the resulting incidence of psychiatric problems and burnout have increased worldwide, especially among subordinates<sup>32</sup>.

#### 2.1.4. The pandemic and Europe

Coordinated action is essential in the fight against the virus<sup>33</sup>. Satisfaction with Community action was also examined by the European Parliament in its survey<sup>34</sup>. According to the survey, 68% of the Union's population believe that joint action would be needed to a greater extent than at present, compared to 80% for Portugal, Luxembourg, Cyprus, Malta and Estonia. The people of the Member States envisage joint action primarily in terms of financial resources, but only 30% of the total EU population is satisfied with the central distribution of funds. There is a north-south difference in satisfaction, as mentioned in the introduction: above 40 per cent in the Scandinavian countries and below 20 per cent in the Mediterranean countries. People feel the same sense of EU solidarity.

The main cause of the problems caused by COVID-19, on the other hand, is moving in a west-east direction: the public health situation in Western European countries and the return to the pre-pandemic economy in the east. Residents of all Member States have financial problems, more than 30% of the responding population in 21 Member States have experienced a decline in income, while in other countries they are more afraid of forcing savings. The crisis of 2008 was accompanied by a significant drop in incomes across Europe. This was to such an extent that the issue had to be addressed as a serious problem<sup>35</sup>. According to the EU, a reduction in income is considered significant if it falls below a socially acceptable minimum<sup>36</sup>.

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<sup>31</sup> Moran, T. (November 6, 2020). *COVID-19 pandemic creates new causes of 'workplace' stress*. University of Birmingham. Retrieved from: <https://www.birmingham.ac.uk/news/latest/2020/11/covid-19-pandemic-creates-new-causes-of-'workplace'-stress.aspx>

<sup>32</sup> Baska, M. (August 12, 2020). *Half of managers fear staff are burning out because of Covid-19. report finds*. People Management. Retrieved from: <https://www.peoplemanagement.co.uk/news/articles/half-of-managers-fear-staff-are-burning-out-because-of-covid-19>

<sup>33</sup> Bod P. Á. (2020). A járvány gazdasági hatásairól: Ami előre nem látható, és ami mégis. *HVG-online*. Retrieved from: [https://hvg.hu/gazdasag/20200316\\_Bod\\_Peter\\_Akos\\_Ami\\_elore\\_nem\\_lathato\\_es\\_ami\\_korvonalmazhato](https://hvg.hu/gazdasag/20200316_Bod_Peter_Akos_Ami_elore_nem_lathato_es_ami_korvonalmazhato)

<sup>34</sup> European Parliament. (2020)

<sup>35</sup> Lecerf, M. (2016). *Poverty in the European Union: The crisis and its aftermaths: in depth analysis*. European Parliamentary Research Service. <https://doi.org/10.2861/128014>

<sup>36</sup> Buheji, M., da Costa Cunha, K., Beka, G., Mavrić, B., Leandro do Carmo de Souza, Y., Souza da Costa Silva, S., Hanafi, M., & Chetia Yein, T. (2020). The Extent of COVID-19 Pandemic Socio-Economic Impact on Global Poverty. A Global Integrative Multidisciplinary Review. *American Journal of Economics* 10(4), 213–224. <https://doi.org/10.5923/j.economics.20201004.02>

Due to the decline in income, not only the role of digitalization and robotization has increased, but also that of localization (e.g., capacity building for the local production of health devices)<sup>37</sup>.

During March-April 2020, the National Bank of Hungary (MNB) assessed the impact of the first wave of the epidemic on nearly 5,000 companies, mostly in the small and medium-sized enterprise (SME) sector<sup>38</sup>. One of the biggest problems here was maintaining liquidity, including the payment of wages. Nevertheless, more than half of the respondents considered maintaining pre-epidemic numbers particularly important. This was solved by work organization, either by reducing working hours and wages, or by teleworking, and in the worst case, by forced leave without pay instead of dismissal. The MNB supplemented the government's package of economic and job protection measures with fifty crisis-mitigation measures and proposals, such as a low-interest 'Funding for Growth – Go!' (NHP-Hajrá) job protection loan scheme or a flexible rescheduling of repayments.<sup>39</sup> As a result of the measures, many jobs have indeed been saved.

International forecasts have been rather pessimistic. The International Labor Organization (ILO) has forecast the loss of 160–515 million jobs by 2020, the World Trade Organization (WTO) has predicted a 12–32 percent decline in trade for the same period, and the Organization for Economic Co-operation and Development (OECD) has forecast a 33 percent decline in consumer spending. decrease<sup>40,41,42</sup>. Getting to work and staying away from

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<sup>37</sup> Bagó J. (2020). A munka a koronavírus után. *Munkaügyi Szemle Chronica Laboris*, 5. Retrieved from: <https://www.munkaugyiszemle.hu/munka-koronavirus-utan>

<sup>38</sup> Magyar Nemzeti Bank. (January 5, 2020a). *Az MNB koronavírus-járvány gazdasági hatásait vizsgáló vállalati felmérésének eredményei (The results of the MNB's corporate survey examining the economic effects of the coronavirus epidemic in Hungarian)*. Retrieved from: <https://www.mnb.hu/sajtoszoba/sajtokozlomenyek/2020-evi-sajtokozlomenyek/az-mnb-koronavirus-jarvany-gazdasagi-hatasait-vizsgalo-vallalati-felmeresenek-eredmenyei>

<sup>39</sup> Magyar Nemzeti Bank. (September 29, 2020b). *A Magyar Nemzeti Bank 50 javaslata a koronavírus járvány gazdasági hatásainak kezelésére*. Retrieved from: <https://www.mnb.hu/sajtoszoba/sajtokozlomenyek/2020-evi-sajtokozlomenyek/a-magyar-nemzeti-bank-50-javaslat-a-koronavirus-jarvany-gazdasagi-hatasainak-kezelesere>

<sup>40</sup> International Labour Organization. (2020c). *ILO Monitor: COVID-19 and the world of work*. (2. kiadás) (pp. 1–25). International Labour Organization. Retrieved from: [https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms\\_755910.pdf](https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms_755910.pdf)

<sup>41</sup> Organisation for Economic Co-operation and Development. (2020b). *Coronavirus (COVID-19): SME Policy Responses*. [Global Report]. Retrieved from: [https://read.oecd-ilibrary.org/view/?ref=119\\_119680-di6h3qgi4x&title=Covid-19\\_SME\\_Policy\\_Responses](https://read.oecd-ilibrary.org/view/?ref=119_119680-di6h3qgi4x&title=Covid-19_SME_Policy_Responses)

<sup>42</sup> World Trade Organization. (2020). *Trade falls steeply in first half of 2020*. Retrieved from: [https://www.wto.org/english/news\\_e/pres20\\_e/pr858\\_e.pdf](https://www.wto.org/english/news_e/pres20_e/pr858_e.pdf)

work or keeping in touch with customers was a particular problem in retaining jobs due to closures<sup>43</sup>.

### 2.1.5. Impact of the epidemic on the countries studied

Individual states were not equally affected by the pandemic: the course of the epidemic curve, the measures taken and their effectiveness varied from state to state. Therefore, when designing the study, I also tried to keep in mind to also analyze data from countries severely and less affected by the first wave of the virus. In view of the sampling methodology, I finally selected the United Kingdom, Spain, Hungary and Montenegro as the sampling site. Let us first review the events of the epidemic in these four countries. As a first step, given that our own questionnaire does not include questions on the financial situation, let us review the value of GDP / capita and average salaries in USD in the countries studied for comparison (Table 1).

	Hungary	Montenegro	Spain	United Kingdom
GDP/capita (USD)	17,466	8,545	33,350	43,688
minimal wage Jan 1, 2021 (USD)	575.4	406.6	1,360	1,780

**Table 1 Financial data of countries examined**

(Source: Author's own elaboration)

#### United Kingdom

In the UK, the first wave of the epidemic peaked in April 2020, with an average of four and a half thousand new cases per week registered by health authorities this month. During the second wave in November, this number rose to twenty to twenty-five thousand a week, and the third wave peaked in mid-January 2021, when the average number of new cases per week approached sixty thousand<sup>44</sup>. In Spain, the first wave peaked in mid-April 2020, when the number of new cases was over three thousand a day<sup>45</sup>. This number dropped to around 200 per

<sup>43</sup> Koh, D. (2020). Occupational risks for COVID-19 infection. *Occupational Medicine* 70(1), 3–5. <https://doi.org/10.1093/occmed/kqaa036>

<sup>44</sup> GitHub, Inc. (2021). *COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University*. Retrieved from: <https://github.com/CSSEGISandData/COVID-19>

<sup>45</sup> McMurtry, A. (April 14, 2020). *Spain 'reaches peak' as COVID-19 deaths surpass 18.000*. Retrieved from: <https://www.aa.com.tr/en/europe/spain-reaches-peak-as-covid-19-deaths-surpass-18-000/1804217>

week by summer. The second wave followed in November and the third in February 2021. In Hungary, mainly due to the successful defense, we managed to keep the number of cases low in the first wave, which peaked on April 9 daily. It was the only day during the first wave when the number of new daily cases rose above 120<sup>46</sup>. Montenegro luckily got past the first wave in the spring of 2020. At the end of May, the government declared the country COVID-free<sup>47</sup>. Unfortunately, this was accompanied by a loosening of defensive discipline, so in the autumn of 2020, the second wave hit Montenegro with double strength and is now reaching its most serious grade of four<sup>48</sup>.

The defense necessarily started from the same foundation everywhere: the number of face-to-face meetings had to be greatly reduced, which also meant economic downturns. Let's look at this all over by reviewing some literature examples! According to a survey by the Robert Walters Group in the United Kingdom (UK), at least forty subordinates and 20 to 50 per cent in the management group reported significant mental health problems, and managers even had to deal with the problems of their subordinates. At the same time, more than half of workers are dissatisfied with their wages, and one-fifth receive only the legally binding minimum wage for their work. In addition, 34 percent of companies provide only the mandatory minimum level of fringe benefits and services<sup>49</sup>.

In the first three quarters of 2020, there were seven hundred thousand unemployed in the UK. The economy restarted in the second quarter, with the number of employees rising from 4 million to 9.5 million and the number of active companies doubling. All this was achieved despite the fact that in March 2020 the situation in the UK was very serious<sup>50</sup>. However, these results cost the British budget £ 250 billion<sup>51</sup>.

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<sup>46</sup> Röst, G., Bartha, F. A., Bogya, N., Boldog, P., Dénes, A., Ferenci, T., Horváth, K. J., Juhász, A., Nagy, C., Tekeli, T., Vizi, Z., & Oroszi, B. (2020). Early Phase of the COVID-19 Outbreak in Hungary and Post-Lockdown Scenarios. *Viruses* 12(7), 708. <https://doi.org/10.3390/v12070708>

<sup>47</sup> Vasovic, A. (May 25, 2020). *Montenegro becomes Europe's first coronavirus-free state, PM says*. Reuters. Retrieved from: <https://www.reuters.com/article/uk-health-coronavirus-montenegro-idUKKBN231101>

<sup>48</sup> US Embassy in Montenegro. (February 19, 2021.). *COVID-19 Information (Updated: 02/19/2021)*. Retrieved from: <http://me.usembassy.gov/covid-19-information/>

<sup>49</sup> Robert Walters Group. (2020). *Burning the candle—Strategies to combat workplace burnout* (p. 18). Retrieved from: <https://www.robertwalters.co.uk/content/dam/robert-walters/country/united-kingdom/files/whitepapers/Burning%20the%20candle%20-%20a%20guide%20to%20preventing%20workplace%20burnout.pdf>

<sup>50</sup> BBC News. (March 11, 2020). *Coronavirus: Biggest daily rise as UK cases reach 460*. Retrieved from: <https://www.bbc.com/news/uk-51839106>

<sup>51</sup> Costa, R., & Machin, S. (2020). *IZA COVID-19 Crisis Response Monitoring — United Kingdom* (p. 18). IZA – Institute of Labor Economics. Retrieved from: [https://www.iza.org/wc/files/downloads/iza\\_\\_crisismonitor\\_countryreport\\_uk\\_202011.pdf](https://www.iza.org/wc/files/downloads/iza__crisismonitor_countryreport_uk_202011.pdf)



## Montenegro

The situation in Montenegro (MN) is significantly different from the United Kingdom. In the Western Balkans, by the end of 2019, the economy was on a slow growth path. Annual GDP growth is 3.2 percent and the employment rate is around 50 percent. Inflation growth has slowed and the budget deficit has been steadily declining year by year. Nevertheless, the still high deficit and the strong constraint on budgetary buffers have severely limited the government's capacity. Another problem was that tourism and tourism are important sources in the country's economy, accounting for a quarter of GDP<sup>52</sup>, but virtually came to a halt in 2020 due to the epidemic. Foreign investment has also stalled, and without these two sources, GDP will have shrunk from a slight increase to 7% in 2020<sup>53</sup>. An even bigger concern than the one described so far is the high proportion of the informal economy in Montenegro. Almost half of the reported businesses, 46 percent, are not real companies, and it is estimated that 1/3 of the employees are not registered - mainly in trade and hospitality. These sectors and the assembly industry are the biggest losers in COVID<sup>54</sup>. The government did not declare a state of emergency in March 2020. It introduced a so-called epidemic state, which means practically similar measures as an emergency<sup>55</sup>. In addition to the aforementioned sectors, there have been serious problems in construction, transport and administrative services<sup>56,57</sup>.

## Spain

In the first half of 2020, Spain (ES) was hit particularly hard by the coronavirus. Compared to other European countries, the Spanish government has decided on much stricter

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<sup>52</sup> Grech, V., Grech, P., & Fabri, S. (2020). A risk balancing act – Tourism competition using health leverage in the COVID-19 era. *International Journal of Risk & Safety in Medicine* 31(3), 121–130. <https://doi.org/10.3233/JRS-200042>

<sup>53</sup> Kikoni, E., & Schiffbauer, M. (2020). *The Economic and Social Impact of COVID-19* (Economic Report No. 17; Western Balkans Regular Economic Report, p. 44). World Bank – IBRD. Retrieved from: <https://www.alvrs.com/UcitaneSlike/admin/Dokumenti/the-economic-and-social-impact-of-covid-19-the-country-notes.pdf>

<sup>54</sup> Williams, C. (2020). COVID-19 and Undeclared Work: Impacts, Challenges and Policy Responses. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3672437>

<sup>55</sup> Independent Journalists' Association of Serbia. (22 June, 2020). *Uniformity of media is a warning for Montenegro*. [safejournalists.net](https://safejournalists.net). <https://safejournalists.net/16763-2/> [hereinafter referred to as IJAS (2020)]

<sup>56</sup> International Labour Organization. (2020a). *Rapid Assessment of the Employment Impacts and Policy Responses—Montenegro*. International Labour Organization. Retrieved from: [https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-budapest/documents/publication/wcms\\_749201.pdf](https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-budapest/documents/publication/wcms_749201.pdf)

<sup>57</sup> International Labour Organization. (2020b). *36.000 jobs are at immediate risk--EBRD/ILO advise Montenegro labour market after coronavirus*. Elérhető: [http://www.ilo.org/budapest/whats-new/WCMS\\_749202/lang-en/index.htm](http://www.ilo.org/budapest/whats-new/WCMS_749202/lang-en/index.htm)

and much longer closures (Minder & Peltier, 2020). The number of unemployed has risen to six million, representing 22-25 percent unemployment in the active 15-60 age group. The state also raised the minimum wage and increased unemployment benefits, thus trying to strengthen the social network. However, the measures will have a lasting impact on public finances, so fiscal indicators are expected to return to pre-epidemic levels only after a longer period of time (Ramos, 2020). According to data from the Spanish Statistical Office (INE, 2020), public employment, which produced a further 3.5 per cent increase in 2019, fell by 5 per cent in 2020, a drop of 8.5 percentage points. The change in the entrepreneurial sphere is less dramatic, with a decline of 2 percentage points. We can also see from the same data that part-time and non-permanent workers were more severely affected by the crisis, with a decrease of almost 20 percentage points in this group, which also means a decrease. Growth is stagnant for full-time workers. This means that even in 2020, an initial minimum growth of less than 1% was observed, reaching 1.3% monthly growth by September. The Minimum Income Model, launched in June 2020 to compensate for lost income, provides income support to nearly 850,000 households out of a budget of € 3 billion (Casla, 2020).

## Hungary

The situation in Hungary (HU) was mapped by a national survey, now in its third phase (Poór, Balogh, Dajnoki, Karoliny, Kun, et al., 2020; Poór, Balogh, Dajnoki, Karoliny, & Szabó, 2020). Although this mainly analyzed the field of human resource management, it also provided a number of important information on the economic impact of COVID-19 in Hungary. I would like to emphasize that the research report focuses on human resources. This is important because, in addition to innovation, it is now the main engine of economic growth<sup>58,59,60,61</sup>. More than two thirds of all employees can be found in the Hungarian SME sector. According to the answers to the questionnaire, Hungarian employees are most disturbed by the increase in family burdens and work-life conflict, the decrease in income only follows. The risk of infection is only seventh in the rankings. These results differ from the European average. The discrepancy may be due to the flat spring epidemic curve indicating the success of anti-epidemic measures and the economic rescue package introduced by the government in time.

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<sup>58</sup> Fogel (1994)

<sup>59</sup> Schultz (1961)

<sup>60</sup> Schultz (1980)

<sup>61</sup> Schumpeter (1939)

The effects on the SME sector were also assessed by the research group of the Budapest University of Economics (BGE) (Budapest LAB, 2020). According to their results, the crisis mainly affected companies that were already in an unfavorable situation before the pandemic. Nearly half of the companies were not significantly affected by the pandemic and the related package of measures, and even 5 percent of businesses reported growth - these are likely to be in the IT and online commerce businesses. According to the survey, leave, reduced working hours and teleworking were the three most common labor measures. However, the crisis did not drive innovation forward. Even before the epidemic, SMEs were not at the forefront of this field. During the COVID period, only one-twentieth of SMEs introduced a new service, product, or marketing tool. So the crisis has not become an engine of innovation. The BGE also surveyed health measures, with researchers finding that the shorter a company's downtime, the stricter prevention and protection rules it put in place.

## **2.2. Research Gap**

After reviewing the literature, it is clear that even within a continent, there are significant differences between countries in terms of the effects of the same epidemic. Much data is available in both scientific analysis and economic statistics. However, I have not yet come across a comprehensive analysis that provides a complex overview of the effects of a pandemic on incomes across multiple countries and their relationship to multiple demographic variables (gender, education, employment, job characteristics). Nor have I come across any research that examines how the problems caused by a pandemic (workload, risk of infection, increasing complexity of work, and relocation to the home) affect each other and incomes. I intend to fill this gap with my study.

## **2.3. Research Questions and Hypotheses**

Based on a review of the literature, I concluded that the impact of the COVID-19 epidemic and related government and corporate measures on the economic aspects of people's lives can be characterized by changes in individual incomes. Since incomes are basically determined by the work done, I examine the impact of related changes on incomes. Based on the literature, I selected five factors that significantly changed the conditions of the work performed during the viral situation. These factors include an increase in workload, more complex work, the risk of infection in the workplace, changes in the number of personal encounters, and the relocation of

the workplace to the home. I examined the five factors in four European countries and researched the following questions.

RQ1 How do demographic characteristics relate to personal income trends?

RQ2 How do factors that change work affect each other and personal income?

RQ3 How do the results obtained for the above questions develop according to the country as a grouping criterion?

At the beginning of my research I formulated the following hypotheses:

H1 As a result of the epidemic, people's workload varied to varying degrees in the countries and demographic groups studied.

H2 The situation caused by the pandemic made work more difficult to varying degrees in the four countries and demographic groups studied.

H3 People in different countries and demographics feel that the chances of being infected with COVID-19 at work vary.

H4 The frequency of encounters with other people decreased to a different extent compared to the pre-pandemic and pre-closure period in the four countries and demographic groups studied.

H5 In the four countries and demographic groups studied, the frequency of working from home increased to varying degrees during the pandemic and closures.

### 3. PRESENTATION OF RESEARCH

#### 3.1. Research Strategy

In terms of prior knowledge, we can conduct exploratory or attitude research (Gajar, 1983; Stebbins, 2001) My research falls into the latter type because I compiled a questionnaire with well-defined answers to specific questions for quantitative research purposes (Cameron & Price, 2009).

#### 3.2. Population, Sample, and Sampling

Although online surveys are becoming increasingly popular because of their cost-effectiveness, I decided to conduct my questionnaire offline (Gunter et al., 2002). I sent my questionnaire to the respondents with the help of acquaintances and also asked them to collect the completed questionnaires later and send them back to me. The same acquaintances I also helped translate my questionnaire into the target language. Due to closer interaction, I expected a higher response rate than the 20–40 percent response rate of online questionnaires (Ilieva et al., 2002). This was my expectation as nearly 90 percent of respondents responded. The survey covered a total of 899 people in the four participating countries:

- 314 persons – Hungary,
- 145 persons – Montenegro,
- 179 persons – Spain,
- 261 persons – The United Kingdom

When selecting the countries, I kept in mind that countries with different levels of development should be included in the sample, so I can better compare the results of our country with the others. The gender distribution was as follows: 325 women and 574 men. By employment: owner (83 people), manager (308 people) and subordinate (508 people). I have merged two of the employment categories (owner and manager) and will refer to them later as “Non-Subordinate”. The aggregation was necessary because of the weighting, as only with this breakdown was it possible to find sufficiently reliable data for all countries<sup>62</sup>. Based on the duration of the employment contract: full-time (654 people), part-time (224 people) and others (21 people). According to the nature of the contract: permanent (647 people), contract (232

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<sup>62</sup>Eurostat. (April 13, 2021). *Employment by sex, age, professional status and occupation (1 000)*. Retrieved from: [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsq\\_egais&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsq_egais&lang=en)

people) and other (20 people). In terms of education: I formed higher (638 people), secondary (229 people) and primary (32 people) groups. The demographic description of the sample is summarized in Table 4, which, together with the other tables, can be found in the Appendix. As the representativeness of the sample could not be ensured in the absence of proportional stratification, I provided the samples for each country with the weights in Table 6 by gender and classification, and all calculations (including descriptive statistics in Table 4) were performed using these weights.

### **3.3. Sampling Method**

All questions were self-administered (Lavrakas, 2008), which were completed by the respondents alone. In addition to age, I used only closed-ended questions (Peterson, 2000). I gave the paper-based questionnaires to our friends, asking them to distribute them, and then collect the completed questionnaires and send them back to me. The query was conducted in September–October 2019. Once returned, I imported the data into an MS Excel workbook and later processed this data set using IBM SPSS Statistics. The first part of my questionnaire included demographic questions (Shusha, 2017).

In my dissertation, I interpreted the range of demographic variables more broadly than the general concept. In addition to the classic characteristics (gender, age, place of residence / country, education), I also listed items related to work. Economic sector in which the respondent works (NACE = abbreviation of the French equivalent of the Statistical Classification of Economic Activities), type of employment (employer / manager / owner), characteristics of the contract (full-time / part-time and fixed-term) blue / white collar) is part of the interpretation of the demographic characteristics I use in this dissertation.

The second part on the situation before and below COVID consisted only of closed-ended questions and could be answered on a 5-point Likert scale (Asún et al., 2016). Of the 19 statements in the present work, I have focused only on those that examine the impact of COVID-19 on work and income developments. The questions of the group of questions asked that the workload, income, number of personal meetings and frequency of work from home changed due to the restrictions introduced due to COVID-19. The next set of questions assessed job satisfaction, the degree of commitment to the company. Of the only three questions in the last set of questions, two are the incidence of the most common HR responses, and the third is expectations about the expected length of the epidemic period. As the questionnaire was prepared for the purpose of a larger research, I only examined the question groups I and II.

### 3.4. Accessibility of Data, Quality Issues

A number of quality and validity issues arise during the survey (Leeuw et al., 2008). Quality is adequate if the timeliness of the survey is correct, accurate, and accessible. Timeliness is provided by up-to-date questions and available answers, and since I was preparing an offline questionnaire, I provided the appropriate answers. Accuracy is about avoiding small mistakes. The questions must meet the following conditions:

- relevant: refers to the research subject,
- comparable: I tried to pay close attention to this when drafting and coding the questions,
- coherent: the questions are logical and consistent.

I refined my questionnaire to ensure that I could select the right respondents. In doing so, I focused on:

- Coverage: my interest was in the differences between European countries, so I surveyed four countries with different characteristics.
- Sampling: the appropriate statistical sample must have the same statistical characteristics as the population. This is the representativeness of the sample. Unfortunately, in addition to the many advantages already described, the sampling procedure I use has the disadvantage that it does not provide representative sampling. Given that my aim was to examine the relationships between the factors influencing work, but I chose the country as an important group-forming criterion, I had to ensure that my results were comparable at the national level as well. Therefore, I had to supplement my study with a few methodological steps. Since my research is mainly about correlations, the results can be properly interpreted after the above methodological steps in addition to the applied sampling method.
- No response: if this occurs, it may lead to distortion and a reduction in sample size. By shortening my questionnaire, I helped make the answer easier and more complex.
- Measurement: questions should measure what they relate to. When I put the questions together, I focused on using the right words and sentence structure to avoid uncertainties.

A pilot test to develop the final form of the questionnaire was of great help to me in clarifying it (Dillman & Smyth, 2014). To do this, I asked 46 of my acquaintances who completed the first version of my questionnaire and commented on it. I expected them to answer the following questions after filling them in:

- how long it took to complete the questionnaire;
- clarity of instructions;
- which issues are clear;
- which question(s) the respondent had difficulty answering;
- whether there are any significant omissions he or she would ask about the topic;
- there are issues for which visual aids should have been provided;
- if the layout was clean and clear;
- other comments.

The answers received were evaluated with the Taguette software. Based on the results, I divided each question into several questions and omitted the questions that several respondents thought were “too personally” “will not be answered honestly”, “belong to the private sector”. Therefore, I did not ask, for example, in the final questionnaire about belonging to the payment category or whether the respondent has a loan or debt.



### 3.5. Research Ethics

Research ethics are paramount in all studies. The ethical foundations of medical research (Leeuw et al., 2008) are fully applicable to all research situations. (Leavy, 2020). Researchers must meet a number of ethical requirements: professional, institutional, and legal standards when researching with human participants, supervising the students they teach, and resolving copyright issues, to name a few. Here are five recommendations made by the APA Science Directorate to researchers to avoid ethical issues (Cherry, 2020):

1. Manage intellectual property properly.
2. Be aware of multiple roles.
3. Follow the rules of informed consent.
4. Respect confidentiality and privacy.
5. Use ethical resources.

In summary, researchers should keep three principles in mind: personal respect for participants, charity, and justice. Volunteer participants need to make sure that their data is used uniformly so that it can never be retrieved in the future (Adams et al., 2007). The main principle: *Nemo censetur ignorare legem*. It was in this spirit that I designed my research. When designing the questionnaire, considerable emphasis was placed on ensuring that the questions did not appear overly personal in nature. Therefore, it is not necessary to present the question of the financial situation and savings of the respondents. Research ethics cover all aspects of the ethics of economists or social scientists, such as the interactions between researchers and their employers, peers, or subordinates. It is clear that researchers need to be aware of and adhere to ethical standards in such areas. I also referred to this in the introduction to my questionnaire.

### 3.6 Applied Methods

In my analysis, I sought answers to the question of whether the demographic variables detailed earlier have an effect on the response to the 19 statements in the questionnaire. I also examined the individual effects and the interactions between the individual explanatory variables. I placed special emphasis on the country as a grouping criterion. From the size of the sample, I assumed its normality based on the theorem of the central limit distribution. Therefore, the tests were performed by the method of covariance analysis (ANCOVA). For each statement examined, I set up a linear model that first included all demographic variables and their interaction with the country as explanatory variables, and then eliminated non-significant variables, and finally analyzed only the model in which all explanatory variables were significant. I made an exception to this only when two variables alone did not, but their interaction had a significant effect on the outcome variable; in this case, the non-significant individual variable was also included in the final model. Based on the results of the regression models, in the next step I compiled a path analysis (SEM) model in which I examined which of the changes in my research due to a pandemic affected the change in respondents' income due to the epidemic situation. I performed my quantitative analyzes using R Studio 1.3.1093 and Microsoft Excel 365. I used the Stata software to create the SEM model. I have summarized the details in Table 7 – Table 9.

The baseline model for all questions was:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{1i} X_{2i} + \beta_5 X_{1i} X_{3i} + e_i$$

where:

X\_1 – Country (HU, MN, ES, UK)

X\_2 – Employment status (Nonemployee, Employee)

X\_3 – Gender (Woman, Man)

## 4. RESULTS

The global test scores of all models showed a significant fit (see Table 3 – Table 5). According to Table 7 the global explanation of each model is scattered over a relatively large interval (10.50–41.93%). The partial test results for each model are shown in Table 8 and Table 9. In the following, by comparing the estimated marginal averages and slopes, I show from model to model how the significant differences appear.

### 4.1 Regression Models

The tables for each regression model are placed in the Appendix. When describing the results of the models, I represented the data in graphical form for better interpretability, based on the main group-forming criteria of the given model. The vertical axis of the diagrams is five degrees according to the Likert scale used in the answers.

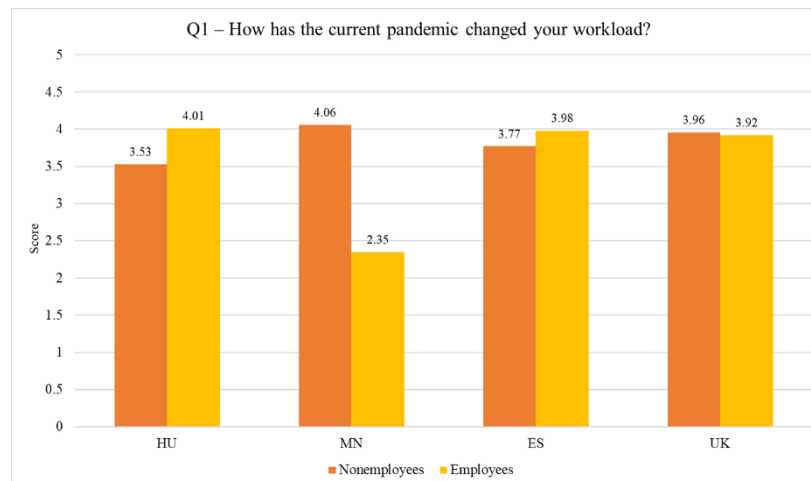
#### 4.1.1. Q1 – workload

The mean of all respondents was 3.74 (standard deviation: 1.02). I found significant ( $p < 0.001$ ) differences by country and classification, and the interaction of these two variables was also significant. The total explained variance of the model is 27.81%, the largest of the significant effects is that of interaction (12.56%), the effects of country (3.07%) and position (0.34%) are much smaller. That is, the extent of the workload depended primarily on the country in which the respondent was working. I found a significant difference between the countries only between Montenegro (3.20) and the other three countries (Hungary (3.77), Spain (3.87) and the United Kingdom (3.94)) in favor of the latter, i.e., almost unchanged in Montenegro, while increased in the other three countries. workload was reported by respondents.

Non-subordinates (3.83) generally reported a significantly larger increase in workload than subordinates (3.56). This is particularly the case in Montenegro, where the largest discrepancy can be detected (Non-subordinate: 4.06; Subordinate: 2.35). In Hungary, on the other hand, the workload of subordinates (4.01) increased significantly more than that of non-subordinates (3.53). In Spain (Non-subordinate: 3.77; Subordinate: 3.98) and the United Kingdom (Non-subordinate: 3.96; Subordinate: 3.92), there was no significant difference between the two groups, with an increase in workload around 4 average (Table 10 and Table 11).

Comparing the averages of the four countries by job group, it can be stated that the change in the workload of non-employees in Hungary (3.53) is significantly lower than in Montenegro (4.07) and the United Kingdom (3.96), but does not differ significantly from the Spanish average (3.77). In the case of subordinates, the average in Montenegro (2.35) differs significantly from the average in the other three countries (HU: 4.01; ES: 3.98; UK: 3.92). These two relations cause a significant interaction between country and position (Table 10 and Table 12).

Thus, the pandemic increased the workload of people in different positions the least in Montenegro (largely due to the fact that the workload of subordinates decreased rather than increased), while in the other three countries, all groups generally reported more or less growth (Figure 2). Based on the results, my first hypothesis was confirmed.



**Figure 2 Employment-based differences in the workload by country**

(Source: Author's own elaboration)

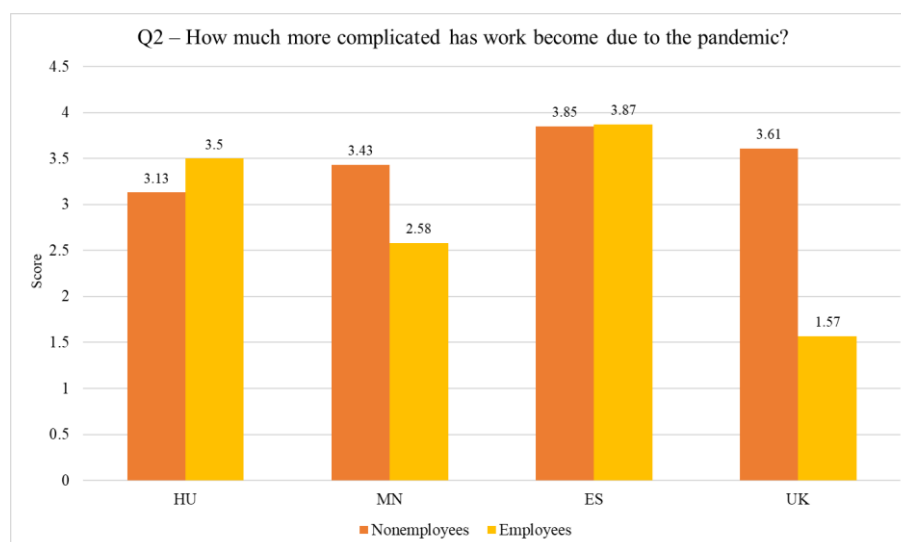
#### 4.1.2 Q2 – work having become more complicated

The average of the answers to the question was 3.04, their standard deviation was 1.31. The country ( $p < 0.001$ ), the classification ( $p = 0.020$ ) and the interaction of these two variables ( $p < 0.001$ ) had a significant effect on the answers. That is, the degree of difficulty in working conditions is determined primarily by the same two factors as the workload itself. The total explained variance is 41.61%, which is more due to the former (16.38%) and the position (8.40%) effect, but the interaction has the largest effect (24.27%). In this, the results are similar to the interactions obtained in the previous question.

I was able to establish an almost clear order between the four countries: the increase in the complexity of work was felt the least in the United Kingdom (2.59), followed by Montenegro (3.01) and Hungary (3.32), which did not differ significantly, and the largest change in Spain (3.86) have been reported. According to subordinate status, the average of subordinates (2.88) is significantly lower than that of non-subordinates (3.51), i.e., they felt less that their pandemic would have made their work more difficult (Table 13 – Table 15).

Of the countries examined, only in Hungary did the work of subordinates (3.50) become more complicated due to the pandemic compared to non-subordinates (3.13). In Montenegro and the United Kingdom, the opposite trend is observed, where non-subordinates complained about most of the emerging problems (MN: 3.43 and 2.58; UK: 3.61 and 1.57). In Spain, the mean of the two groups differed significantly (3.85 and 3.87). However, of all the groups examined, the average of Spaniards is also the highest among subordinates and non-subordinates (Table 13 and Table 14).

In the case of non-subordinate answers, only the average of Hungary (3.13) differed significantly from that of two countries: Spain (3.85) and the United Kingdom (3.61) (Hungarians felt much less that their work had become more complicated). As the marginal average of all countries differs significantly from the others, a clear order can be established between them: the work of subordinates working in the UK has become much easier as a result of the pandemic (1.57), and in Montenegro it has also become easier (2.58) but less so. Hungarians have already reported more complicated work (3.50), while the constraints were mostly borne by Spanish subordinates (3.87) – Table 13, Table 15, and Figure 3.



**Figure 3 Work is becoming more complex by country and employment status**

(Source: Author's own elaboration)

COVID-19 and related measures have generally made the work of non-subordinates more difficult. The exceptions to this finding are Hungary and Spain, in the former the work of the subordinates became more complicated, in the latter the two groups made the same statement. It is important to note that in Spain, above-average respondents in both groups and in the United Kingdom as subordinates reported far below average complexity, and even simplification, in the latter. In general, Spaniards had the hardest to bear the changes compared to other nations, while UK workers had far fewer. Since I also found significant differences for each country and classification group, I was able to verify my second hypothesis.

#### **4.1.3. Q3 – loss of income**

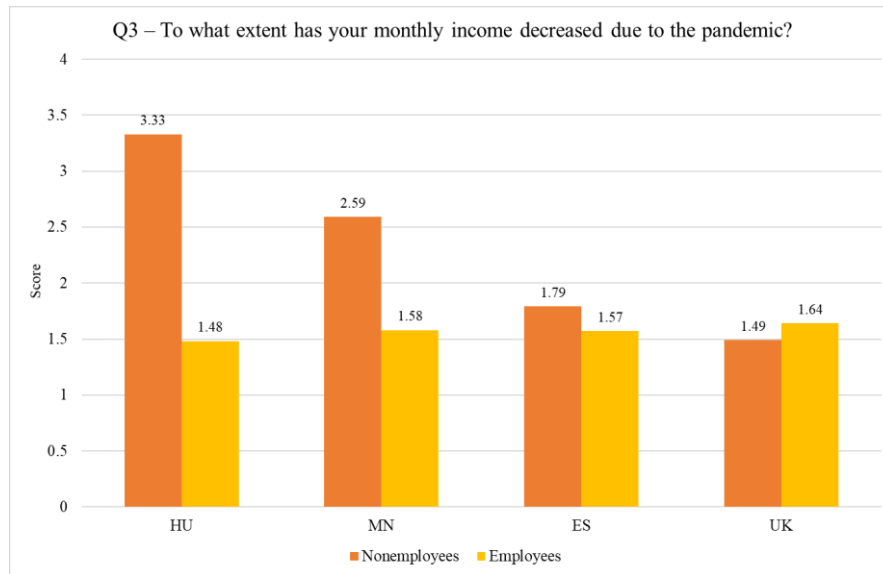
Sample average of the answers to the question 1.69. (standard deviation 0.75) so, in general, people did not complain that our income situation had deteriorated as a result of the pandemic and the shortages. The independent effect of the country was also significant in the model ( $p = 0.012$ ), I also found significant differences in the case of each classification category ( $p < 0.001$ ). In addition to the group effect of the classification, its interaction with the changing country was also significant ( $p < 0.001$ ), and women and men - if not as the main effect ( $p < 0.525$ ) - gave significantly different answers for the four countries ( $p = 0.035$ ). A relatively large number of significant effects resulted in a moderate overall explanation (35.54%), mostly based on the interaction between country and position (34.95%) and country and gender (19.65%). The effect of the position (18.28%) and the country (14.32%) is also significant, but the independent

effect of gender (0.08%) is also barely noticeable due to its insignificance. As in the case of the answers to the previous questions, the interaction of the country and the position has the most significant effect on the development of the decrease in income.

A significant order can be established between the countries: the largest decrease was reported by the Hungarians (2.40), the smallest by the United Kingdom (1.57) and the Spanish (1.68) - among them there is no significant difference - and Montenegro (2.09) is the second in the ranking. In terms of monthly income, the virus situation and short-term were felt mainly by non-subordinates (2.30), while subordinates (1.57) reported a much smaller decrease in income (Table 16 – Table 21).

By job category, in Hungary and Montenegro, non-subordinates reported a stronger decline in income (HU: 3.33; MN: 2.59), while subordinates reported a more stable income (HU: 1.48; MN: 1.58). This was also evident in the test results: in both countries, the average of non-subordinates and subordinates differed significantly. In Spain, none of the groups (non-subordinates: 1.79; subordinates: 1.57) felt that their monthly income had fallen sharply as a result of the epidemic and the shortage - there was no significant difference between them. In the United Kingdom, the two groups (non-subordinates: 1.49; subordinates: 1.64) do not differ significantly either, i.e., in general it can be said that no decrease in income has been reported (Table 16 and Table 17).

Comparing the group averages of the individual countries, we can see that in the case of non-subordinates, an almost significant order can be established. The largest decrease was observed in Hungary (3.33), followed by Montenegro (2.59), and finally Spain (1.79) and the United Kingdom (1.49), which did not differ significantly between the latter two. In the case of subordinates, only the two countries with extreme marginal averages differed significantly: Hungary (1.48) and the United Kingdom (1.64). It should also be noted that subordinates reported the same in all countries: unchanged, minimally increasing, possibly decreasing income (Table 16 and Table 18).



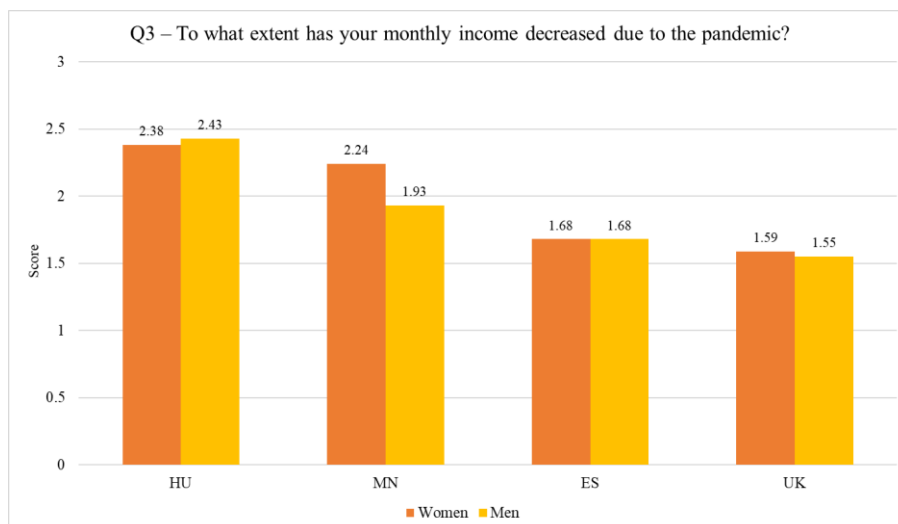
**Figure 4 Impact of the pandemic on personal incomes – a higher value on the vertical axis indicates a larger decrease**

**(Source: Author's own elaboration)**

Overall, for the different job categories, the monthly income of the subordinates was hardly affected at all by the virus situation (presumably due to the crisis management measures of each government). On the other hand, non-subordinates already reported a significant decrease in income the most in Hungary and Montenegro. However, in Spain and the United Kingdom, there has been much less or no reporting of declining incomes (Figure 4).

I did not find a significant difference between women and men in the overall sample, however, examining the difference in marginal averages due to the significant interaction between gender and country, Montenegro showed a higher income decline for women (2.24) than men (1.93) – see Table 19 and Table 20. In the case of representatives of the two sexes, a ranking between countries can be established, if not clearly. Women reported the same decline in income in Hungary (2.38) and Montenegro (2.24), while the decline was smaller in Spain (1.68) and the United Kingdom (1.59). In the case of men, Hungary was also most affected (2.43) by restrictions on monthly income. Men in Montenegro (1.93) and Spain (1.68) reported more stagnation, while there was also an increase in income in the United Kingdom (1.55) (Table 19 and Table 21). Thus, in the case of income decline, I also found the axis from which the decline in income was less significant to the west (UK, Spain) than to the east (Hungary and Montenegro).





**Figure 5 Decrease in income by gender in the studies countries – higher values on the vertical axis mean greater decrease**

**(Source: Author's own elaboration)**

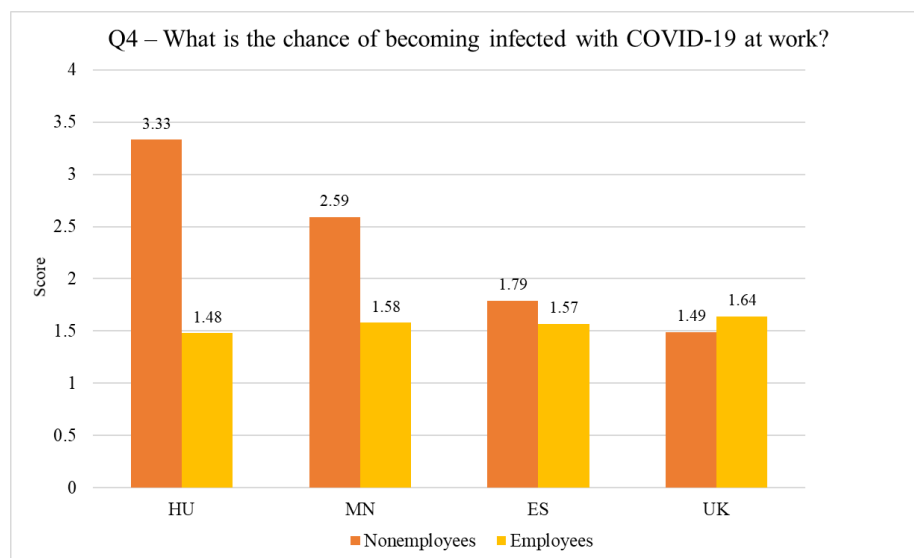
The order between the countries was also significant for the whole sample, and even examining the interactions, it can be seen that the monthly income of Hungarians decreased the most, followed by Montenegro not far behind (Figure 5). Spaniards tended to report more stagnation, while in the UK they even felt more or less income growth. The monthly incomes of women and men were affected almost equally in all countries by the pandemic and the resulting closure, with the sole exception of Montenegro, where the decline was greater for women. Although I did not find significant differences between women and men, I did find it in the case of the four countries studied and the three job groups.

#### **4.1.4. Q4 – risk of infection**

Respondents rated the chance of COVID-19 infection at work below the mean level on average (mean: 2.28; standard deviation: 1.16), but there was also a significant difference between job groups ( $p < 0.001$ ) and countries ( $p < 0.001$ ), and the interaction of these two variables ( $p < 0.001$ ) is also significant. The total explained variance is relatively low (16.52%), the partial main effects are roughly similar: the country effect is 4.51%, the position effect is 2.46%; the magnitude of the effect of the interaction of the two variables is somewhat larger: 10.85%. Of the four countries, the two higher (UK: 2.77; HU: 2.52) and the two lower (ES: 2.16; MN: 2.02) average countries each differ significantly from the two countries in the other group. Subordinates reported a lower risk (2.11), while non-subordinates (2.62) felt they were more likely to become infected with COVID-19 at work. The low explanation of the risk of

infection in the workplace in our model is not a mistake, it only means that the risk of infection is not in the field of HR, but in the field of healthcare, therefore the degree of risk does not really depend on labor market factors.

There is a significant difference between the average response of subordinates and non-subordinates in all four countries, but it is important to note that in all three countries except the United Kingdom (subordinate: 2.92; non-subordinate: 2.62), non-subordinates felt more at risk from COVID-19. (HU: 2.96 and 2.08; MN: 2.47 and 1.57; ES: 2.44 and 1.88) – see Table 22 and Table 23. Regarding the differences of each position group by country, only in the case of subordinates there was a significant difference between the individual countries, there was no verifiable difference in the group of non-subordinates (HU: 2.96; MN: 2.47; ES: 2.44; UK: 2.62). In the group of subordinates, COVID-19 infection was most feared in the United Kingdom (2.92), their average differed significantly from the average of all other countries (Hungary average 2.08. Spain 1.88), Montenegro 1.57) – see Table 21 and Table 23.



**Figure 6 Assessing the risk of infection at work**

(Source: Author's own elaboration)

In general, it can be said that infection at work is the least risk according to Montenegrins (this result is mostly due to the optimism of subordinates), and this risk is considered most real in Hungary and the United Kingdom (Figure 6). However, the two countries differ in that while in the former the subordinates, in the latter the non-subordinates are less worried. The pattern of Spaniards is most similar to that of Hungarians. Because the

chances of COVID-19 infection were judged to varying degrees in the four countries and the three subordinate groups, I also confirmed my third hypothesis based on the results.

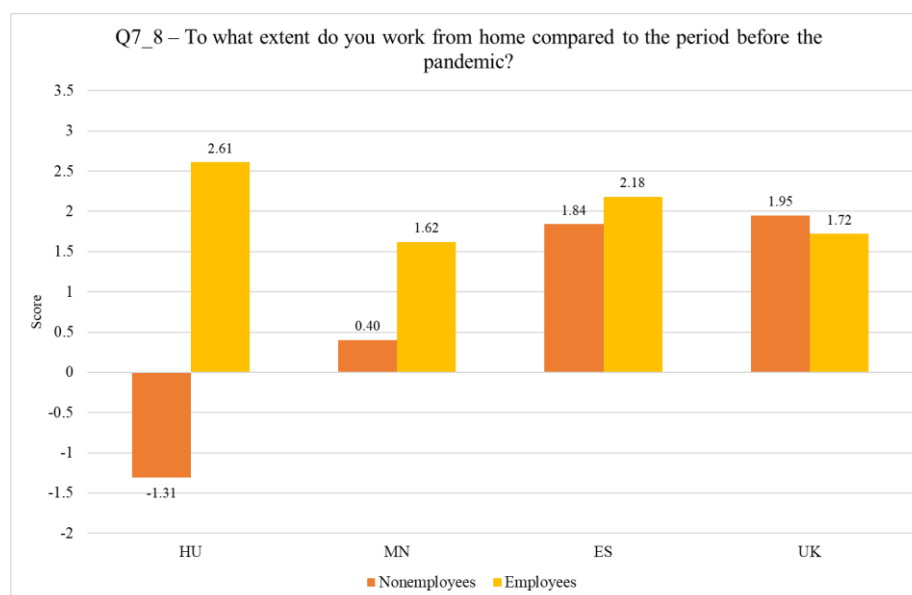
#### **4.1.5 Models of answers not further defined**

In the present dissertation, I do not analyze in detail the personal encounters and their changes, as well as the frequency of work from home before COVID-19. This is because they were not included in the road analysis. However, as I also analyzed these in my research, the related information is summarized in Table 25 – Table 33 in the Appendix.

#### **4.1.6. Q7\_8 – frequency of working from home**

For the variable created as the difference between questions Q7 and Q8, a negative value means a decrease in the frequency of work from home and a positive value means an increase in it. The increase in the frequency of work from home was observed on average in the whole sample (mean: 1.6285; standard deviation: 1.5841) as a result of the pandemic and shortcuts. At the 5% significance level, the country ( $p < 0.001$ ), the position ( $p < 0.001$ ), the interaction of these two ( $p < 0.001$ ) and the gender ( $p < 0.045$ ), and its interaction with the country have a significant effect on the answers to the question. ( $p = 0.025$ ). The model has a relatively strong explanation (41.93%), this is mainly due to the interaction of the country and the position (38.22%), the second largest effect is the position (20.30%), followed by the interaction of the country and gender (12.46%), the country (8.43%) and finally the gender (0.31%), whose impact lags far behind the other stronger magnitudes. Telework, on the other hand, is a typical HR area as opposed to the risk of infection, as indicated by the high explanation of the model: I was able to explain the frequency of telework in almost 42 percent with the help of the country, gender, position and their interaction.

I found significant differences between countries (Figure 7): the averages of Hungary (0.65) and Montenegro (1.01) differ significantly from the averages of Spain (2.01) and the United Kingdom (1.83). In the case of different job groups, the two groups differ significantly, the frequency of work from home increased more in the case of subordinates (2.83) than among non-subordinates (0.72).



**Figure 7 Changes in the frequency of work from home**

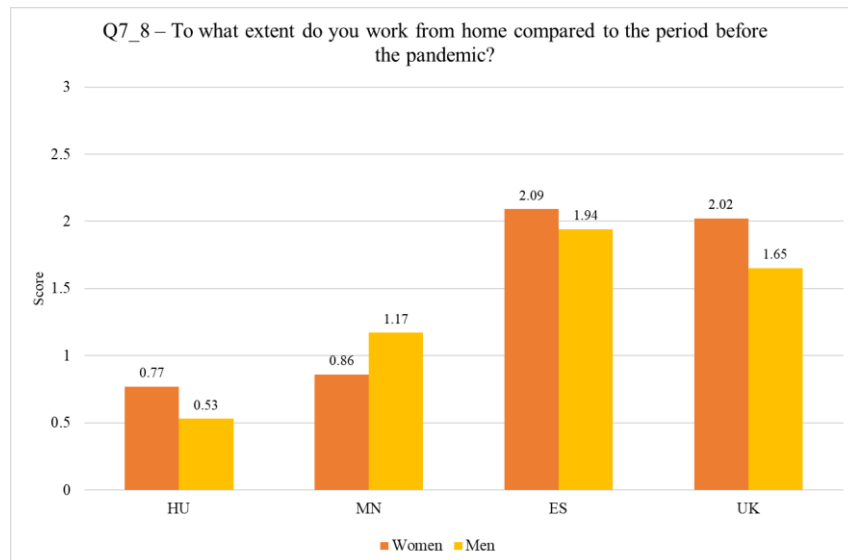
(Source: Author's own elaboration)

Examining the interaction between the country and the post, the characteristics of Hungary are unique, as here is the only group where non-subordinates did less work at home during the pandemic and the shortcuts (-1.31) than before. This is shown by the fact that the average of non-subordinates differs significantly from that of subordinates (2.61). In the case of Montenegro, we can see a relatively similar trend, although without a decrease: the average of non-subordinates (0.40) is lower and differs significantly from that of subordinates (1.62). In Spain (non-subordinates: 1.84; subordinates: 2.18) and the United Kingdom (non-subordinates: 1.95; subordinates: 1.72), the frequency of work from home increased almost equally for both groups (Table 34 and Table 35).

Comparing the four countries, all differences proved to be  $p \leq 0.001$ , only between Hungary and Montenegro I found a value of  $p < 0.05$ . Of the non-subordinates, only the work of Hungarians at home decreased during the epidemic closures. The Montenegrins are relatively close to them, while in Spain and the United Kingdom the incidence of telework has increased significantly in this group. In the case of subordinates, Hungarians and Spaniards worked mostly from home, which can be partly explained by stricter short-term measures compared to the British and Montenegrin measures (Table 34 and Table 36).

There was no significant difference between the representatives of the two sexes in relation to the whole sample, i.e., the frequency of telework increased to the same extent for

women and men. A more significant but opposite difference can be found in Montenegro (female: 0.86; male: 1.17) and the United Kingdom (female: 2.02; male: 1.65) (Table 37, Table 38, and Figure 8).



**Figure 8 Gender-based differences in the frequency of work from home by gender**

(Source: Author's own elaboration)

For women, the four countries again form two groups. The two countries in the same group do not differ significantly from each other, but both show significant differences from the other two. The two lower average countries (where the frequency of work from home increased to a lesser extent) are Hungary (0.77) and Montenegro (0.86). The higher averages are in Western European countries: Spain (2.09) and the United Kingdom (2.02). In the case of men, only a non-significant order can be established: Hungary has the lowest average (0.53), followed by Montenegro (1.17) and the not significantly different United Kingdom (1.65) and Spain (1.94) (Table 38 and Table 39).

In summary, the frequency of work from home has increased as a result of the pandemic and short-term measures, but this was more pronounced in Western Europe (Spain and the United Kingdom) than in the East (Montenegro, Hungary). Subordinates were more likely to have a higher rate of work from home than non-subordinates (as we saw earlier, they had a higher incidence of telework even before the pandemic). The UK is an exception in this respect, where the situation is just the opposite. It should be emphasized that as a result of the virus situation, the frequency of managers working at home in Hungary has decreased. In the case of

the two sexes, I found similar trends as in the whole sample, with the difference that in Hungary and the United Kingdom it was more women who had a greater increase in the frequency of work from home. Significant differences across countries, job groups, and genders confirmed my fourth hypothesis.

In the case of the examined models, a significant interaction could be detected several times - mainly between the country and the classification group – i.e., the opinions of the different classification groups differ in the four examined countries in the questions we asked. Thus, the fifth hypothesis was also confirmed.

## **4.2 Path Analysis**

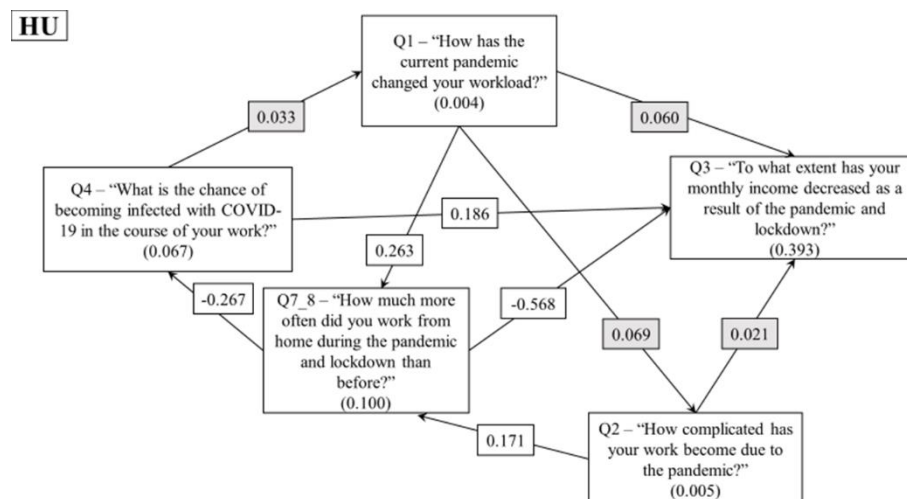
From the ten questions in my questionnaire, I then aimed to set up a parallel road model in which all four countries can be modeled in the same structure but with separately calculated parameters. I finally included five of the ten questions (Q1. Q2. Q3. Q4. Q7\_8) in the model because the others either worsened the fit statistics or had no significant effect at all. By creating the model, my goal was to determine which of the items I examined are among those that influence the decline in income observed as a result of the pandemic and the constraints. The model also helped me to identify the differences between the four countries. The final result variable is the question marked Q3 of the questionnaire, i.e., the decrease in monthly income, and the effect of the other variables directly and / or indirectly influences its development. I present the model of the four countries and the conclusions that can be drawn from their study below.

The global fit statistics of the models are considered to be particularly good: there is no significant difference between the estimated and the observed model ( $\eta^2(4) = 4,051$ ;  $p = 0.399$ ); value of matching indices - with one exception - above 0.95 (NFI = 0.987; RFI = 0.870; IFI = 1,000; TLI = 0.998; CFI = 1,000); the mean error of the approximation is also not significantly greater than 0.05 (RMSEA = 0.004;  $p = 0.946$ ). All this can be said despite the fact that individual roads were not significant in all cases in all countries.

### **4.2.1. Hungary**

In Hungary (Figure 9) the monthly decrease in income due to emergency restrictions was directly influenced by the probability of COVID-19 infection (0.191) and the change in the frequency of work from home (-0.522). Those who were more exposed to the risk of infection while working were also more likely to experience a decline in income, while those with a

higher frequency of work from home were less likely to experience a decrease in income. The frequency of work from home has been increased by the increasing complexity of work due to a pandemic (0.151) and the increased workload (0.241). And more frequent work at home has significantly reduced the chance of infection with COVID-19 (-0.253), which is not surprising since the first step in controlling the infection is precisely the separation. In the figure, the arrows point from cause to effect. The numbers on the arrows are standardized direct effects. These are significant if they have a white background, while the gray background of the number does not indicate a significant effect. The ratio of the explained variance is shown in parentheses at the bottom of the text boxes. Q2 is only an explanatory variable, so it lacks the explained variance. I used the same markings on road models in other countries. The tables for the models in the appendix contain the values of direct, indirect, and total effects.



**Figure 9 Path model of a subsample of Hungary**

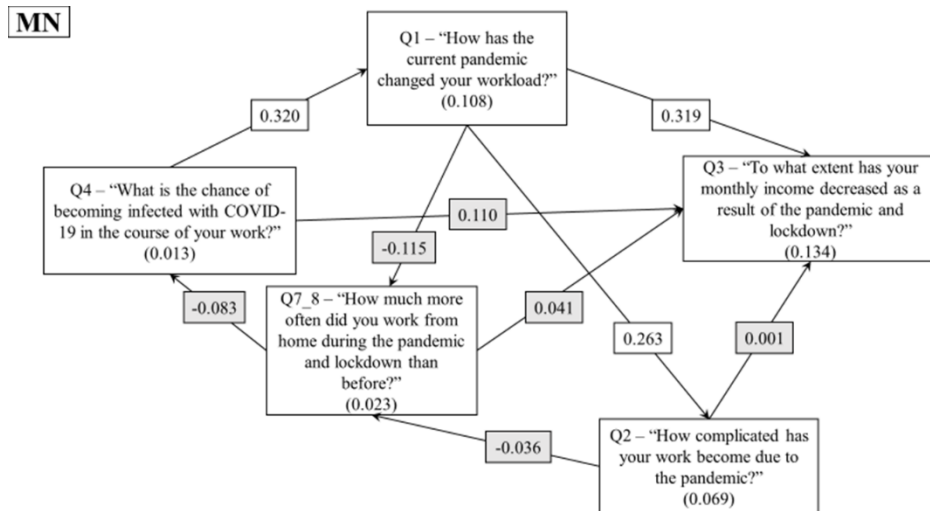
(Source: Author's own elaboration)

Two of the four examined factors have a significant effect on the development of monthly incomes in the Hungarian model. Due to the higher risk of infection in the workplace, many workplaces had to be closed or severely restricted. This makes the income-reducing effect of an increase in the risk of infection at work understandable. At the same time, workers who switched to telecommuting were able to continue their work with virtually no loss of income. I found a significant indirect effect in two cases, both of which act in the direction of increasing monthly income. One is the increase in workload through the increasing frequency of work from home (-0.112); the other is the increasing complexity of work, which has an indirect effect

on monthly income through an increase in home office (-0.163) (Table 38). However, by analyzing the full effects, I found that three of the four factors affecting incomes (workload, more complex work, and an increase in the frequency of work from home) mitigate the decline in income (Table 40).



### 4.2.2. Montenegro

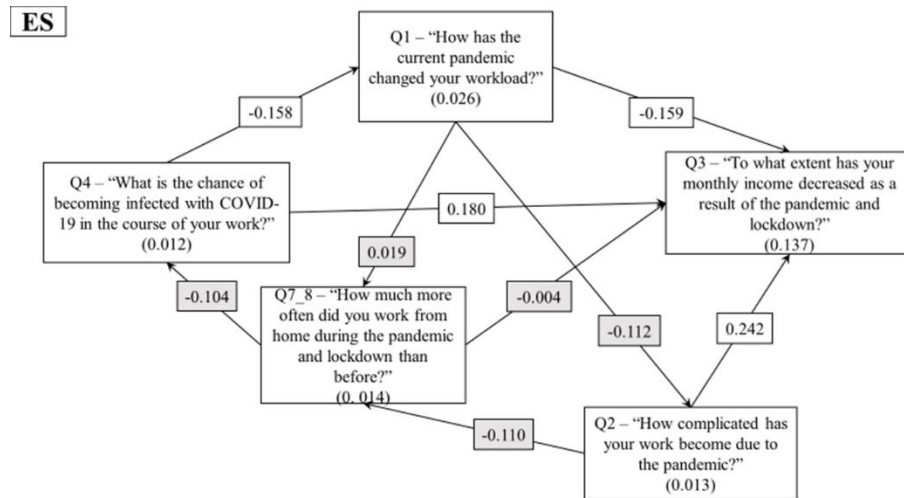


**Figure 10 Path model of a sub-sample of Montenegro**

(Source: Author's own elaboration)

According to the Montenegrin results (Figure 10) among the examined factors, workload (0.217) and the risk of infection (0.207) had a significant direct effect on monthly income (correspondingly). Indirect effects were also manifested in two ways. The risk of infection also had a direct and indirect (increasing workload) effect on income reduction. Based on the analysis of the total effects, the risk of infection is the factor that has the strongest (0.299) income-reducing effect among the ones I examined (Table 41).

### 4.2.3. Spain

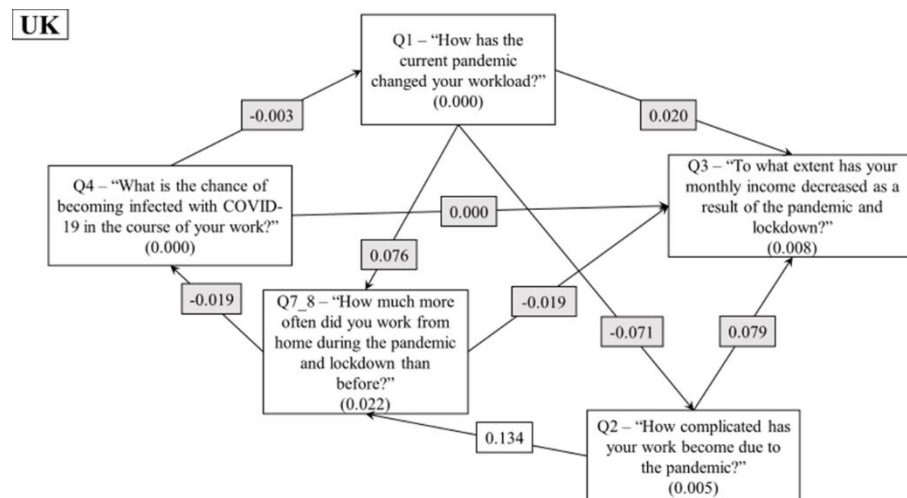


**Figure 11 Path model of a subsample of Spain**

(Source: Author’s own elaboration)

Focusing on the significant direct effects, I first encountered with Spain the effect that an increase in workload moderates a decline in income (Figure 11) although the effect is not significant. That is, along with the increased workload, it appears that the benefits received for work also increased to some extent. I also found two other significant direct effects on income, more complicated work and the risk of infection. The strengthening of each of these will increase the decline in monthly incomes. There are no indirect effects to be mentioned that would affect the development of income. This is because in the Spanish model, indirect effects are very weak and even practically negligible. (Table 42). I found another effect that is similarly inverse to the relationship between workload and income in other countries: the more complicated work became, the less able a worker could do it from home. In the case of the other three countries studied, this trend was reversed: those who had difficult working conditions preferred to work remotely.

#### 4.2.4. United Kingdom



**Figure 12 Path model of a subsample of the United Kingdom**

(Source: Author's own elaboration)

There is only one significant direct effect in the UK model, and this is between making work more complex and working from home more common. The positive effect (0.139) shows that the more difficult respondents became to work due to the pandemic, the more likely they were to work from home more often. (Figure 12). Given that only this single significant correlation can be detected in the road model, there are no significant indirect effects (Table 43).

#### 4.2.5. Overview of the total effects

In addition to the significant direct (and indirect) effects, I could not disregard the analysis of the full effects either, as this value shows how strong the actual effect of a given factor is. The matrix of total effects is shown in Table 2. The maximum values of each column were marked with a yellow background, the negative values with a red background.

	<b>Q2 – Workload</b>	<b>Q1 – Complications</b>	<b>Q4 – Infections</b>	<b>Q7_8 – Working from home</b>
<b>HU</b>	<b>-0.111</b>	<b>-0.122</b>	<b>0.187</b>	<b>-0.571</b>
<b>MN</b>	<b>0.166</b>	<b>0.214</b>	<b>0.299</b>	<b>-0.016</b>
<b>ES</b>	<b>0.021</b>	<b>-0.14</b>	<b>0.186</b>	<b>0.006</b>
<b>UK</b>	<b>-0.024</b>	<b>-0.006</b>	<b>0.032</b>	<b>-0.015</b>

**Table 2. The extent of the full impact of factors affecting incomes**

**(Source: Author's own elaboration)**

The overall impact of the items featuring in the model is most pronounced in Montenegro. At the same time, the situation in Hungary seems to be the most favorable: here out of the items included in the model, only the increase in the risk of infection is the one that has a significant reducing effect on monthly income; while working from home, the increase in workload, and the complexity of work reduce it. In other words, employers in Hungary seem to have financially compensated for the higher workloads and even the more complex working conditions, while the risk of infection had a relatively weak effect in the United Kingdom and a much more pronounced effect on income in Spain. The risk of infection otherwise proved to be a general cause of income decline, while the complication of working conditions and the increase in the frequency of work from home moderated the decline in incomes in most cases.

The only state where almost no compensation has been made is Montenegro. In my opinion, the already mentioned country-specific fact that Montenegro has a significant share of the informal economy may play a role in this, so a realistic assessment of incomes in this country is almost impossible. Spain, on the other hand, is the only state in which an increase in the proportion of working from home has not mitigated a decline in income.

### 4.3. Discussion

In my questionnaire survey, I first examined the impact of the COVID epidemic on the lives of people in four European countries, primarily on the economic side. Based on the results obtained by statistical processing of the responses, I first set up regression models. I explored how different the changes occurred across countries, subgroups, and gender. Overall, my results show that the situation caused by the epidemic has had a similar effect in all countries and in all demographic groups: increased workload and risk of infection at work, more complicated work, and more frequent work from home. In the present dissertation, I did not analyze in detail the changes in the frequency of work-related encounters, but I also observed that they became less frequent based on the tables in the appendix. I then managed to create a model to analyze the extent to which the pandemic and its consequences affected respondents' income relationships, and which factors I examined influenced income developments. Four of these factors are included in the road analysis model: the risk of infection at work, the increased workload, the difficulty of working conditions (e.g., the mandatory wearing of protective equipment while working), and forced teleworking from home.

I also found correlations between the mentioned factors in the literature data. My own results show that of the countries surveyed, the UK as a whole had the largest increase in workload, which mainly affected non-subordinates, but subordinates also reported similar increases. There is no significant difference between the two groups. According to the Good Work Index (CIPD, 2020), which examined the topic in April 2020, three-quarters of subordinates and two-thirds of non-subordinates complained of increased workload. The average increase in extra burdens was 28 per cent, but in key sectors of the epidemic (health and social sector, education, public services), 44 per cent of workers complained of significant congestion. Spain came in second in this area, where, unlike the United Kingdom, the workload of subordinates increased more, although I did not find a significant difference between the two groups here either. Spain's second place may also be a consequence of the fact that the country was in a very critical epidemiological situation in the spring and summer of 2020. The general rate of increased workload was determined by the literature data to be almost the same as in the English key sector workload at 44 percent.<sup>63</sup> In the case of Hungary, which came in third, and Montenegro, however, I was able to show a significant difference between the two groups: in

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<sup>63</sup> Salas-Nicás, S., Moncada, S., Llorens, C., & Navarro, A. (2021). Working conditions and health in Spain during the COVID-19 pandemic: Minding the gap. *Safety Science* 134. 105064. <https://doi.org/10.1016/j.ssci.2020.105064> [hereinafter referred to as Salas-Nicás (2021)]

the former, the workload of subordinates increased to a greater extent (they reported the largest increase in workload among subordinates living in the studied countries). In Montenegro, on the other hand, the workload of non-subordinates increased more, with the non-subordinate respondents in the four countries perceiving the largest increase in workload. Another peculiarity of the Hungarian situation is that due to the economic downturn and restrictions in March, not only at work, but rather at mental burdens, such as fears of unemployment and loss of income, as well as their negative effects on family relationships<sup>64,65</sup>. In relation to Montenegro, one of the most important findings is that the proportion of people working from home was the highest among the countries surveyed even before the pandemic. Probably because of this feature of telecommuting, the literature reports<sup>66</sup> that as a result of pandemic measures, the workload of those working from home has decreased, while that of other workers has increased. However, the frequency of working from home has increased the most in Spain as a result of the epidemic, which is probably best explained by the strict closure restrictions already mentioned.

In addition to the increase in workload, mandatory health and safety measures have made work significantly more complex. It is enough to think about how difficult it is to work in masks, gloves, protective clothing, for example, if we are not used to wearing them all the time. In many cases, moreover, protective equipment was not even available. Even in heavily infected countries<sup>67</sup>, 14 per cent of all workers in the spring of 2020 had neither corporate nor their own masks or protective equipment, as nearly 70 per cent of companies did not provide their subordinates with the necessary equipment at all. The lack of proper information, such as how to wear a mask or protective clothing professionally, has also been a concern on several occasions. This is also a mistake because employers should not have figured out what information to provide. The World Health Organization and, in Europe, the European Center

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<sup>64</sup> Poór et al. (2020a)

<sup>65</sup> Poór et al. (2020b)

<sup>66</sup> IJAS (2020)

<sup>67</sup> Wong, E. L., Ho, K., Wong, S. Y., Cheung, A. W., & Yeoh, E. (2020). *Workplace safety and coronavirus disease (COVID-19) pandemic: Survey of employees*. nCoV. <https://doi.org/10.2471/BLT.20.255893>

for Disease Prevention and Control have also provided detailed information on the selection and correct use of appropriate protective equipment<sup>68,69</sup>.

According to my results, the subordinates complained the most about the complication of work in Spain, Hungary is second and Montenegro is third in line. In general, the observation is that the work of non-subordinates has become more complicated than that of subordinates. This is understandable when you consider that the complication for the worker is primarily the wearing of protective equipment, as opposed to managers who are forced to comply with a number of other extraordinary rules and regulations. Spain's first place in this area is probably also explained by the fact that, given the gravity of the situation, the authorities have made it compulsory, in addition to the short circuit, to wear truly effective protective equipment<sup>70</sup>. For example, in addition to a mask, a cap had to be worn because it has been shown that the virus can also spread through fallen hair. Nevertheless, 71 percent of workers worked without adequate protective equipment during the first wave, compared to 70 percent of 16–50-year-olds and 66 percent of older workers. It is mostly low-paid women in manual occupations who have been forced to do their jobs in this way<sup>71</sup>. Today, the situation has changed, mask wearing has been recognized as a self-interest. According to a survey<sup>72</sup>, 73% of respondents now wear a mask, 1/3 of them have a high (FFP2 or FFP3) screening capacity, and 2/3 of them are traditional surgeons.

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<sup>68</sup> European Centre for Disease Prevention and Control. (2020). *Novel coronavirus disease 2019 (COVID-19) pandemic: Increased transmission in the EU/EEA and the UK – sixth update*. European Centre for Disease Prevention and Control. Retrieved from: <https://www.ecdc.europa.eu/sites/default/files/documents/RRA-sixth-update-Outbreak-of-novel-coronavirus-disease-2019-COVID-19.pdf>

<sup>69</sup> World Health Organization. (2020). *Getting your workplace ready for COVID-19: How COVID-19 spreads*. Retrieved from: <https://apps.who.int/iris/bitstream/handle/10665/331584/WHO-2019-nCov-workplace-2020.2-eng.pdf>

<sup>70</sup> Mitjà, O., Arenas, À., Rodó, X., Tobias, A., Brew, J., & Benlloch, J. M. (2020). Experts' request to the Spanish Government: Move Spain towards complete lockdown. *The Lancet* 395(10231), 1193–1194. [https://doi.org/10.1016/S0140-6736\(20\)30753-4](https://doi.org/10.1016/S0140-6736(20)30753-4)

<sup>71</sup> Salas-Nicás (2021)

<sup>72</sup> Rodríguez-Barranco, M., Rivas-García, L., Quiles, J. L., Redondo-Sánchez, D., Aranda-Ramírez, P., Llopis-González, J., Sánchez Pérez, M. J., & Sánchez-González, C. (2021). The spread of SARS-CoV-2 in Spain: Hygiene habits, sociodemographic profile, mobility patterns and comorbidities. *Environmental Research* 192. 110223. <https://doi.org/10.1016/j.envres.2020.110223> [hereinafter referred to as Rodríguez-Barranco (2021)]

The Hungarians following the Spaniards did not suffer from a shortage of protective equipment, as from March 2020 several tons of ventilators and medical devices regularly arrived by air from China<sup>73,74</sup>. Therefore, the more complicated work of our work was caused more by the mandatory wearing of protective equipment. In the case of Montenegro, however, the lack of adequate instruments was also a major problem. Even health care did not have sufficient protective equipment and this situation was further aggravated by the closure of borders and the export restrictions imposed by the shortage in the European Union.<sup>75</sup> Israel, Turkey and especially China have helped somewhat in this situation<sup>76,77</sup>. The government has also been severely criticized by the media. According to the Montenegrin Media Union, the state provided workers with masks and gloves only when there was no longer a demand for these products on the free market<sup>78</sup>. In the United Kingdom, the Health and Safety Executive (HSE) procured and distributed protective equipment and provided information on appropriate use<sup>79</sup> based on pre-established protocols<sup>80</sup>. It is no coincidence, then, that the complexity of working conditions was perceived the least by the English, as my own results show.

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<sup>73</sup> Blikk. (May 2, 2020). *Újabb szállítmány jött Kínából, több millió maszk érkezett Ferihegyre – fotók*. Retrieved from: <https://www.blikk.hu/ujabb-szallitmany-jott-kinabol-tobb-millio-maszk-erkezett-ferihegyre/drmj519>

<sup>74</sup> Portfolio. (2020). *86 lélegeztetőgép és 3 millió szájmaszk érkezett Magyarországra*. Retrieved from: <https://www.portfolio.hu/gazdasag/20200324/86-lelegeztetogep-es-3-millio-szajmaszk-erkezett-magyarorszagra-421520>

<sup>75</sup> Arežina, S. (November 18, 2020). *Post-Pandemic World and Western Balkans: Transformative Resilience as the Response to the Consequences of the COVID-19 Pandemic*. *China-CEE-Working Paper*. Retrieved from: [https://china-cee.eu/working\\_papers/post-pandemic-world-and-western-balkans-transformative-resilience-as-the-response-to-the-consequences-of-the-covid-19-pandemic/](https://china-cee.eu/working_papers/post-pandemic-world-and-western-balkans-transformative-resilience-as-the-response-to-the-consequences-of-the-covid-19-pandemic/)

<sup>76</sup> Senat. (2020). *Turkish donation is an expression of solidarity with Montenegro*. Retrieved from: <https://senat.me/en/turkish-donation-is-an-expression-of-solidarity-with-montenegro/>

<sup>77</sup> Vlada, C. G. (April 7, 2020). *17 tonnes of medical equipment delivered: Montenegro enters readily into period of coronavirus epidemic peak*. Retrieved from: <https://senat.me/en/medical-equipment-delivered-to-montenegro/>

<sup>78</sup> IJAS (2020)

<sup>79</sup> Health and Safety Executive. (December 2020). *Making your workplace COVID-secure during the coronavirus pandemic*. Retrieved from: <https://www.hse.gov.uk/coronavirus/working-safely/index.htm>

<sup>80</sup> Health and Safety Executive. (2013). *Respiratory protective equipment at work: A practical guide*. Retrieved from: <https://www.hse.gov.uk/pubns/priced/hsg53.pdf>



The reasons for the decline in income include, according to my results, the risk of infection at work. This was most feared in the UK by my own respondents, most notably subordinates. In second place, we Hungarians followed in line, which is due, among other things, to the appropriate and regular information that took place daily in the spring and second waves of the epidemic<sup>81,82</sup>, keeping an eye on the danger. Behind us are the Spaniards, whom the tragic spring has only reinforced in their fears. Montenegro closes the line in this area. Based on the results of Hungary, Spain and Montenegro, we can say that in these countries, non-subordinates were more afraid of infection at work. This may also be explained by the fact that the subordinates - just for fear of losing their jobs and income - preferred to work, so he stated that he was not afraid of infection. The risk of infection, of course, exists in all countries. In the first wave of the epidemic in the UK, 80 per cent of those infected came from health and social care workers<sup>83</sup>. According to Spanish research, work in the workplace increased the risk of infection by 76 percent<sup>84</sup>, primarily indoors – this includes 92 percent of jobs. It is no coincidence that 68 percent of workers are still afraid of infection today<sup>85</sup>. Probably due to the high level of transfection, in Spain, in addition to factories, home transmission is also a common site of infection<sup>86</sup>. Although I have comprehensively analyzed the hazards of infection in the workplace here in the discussion, it should not be forgotten that this hazard varies significantly from job to job<sup>87</sup>. With regard to infection, I refer back to my finding in the road analysis that working from home has a direct effect on the one hand and an indirect effect on reducing the chances of infection on the other hand by reducing the chances of infection.

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<sup>81</sup> Infostart. (13 March, 2020). *Ma 16 órákor ad tájékoztatást az operatív törzs – előben itt és az InfoRádióban*. Retrieved from: <https://infostart.hu/belfold/2020/03/13/ma-16-orakor-ad-tajekoztatatast-az-operativ-torz-loben-itt-es-az-inforadioban>

<sup>82</sup> Pénzcentrum. (19 September, 2020). *Élőben az Operatív Törzs: Új szakaszba ért a járványkezelés—Pénzcentrum*. Retrieved from: <https://www.penzcentrum.hu/biztositas/eloben-az-operativ-torz-uj-szakaszba-ert-a-jarvanykezeles.1102786.html>

<sup>83</sup> Agius, R. M., Robertson, J. F. R., Kendrick, D., Sewell, H. F., Stewart, M., & McKee, M. (2020). Covid-19 in the workplace. *British Medical Journal* (370), m3577. <https://doi.org/10.1136/bmj.m3577>

<sup>84</sup> Rodríguez-Barranco (2021)

<sup>85</sup> Salas-Nicás (2021)

<sup>86</sup> Marks, M., Millat-Martinez, P., Ouchi, D., Roberts, C. h, Alemany, A., Corbacho-Monné, M., Ubals, M., Tobias, A., Tebé, C., Ballana, E., Bassat, Q., Baro, B., Vall-Mayans, M., G-Beiras, C., Prat, N., Ara, J., Clotet, B., & Mitjà, O. (2021). Transmission of COVID-19 in 282 clusters in Catalonia, Spain: A cohort study. *The Lancet Infectious Diseases*, 21(5), 629–636. [https://doi.org/10.1016/S1473-3099\(20\)30985-3](https://doi.org/10.1016/S1473-3099(20)30985-3)

<sup>87</sup> Csizmadia P., & Illésy M. (2020). *A nagy leállás: A magyar munkahelyek közel fele került veszélybe*. MTA-Társadalomtudományi Kutatóközpont. Retrieved from: [https://szociologia.tk.hu/uploads/files/Csizmadia-Illessy\\_A\\_virus\\_es\\_a\\_munka-F.pdf](https://szociologia.tk.hu/uploads/files/Csizmadia-Illessy_A_virus_es_a_munka-F.pdf)

Finally, a few words about the model's explained variable, income decline. Of the four countries examined, this affected Hungarians the most, and those living in the United Kingdom the least. In general, we can say that the income of non-subordinates has decreased, but the most sensitive layer is still subordinates. This layer was also protected by significant measures in Hungary (job protection, wage subsidies). According to the literature, the decline in income in Hungary affects 2 to 2.5 million people. The most affected are men in Budapest aged 40-60 with a secondary education. The average rate of decline is 18 percent<sup>88</sup>. I would also like to highlight the situation in Montenegro in this area, where, due to the high share of the informal economy, it is practically impossible to realistically assess the real income situation on the basis of official state data alone<sup>89</sup>.

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<sup>88</sup> Tóth I. G., & Hudácskó S. (2020). A koronavírus-járvány társadalmi hatásai a közvélemény-kutatások tükrében. In: *Kolosi Tamás, Szelényi Iván, Tóth István György (Eds.) Társadalmi Ríport 2020* (p. 20). Retrieved from: [https://www.tarki.hu/sites/default/files/2020-10/553\\_572\\_Toht\\_Hudacsko\\_web.pdf](https://www.tarki.hu/sites/default/files/2020-10/553_572_Toht_Hudacsko_web.pdf)

<sup>89</sup> Dugarova, E. (2020). Unpaid care work in times of the COVID-19 crisis: Gendered impacts, emerging evidence and promising policy responses. *UN Expert Group Meeting*, 19. Retrieved from: [http://www.bollettinoadapt.it/wp-content/uploads/2020/11/Duragova.Paper\\_.pdf](http://www.bollettinoadapt.it/wp-content/uploads/2020/11/Duragova.Paper_.pdf)

## 5. SUMMARY

With my questionnaire study, I analyzed the effects of the coronavirus epidemic on people's lives in four European countries, primarily on their income trends. I was able to identify certain factors influencing income and their national and demographic differences. I have shown how my work fits into a segment of the literature that has been rarely analyzed so far. I hope that the results obtained and the new information gained from them can help not only to deal with the current crisis, but also to resolve similar future situations.

In the first weeks of the COVID-19 epidemic, governments in economically developed countries paid unprecedented levels of emergency aid to keep households and companies afloat, protect jobs and incomes, and prevent economic collapse. Policy makers need to maintain the results achieved and modify the composition and characteristics of grants, and target them where they are most needed, and encourage them to return to work where possible. The subsidies have helped companies and businesses to maintain their liquidity and have helped them halt the massive rise in unemployment in the initial weeks. The pandemic did not affect everyone in the same way, for example, it made it much more difficult for people living on income from the informal economy, who were not reached by targeted state aid, and who are not covered by the health and social safety net.

The conclusion to be drawn from the literature that the loss of jobs and income affected women more than men was also supported by my own results. Many women who are still working are at the forefront of providing basic services (e.g., nurses and nurses, but also hairdressers, beauticians, artificial nails) while risking coronavirus infection. In addition, the increased burden of unpaid care caused by the crisis has particularly affected women. This raises the risk that the progress made by the G20 countries on gender equality in recent decades may stall or even reverse.

Overcoming the crisis will be a multi-step and cross-cutting process. The basic condition is the root cause, i.e., the control of the epidemic, for which several vaccinations are now available. In addition, however, it will still be necessary to maintain health protection measures for a long time to come, and their easing will only be gradual. Based on the literature review, the indicators selected for my own study (workload, risk of infection, use of protective equipment, short-term measures) were the risk of infection, the main reason for the decline in income, which can be explained by a pandemic crisis.

My results can be used, on the one hand, to establish an expandable international database, which allows for increasingly nuanced analyzes with its gradually expanding data. With the help of these, the factors that affect the income conditions of households in a crisis situation caused by a pandemic can be assessed in an increasingly nuanced way. In addition to the factors examined in the current research model, other indicators could be included in future studies, such as research on how incomes evolve in the public and private sectors. My present research helps to resolve similar situations in the future, drawing attention to the importance of informing employees, for example, about the use of protective equipment. Increased workload can be reduced in part through proper organization, in which human resource professionals and all methods to reduce the stress caused by increased workload play a key role. It is advantageous, not only from the point of view of the epidemic situation, to maintain the possibilities of telework even after the epidemic has taken place. This allows for cost reductions for the employer, more flexible working conditions for employees and simpler work, for example without protective equipment. Based on experience, it is worthwhile to develop corporate and personal strategies now that will help you adapt quickly to a similar situation in the future.

This dissertation was closed on March 3, 2021, data and information reflect events that occurred up to the date of closure.

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## 8. ANNEXES

### 8.1. Certificate of Participation in Consultations

#### Appendix 3

#### *Certificate of participation in consultations*

#### *Certificate of participation in consultations (for thesis)*

Name of student:	Botond Kálmán
Neptun ID of student:	D9LRVD
Program, specialization:	International Public Service Relations
Level of program (Bachelor's/Master's):	Master's
Type of program (part-time/full time):	part-time
Title of thesis:	The Impact of COVID-19 on People's Lives and Its Economic Impact in Four European Countries
Name of supervisor:	Edina Kriskó, PhD
Workplace and position of supervisor:	Assistant Professor at the Department of Human Resources

1. The above-mentioned student participated in thesis consultation. Date of the consultation: 15. / 3. / 2021. (day/month/year). Type of consultation: personal / electronic. *(please underline)*  
 day month year, Budapest

.....  
 Signature of supervisor

2. The above-mentioned student participated in thesis consultation. Date of the consultation: 28. / 10. / 2021. (day/month/year). Type of consultation: personal / electronic. *(please underline)*  
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3. The above-mentioned student participated in thesis consultation. Date of the consultation: 3. / 11. / 2021. (day/month/year). Type of consultation: personal / electronic. *(please underline)*  
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#### Annex 1 Certificate of participation in consultations

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Annex 2 Plagiarism statement

### 8.3. Author's Permission

#### Author's permission (for thesis)

Name of student:	Botond Kálmán
Faculty:	Faculty of Public Governance and International Studies
Department (of supervisor):	Department of Human Resources
Program, specialization:	MA in International Public Service Relations (part-time)
Title of thesis:	The Impact of COVID-19 on People's Lives and Its Economic Impact in Four European Countries
Year:	2021

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Annex 3 Author's permission



## 9. APPENDIX

### 9.1. Characteristics of the Sample

Question	N	Min	Max	Mean	St. Dev.	F	df1	df2	Sig.
<b>Q1</b>	899	1	5	3.74	1.02	49.03	7	891	<0.001
<b>Q2</b>	899	1	5	3.04	1.31	90.72	7	891	<0.001
<b>Q3</b>	899	1	5	1.69	0.75	44.46	11	887	<0.001
<b>Q4</b>	899	1	5	2.28	1.16	25.18	7	891	<0.001
<b>Q5</b>	899	2	5	3.94	0.82	26.82	4	894	<0.001
<b>Q6*</b>	899	1	4	1.97	0.75	NA	NA	NA	NA
<b>Q5_6</b>	899	-4	2	-1.97	1.10	14.93	7	891	<0.001
<b>Q7</b>	899	1	5	1.95	0.89	50.59	11	887	<0.001
<b>Q8</b>	899	1	5	3.80	0.98	NA	NA	NA	NA
<b>Q7_8</b>	899	-4	4	1.85	1.41	58.22	11	887	<0.001

**Table 3** Descriptive statistics of answers given to the survey questions and global statistics of the fitted linear models

\* I did not fit a separate model to questions Q6 and Q8 but analyzed the difference between answers given to question pairs 5–6 (Q5\_6) and 7–8 (Q7\_8)

		UK		HU		MN		ES	
		Freq	%	Freq	%	Freq	%	Freq	%
Gender	Respondents	261	29.0	314	34.9	145	16.1	179	19.9
	Men	104	39.8	103	32.8	70	48.3	48	26.8
	Women	157	6.2	211	67.2	75	51.7	131	73.2
Education	Elementary	20	7.7	2	0.6	1	0.7	9	5.0
	Secondary	82	31.4	67	21.3	27	18.6	53	29.6
	Tertiary	159	6.9	245	78.0	117	8.7	117	65.4
	Miscellaneous	0	0.0	0	0.0	0	0.0	0	0.0
Mode of employment	Employee	104	39.8	239	76.1	45	31.0	120	67.0
	Not employee	157	60.2	75	23.9	100	69.0	59	33.0
Working hours	Full-time	130	49.8	246	78.3	117	80.7	161	89.9
	Part-time	126	48.3	62	19.7	23	15.9	13	7.3
	Miscellaneous	5	1.9	6	1.9	5	3.4	5	2.8
Employment contract	Of indefinite duration	186	71.3	187	59.6	129	89.0	145	81.0
	Fixed term	75	28.7	122	38.9	12	8.3	23	12.8
	Miscellaneous	0	0.0	5	1.6	4	2.8	11	6.1
Scope of duties performed	Manual work	189	72.4	251	79.9	115	79.3	152	84.9
	Intellectual work	33	12.6	55	17.5	14	9.7	11	6.1
	Miscellaneous	39	14.9	8	2.5	16	11.0	16	8.9

Table 4 Characteristics of the sample

		$\Delta$ Work-load	$\Delta$ Working conditios	$\Delta$ Income	$\Delta$ COVID-19	$\Delta$ Encoun- ters	$\Delta$ Tele- working
UK	Valid	261	261	261	261	261	261
	Missing	0	0	0	0	0	0
	M	3.95	2.79	1.54	2.76	-1.49	1.81
	SD	0.82	1.45	0.51	1.39	1.16	1.00
	Med	4	2	2	3	-2	2
	Skew	0.10	0.45	-0.01	0.20	0.53	0.12
	Kurt	-1.51	-1.20	-1.60	-1.15	1.13	0.48
	Min	3	1	1	1	-4	-2
	Max	5	5	3	5	2	4
HU	Valid	314	314	314	314	314	314
	Missing	0	0	0	0	0	0
	M	3.89	3.39	1.93	2.28	-1.87	1.59
	SD	0.91	1.17	1.06	1.05	1.19	2.00
	Med	4	3	2	2	-2	2
	Skew	-0.26	-0.11	1.40	0.68	0.15	-1.09
	Kurt	-0.92	-1.03	1.60	0.33	-0.55	0.44
	Min	2	1	1	1	-4	-4
	Max	5	5	5	5	1	4
MN	Valid	145	145	145	145	145	145
	Missing	0	0	0	0	0	0
	M	3.52	3.15	2.28	2.19	-2.17	0.83
	SD	1.18	1.14	1.05	1.04	1.08	1.58
	Med	4	3	2	2	-2	1
	Skew	-0.60	-0.24	0.35	0.42	0.18	0.13
	Kurt	-0.40	-0.71	-1.07	-1.01	-0.65	-0.81
	Min	1	1	1	1	-4	-2
	Max	5	5	4	4	0	4
ES	Valid	179	179	179	179	179	179
	Missing	0	0	0	0	0	0
	M	3.91	3.91	1.64	2.07	-2.18	2.03
	SD	0.85	0.89	0.63	0.98	1.25	1.18
	Med	4	4	2	2	-2	2
	Skew	0.01	-0.20	0.99	0.55	0.41	-0.17
	Kurt	-1.27	-1.02	2.34	-0.57	-0.21	-0.67
	Min	2	2	1	1	-4	-1
	Max	5	5	4	5	1	4

Table 5 Impact of pandemic on the factors of work

	Nonemployee		Employee	
	Woman	Man	Woman	Man
<b>Hungary</b>	0.5087	0.7760	1.7730	0.8594
<b>Montenegro</b>	0.2640	0.4028	1.6597	3.8926
<b>Spain</b>	0.7545	0.5242	2.0832	0.8941
<b>United Kingdom</b>	0.5087	0.7760	1.7730	0.8594

Table 6 Weightings applied during the analysis

## 9.2. Summarizing Tables Specific to Linear Models

Model	R <sup>2</sup>	Country	Position	Gender	Country * Position	Country * Gender
<b>Q1</b>	0.2781	0.0307	0.0034	NA	0.1256	NA
<b>Q2</b>	0.4161	0.1638	0.0840	NA	0.2427	NA
<b>Q3</b>	0.3554	0.1432	0.1828	0.0008	0.3495	0.1965
<b>Q4</b>	0.1652	0.0451	0.0246	NA	0.1085	NA
<b>Q5</b>	0.1071	0.2161	0.1845	NA	NA	NA
<b>Q5_6</b>	0.1050	0.0514	0.0325	NA	0.1612	NA
<b>Q7</b>	0.3855	0.1889	0.1189	0.0011	0.2910	0.1547
<b>Q7_8</b>	0.4193	0.0843	0.2030	0.0031	0.3822	0.1246

Table 7 Explained variance of linear models and partial Eta squared values of parameters

Variable	Intercept (1)	Country (3)	Position (1)	Gender (1)	Country* Position (3)	Country* Gender (3)
<b>Q1 (891)</b>	5704.545	110.257	12.867	NA	37.778	NA
<b>Q2 (891)</b>	3246.365	190.737	5.439	NA	51.905	NA
<b>Q3 (887)</b>	744.573	3.669	384.304	0.405	92.527	2.881
<b>Q4 (891)</b>	1008.758	47.126	27.907	NA	12.665	NA
<b>Q5 (894)</b>	8068.855	26.163	24.380	NA	NA	NA
<b>Q5_6 (891)</b>	946.468	20.045	5.586	NA	4.522	NA
<b>Q7 (887)</b>	565.828	31.940	212.943	0.385	70.115	11.629
<b>Q7_8 (887)</b>	818.753	21.312	537.820	4.046	122.883	3.119

Table 8 F statistics of linear models' parameters. (Parameters' and remainders' degree of freedom indicated in parentheses)

1

	Intercept	Country	Position	Gender	Country* Position	Country* Gender
<b>Q1</b>	<0.001	<0.001	<0.001	NA	<0.001	NA
<b>Q2</b>	<0.001	<0.001	0.020	NA	<0.001	NA
<b>Q3</b>	<0.001	0.012	<0.001	0.525	<0.001	0.035
<b>Q4</b>	<0.001	<0.001	<0.001	NA	<0.001	NA
<b>Q5</b>	<0.001	<0.001	<0.001	NA	NA	NA
<b>Q5_6</b>	<0.001	<0.001	0.018	NA	0.004	NA
<b>Q7</b>	<0.001	<0.001	<0.001	0.535	<0.001	<0.001
<b>Q7_8</b>	<0.001	<0.001	<0.001	0.045	<0.001	0.025

Table 9 Significance values of linear models' parameters

### 9.3. Summarizing Tables Specific to Each Model

<b>Q1</b>	<b>Employment status</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>Country</b>	<b>Group average</b>	<b>3.83</b>	<b>3.56</b>
<b>HU</b>	<b>3.77</b>	3.53	4.01
<b>MN</b>	<b>3.20</b>	4.06	2.35
<b>ES</b>	<b>3.87</b>	3.77	3.98
<b>UK</b>	<b>3.94</b>	3.96	3.92

Table 10 Q1 – Estimated marginal averages of answers to question "How has the current pandemic changed your workload?" by country and grade

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	0.202	0.773

Table 11 Q1 – Significance values of employment-based differences in the estimated marginal averages of the answers to the question "How has the current pandemic changed your workload?" by country and in the bulk sample

<b>Country</b>	<b>Together</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>HU – MN</b>	<0.001	0.031	<0.001
<b>HU – ES</b>	0.769	0.594	0.978
<b>HU – UK</b>	0.247	0.039	0.677
<b>MN – ES</b>	<0.001	0.505	<0.001
<b>MN – UK</b>	<0.001	0.939	<0.001
<b>ES – UK</b>	0.918	0.721	0.936

Table 12 Q1 – Significance values of the estimated marginal averages of the answers to question "How has the current pandemic changed your workload?" between countries and in the whole sample

<b>Q2</b>	<b>Employment status</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>Country</b>	<b>Group average</b>	<b>3.51</b>	<b>2.88</b>
<b>HU</b>	<b>3.32</b>	3.13	3.50
<b>MN</b>	<b>3.01</b>	3.43	2.58
<b>ES</b>	<b>3.86</b>	3.85	3.87
<b>UK</b>	<b>2.59</b>	3.61	1.57

Table 13 Q2 – Estimated marginal averages of the answers to question "How complicated did the pandemic make your work (e.g., you had to wear protective equipment, higher standards of hygiene, the need for online communication)?" by country and employment status

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	0.938	<0.001

**Table 14 Q2 – Significance values of employment-based differences in the estimated marginal averages of the answers to question “How complicated did the pandemic make your work (e.g., you had to wear protective equipment, higher standards of hygiene, the need for online communication)?” by country and in the bulk sample**

<b>Country</b>	<b>Together</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>HU – MN</b>	0.063	0.550	<0.001
<b>HU – ES</b>	<0.001	0.007	0.002
<b>HU – UK</b>	<0.001	0.049	<0.001
<b>MN – ES</b>	<0.001	0.290	<0.001
<b>MN – UK</b>	0.003	0.811	<0.001
<b>ES – UK</b>	<0.001	0.644	<0.001

**Table 15 Q2 – Significance values of the estimated marginal averages of the answers to the question “How complicated did the pandemic make your work (e.g., you had to wear protective equipment, higher standards of hygiene, the need for online communication)?” between countries and in the whole sample**

<b>Q3 Country</b>	<b>Employment status Group average</b>	<b>Nonemployee</b>	<b>Employee</b>
		<b>2.30</b>	<b>1.57</b>
<b>HU</b>	<b>2.40</b>	3.33	1.48
<b>MN</b>	<b>2.09</b>	2.59	1.58
<b>ES</b>	<b>1.68</b>	1.79	1.57
<b>UK</b>	<b>1.57</b>	1.49	1.64

**Table 16 Q3 – Estimated marginal averages of the answers to the question “To what extent has your monthly income decreased because of the pandemic and lockdown?” by country and employment status**

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Manager – Employee</b>	<0.001	<0.001	<0.001	0.051	0.072

**Table 17 Q3 – Significance values of the estimated marginal averages of the answers to question “To what extent has your monthly income decreased because of the pandemic and lockdown?” between the groups of each classification by country and in the whole sample**

Country	Together	Manager	Employment status
HU – MN	<0.001	<0.001	0.436
HU – ES	<0.001	<0.001	0.487
HU – UK	<0.001	<0.001	0.025
MN – ES	<0.001	<0.001	0.998
MN – UK	<0.001	<0.001	0.843
ES – UK	0.393	0.080	0.686

Table 18 Q3 – Significance values of the estimated marginal averages of the answers to question “To what extent has your monthly income decreased because of the pandemic and lockdown?” by country

Q3 Country	Gender Group average	Woman 1.90	Man 1.97
HU	2.40	2.38	2.43
MN	2.09	2.24	1.93
ES	1.68	1.68	1.68
UK	1.57	1.59	1.55

Table 19 Q3 – Estimated marginal averages of the answers to the question “To what extent has your monthly income decreased because of the pandemic and lockdown?” by country and gender

Gender	Together	HU	MN	ES	UK
Woman – Man	0.075	0.525	0.003	0.978	0.586

Table 20 Q3 – Significance values of gender-based differences in the estimated marginal averages of the answers to the question “To what extent has your monthly income decreased because of the pandemic and lockdown?” by country

Country	Together	Woman	Man
HU – MN	<0.001	0.547	<0.001
HU – ES	<0.001	<0.001	<0.001
HU – UK	<0.001	<0.001	<0.001
MN – ES	<0.001	<0.001	0.053
MN – UK	<0.001	<0.001	<0.001
ES – UK	0.393	0.791	0.414

Table 21 Q3 – Significance values of the country-based differences in the estimated marginal averages of the answers to the question “To what extent has your monthly income decreased due to the pandemic and lockdown?” by gender

<b>Q4 Country</b>	<b>Employment status Group average</b>	<b>Nonemployee 2.62</b>	<b>Employee 2.11</b>
<b>HU</b>	<b>2.52</b>	2.96	2.08
<b>MN</b>	<b>2.02</b>	2.47	1.57
<b>ES</b>	<b>2.16</b>	2.44	1.88
<b>UK</b>	<b>2.77</b>	2.62	2.92

**Table 22 Q4 – Estimated marginal averages of the answers to question “What is the chance of becoming infected with COVID-19 at work?” by country and employment status**

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	0.005	0.037

**Table 23 Q4 – Significance values of employment-based differences in the estimated marginal averages of the answers to the question “What is the chance of becoming infected with COVID-19 at work?” by country and in the bulk sample**

<b>Country</b>	<b>Together</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>HU – MN</b>	0.001	0.164	<0.001
<b>HU – ES</b>	0.033	0.131	0.276
<b>HU – UK</b>	0.105	0.309	<0.001
<b>MN – ES</b>	0.751	1.000	0.095
<b>MN – UK</b>	<0.001	0.903	<0.001
<b>ES – UK</b>	<0.001	0.857	<0.001

**Table 24 Q4 – Significance values of country-based differences in the estimated marginal averages of the answers to the question “What is the chance of becoming infected with COVID-19 at work?” by employment status and in the bulk sample**

<b>Employee status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	<0.001	<0.001

**Table 25 Q5 – Significance values of employment-based differences in the estimated marginal averages of the answers to the question “How often did you meet other people (colleagues, customers, suppliers) on weekdays before the pandemic and lockdown?” between different employment status by country and in the bulk sample**



Country	Together
HU – MN	<0.001
HU – ES	0.758
HU – UK	<0.001
MN – ES	<0.001
MN – UK	<0.001
ES – UK	0.015

**Table 26 Q5** – Significance values of country-based differences in the estimated marginal averages of the answers to the question “How often did you meet other people (colleagues, customers, suppliers) on weekdays before the pandemic and lockdown?” in the bulk sample

Q5_6	Employment status	Nonemployee	Employee
Country	Group average	<b>-1.64</b>	<b>-2.14</b>
HU	<b>-1.78</b>	-1.59	-1.98
MN	<b>-2.21</b>	-2.12	-2.31
ES	<b>-2.00</b>	-1.45	-2.55
UK	<b>-1.55</b>	-1.40	-1.71

**Table 27 Q5\_6** – Estimated marginal averages of the answers to the question “How has the frequency of your encounters with other people (colleagues, customers, suppliers) changed from the pre-pandemic and pre-closure period to the post-pandemic period?” by country and employment status

Employment status	Together	HU	MN	ES	UK
<b>Nonemployee – Employee</b>	<0.001	0.018	0.353	<0.001	0.033

**Table 28 Q5\_6** – Significance values of employment-based differences in the estimated marginal averages of the answers to the question “How has the frequency of your encounters with other people (colleagues, customers, suppliers) changed from the pre-pandemic and pre-closure period to the post-pandemic period?” by country and in the bulk sample

Country	Together	Nonemployee	Employee
HU – MN	0.006	0.110	0.029
HU – ES	0.339	0.929	<0.001
HU – UK	0.153	0.763	0.036
MN – ES	0.442	0.040	0.258
MN – UK	<0.001	0.005	<0.001
ES – UK	0.002	0.996	<0.001

**Table 29 Q5\_6** – Significance values of country-based differences in the estimated marginal averages of the answers to the question “How has the frequency of your encounters with other people (colleagues, customers, suppliers) changed from the pre-pandemic and pre-closure period to the post-pandemic period?” by employment status and in the bulk sample

<b>Mode of employment</b>	<b>Together</b>
Miscellaneous – Part-time	0.775
Miscellaneous – Full-time	0.295
Part-time – Full-time	0.093

**Table 30 Q5\_6 – Significance values of the differences according to mode of employment in the estimated marginal averages of the answers to the question “How has the frequency of your encounters with other people (colleagues, customers, suppliers) changed from the pre-pandemic and pre-closure period to the post-pandemic period?” in the bulk sample**

<b>Q7</b>	<b>Employment</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>Country</b>	<b>Group average</b>	<b>2.67</b>	<b>1.91</b>
HU	2.29	3.19	1.51
MN	2.74	3.54	2.24
ES	1.65	1.90	1.50
UK	2.11	2.07	2.38

**Table 31 Q7 – Estimated marginal averages of the answers to the question “How often did you work from home before the pandemic and the lockdown?” by country and employment**

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	0.006	0.002

**Table 32 Q7 – Significance values of employment-based differences in the estimated marginal averages of the answers to the question “How often did you work from home before the pandemic and the lockdown?” by country and in the bulk sample**

<b>Country</b>	<b>Together</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>HU – MN</b>	<0.001	0.012	0.012
<b>HU – ES</b>	<0.001	<0.001	>0.999
<b>HU – UK</b>	0.119	<0.001	<0.001
<b>MN – ES</b>	<0.001	<0.001	<0.001
<b>MN – UK</b>	<0.001	<0.001	0.315
<b>ES – UK</b>	<0.001	0.834	<0.001

**Table 33 Q7 – Significance values of country-based differences in the estimated marginal averages of the answers to the question “How often did you work from home before the pandemic and the lockdown?” by position and in the bulk sample**

<b>Q7_8</b>	<b>Employment status</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>Country</b>	<b>Group average</b>	<b>0.72</b>	<b>2.03</b>
<b>HU</b>	<b>0.65</b>	-1.31	2.61
<b>MN</b>	<b>1.01</b>	0.40	1.62
<b>ES</b>	<b>2.01</b>	1.84	2.18
<b>UK</b>	<b>1.83</b>	1.95	1.72

**Table 34 Q7\_8 – Estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by country and employment**

<b>Employment status</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Nonemployee – Employee</b>	<0.001	<0.001	<0.001	0.098	0.123

**Table 35 Q7\_8 – Significance values of employment-based differences in the estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by country and in the bulk sample**

<b>Country</b>	<b>Together</b>	<b>Nonemployee</b>	<b>Employee</b>
<b>HU – MN</b>	0.040	<0.001	<0.001
<b>HU – ES</b>	<0.001	<0.001	0.001
<b>HU – UK</b>	<0.001	<0.001	<0.001
<b>MN – ES</b>	<0.001	<0.001	<0.001
<b>MN – UK</b>	<0.001	<0.001	0.883
<b>ES – UK</b>	0.495	0.965	0.001

**Table 36 Q7\_8 – Significance values of country-based differences in the estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by employment and in the bulk sample**

<b>Q7_8</b>	<b>Gender</b>	<b>Woman</b>	<b>Man</b>
<b>Country</b>	<b>Group average</b>	<b>1.43</b>	<b>1.32</b>
<b>HU</b>	<b>0.65</b>	0.77	0.53
<b>MN</b>	<b>1.01</b>	0.86	1.17
<b>ES</b>	<b>2.01</b>	2.09	1.94
<b>UK</b>	<b>1.83</b>	2.02	1.65

**Table 37 Q7\_8 – Estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by country and gender**

<b>Gender</b>	<b>Together</b>	<b>HU</b>	<b>MN</b>	<b>ES</b>	<b>UK</b>
<b>Women – Men</b>	0.133	0.535	<0.001	0.950	<0.001

**Table 38 Q7\_8 – Significance values of gender-based differences in the estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by country and in the bulk sample**

Country	Together	Women	Men
HU – MN	0.040	0.969	<0.001
HU – ES	<0.001	<0.001	<0.001
HU – UK	<0.001	<0.001	<0.001
MN – ES	<0.001	<0.001	<0.001
MN – UK	<0.001	<0.001	0.012
ES – UK	0.495	0.975	0.260

**Table 39 Q7\_8 – Significance values of country-based differences in the estimated marginal averages of the answers to the question “How much more often did you work from home during the pandemic and lockdown than before?” by gender and in the bulk sample**

#### 9.4. Tables of Path Analysis

	Q2	Q1	Q4	Q7_8
Q1	0.053 (0.055+0.002)	-0.002 (0+0.002)	0.051 (0.051+0)	-0.009 (0+0.009)
Q4	-0.050 (0+0.050)	-0.070 (0+0.070)	-0.002 (0+0.002)	-0.252 (-0.253+0.001)
Q7_8	0.169 (0.151+0.018)	0.240 (0.241+0.001)	0.009 (0+0.009)	-0.002 (0+0.002)
Q3	-0.111 (0.001+0.112)	-0.122 (0.041+0.163)	0.187 (0.191+0.004)	-0.571 (-0.522+0.049)

**Table 40 Full and (direct + indirect) effects included in the road model of the Hungarian sub-sample**

	Q2	Q1	Q4	Q7_8
Q1	0.190 (0.188+0.002)	0.003 (0+0.003)	0.208 (0.207+0.001)	-0.026 (0+0.026)
Q4	0.006 (0+0.006)	0.01 (0+0.01)	0.003 (0+0.003)	-0.120 (-0.120+0)
Q7_8	0.202 (0.176+0.026)	-0.127 (-0.127+0)	-0.033 (0+0.033)	0.003 (0+0.003)
Q3	0.166 (0.096+0.070)	0.214 (0.217+0.003)	0.299 (0.207+0.092)	-0.016 (-0.034+0.018)

**Table 41 Full and (direct + indirect) effects in the road model of the Montenegrin sub-sample**

	<b>Q2</b>	<b>Q1</b>	<b>Q4</b>	<b>Q7_8</b>
<b>Q1</b>	-0.092 (-0.090+-0.002)	0 (0+0)	-0.114 (-0.114+0)	0.018 (0+0.018)
<b>Q4</b>	0.012 (0+0.012)	-0.002 (0+-0.002)	0 (0+0)	-0.052 (-0.052+0)
<b>Q7_8</b>	-0.174 (-0.172+-0.002)	-0.001 (-0.001+0)	-0.003 (0+-0.003)	0 (0+0)
<b>Q3</b>	0.221 (0.198+0.023)	-0.140 (-0.140+0)	0.186 (0.159+0.027)	0.006 (0.028+-0.022)

**Table 42 Full and (direct + indirect) effects in the road model of the Spanish sub-sample**

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	<b>Q2</b>	<b>Q1</b>	<b>Q4</b>	<b>Q7_8</b>
<b>Q1</b>	-0.033 (-0.033+0)	0 (0+0)	-0.024 (-0.024+0)	0 (0+0)
<b>Q4</b>	-0.002 (0+-0.002)	-0.001 (0+-0.001)	0 (0+0)	0.002 (0.002+0)
<b>Q7_8</b>	0.133 (0.139+-0.005)	0.041 (0.041+0)	0 (0+0)	0 (0+0)
<b>Q3</b>	-0.024 (-0.020+-0.004)	-0.006 (-0.005+- 0.001)	0.032 (0.032+0)	-0.015 (-0.015+0)

**Table 43 Full and (direct + indirect) effects included in the path model of the UK sub-sample**

## 10. ANNOTATION

In my dissertation I examined the question of how the global economic downturn due to the coronavirus pandemic and short-term constraints affected labor incomes. I was also curious about the factors that influence the development of incomes in such a crisis situation. Because I based my sampling on my personal contact capital, I received responses to my questionnaire from four countries: in addition to Hungary, Montenegro, Spain, and the United Kingdom. As a result of the sampling method, the lack of representativeness of my sample was compensated by weighting. A total of 899 people completed the questionnaire, and I received well over one hundred items in all four countries surveyed.

Summing up my results, it can be said that incomes have decreased in all countries, but of course not to the same extent. The decrease is influenced by several factors, including the increase in workload, the risk of infection at work, the more complicated working conditions (wearing protective equipment) and teleworking by analyzing regression and road models. Based on my findings, it can be said that women and subordinates are more sensitive to the effects of the crisis. Among the factors influencing the development of incomes, the effect of the risk of infection is the strongest. At a very important macroeconomic level, the involvement of the state (fiscal measures, legal background) and the central bank (monetary balance) is essential. At the micro, i.e., company level, the task of human resource management is to plan and implement workplace protection measures.

I hope that my results can help address crisis issues and serve as a basis for further research in this area of science.

# Nyilatkozat

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Kérem továbbá a szakdolgozatomat nyilvánosan hozzáférhetővé tenni.

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