

# **Characteristics of Crisis Management Measures in the HR Area during the Pandemic in Hungary – Literature Review and Methodology**

**Krisztina Dajnoki, András István Kun**

University of Debrecen Faculty of Economics and Business, Böszörményi út 138,  
H-4032 Debrecen, Hungary, e-mail: 1; kun.andras.istvan@econ.unideb.hu

**József Poór**

J. Selye University Faculty of Economics and Informatics, Bratislavská cesta  
3322, 945 01 Komárno, Slovakia, e-mail: poorj@ujvs.sk

**Ákos Jarjabka**

University of Pécs Faculty of Business and Economics, Rákóczi út 80, H-7622  
Pécs, Hungary, e-mail: jarjabka.akos@ktk.pte.hu

**Botond Géza Kálmán**

Budapest Metropolitan University, Institute of Business  
Nagy Lajos király útja 1-9, 1148 Budapest, eupemq@instructor.metropolitan.hu

**Zsolt Sándor Kőműves**

Hungarian University of Agriculture and Life Sciences Kaposvár Campus, Guba  
Sándor utca 40, H-7400 Kaposvár, Hungary, e-mail: Komuves.Zsolt.Sandor@uni-  
mate.hu

**Beáta Pató Szűcs**

Eötvös Loránd University Faculty of Social Sciences, Egyetem tér 1-3, H-1053  
Budapest, Hungary, e-mail: szucs.beata@sek.elte.hu

**Katalin Szabó**

Hungarian University of Agriculture and Life Sciences Gödöllő Campus, Páter Károly utca 1, H-2100 Gödöllő, Hungary, e-mail: Szabo.Katalin@uni-mate.hu

**Szilvia Szabó**

Budapest Metropolitan University Institute of Business, Nagy Lajos király útja 1-9, H-1148 Budapest, Hungary, e-mail: szszabo@metropolitan.hu

**Zsuzsanna Szeiner**

J. Selye University Faculty of Economics and Informatics, Bratislavská cesta 3322, 945 01 Komárno, Slovakia, e-mail: szeinerzs@ujjs.sk

**Arnold Tóth**

Budapest Business School Faculty of Finance and Accountancy, Buzogány utca 10-12, H-1149 Budapest, Hungary, e-mail: toth.arnold@uni-bge.hu

**Imola Csehné Papp**

Eötvös Loránd University Faculty of Education and Psychology, Kazinczy u. 23-27, H-1075 Budapest, Hungary, e-mail: papp.imola@ppk.elte.hu

---

*Abstract: In the present research we deal with the questions of what responses, solutions, and practices Hungarian organisations used to mitigate the impact of the pandemic and the changes caused by it, with particular attention to the area of Human Resource Management. Do they typically view the current crisis as a problem or an opportunity? This study has been divided into two papers. In this article, the authors review the international and Hungarian literature to reveal the most important negative and positive effects and aspects of epidemics from the theoretical as well as the practical aspect. The findings support that the typical measures and solutions of previous crises in history are partially or fully recurring. However, the current crisis has a very peculiar characteristic: the application of lockdowns. After the description of the general international context based on literature, we develop empirical hypotheses and describe the methodology of the conducted countrywide questionnaire survey. The survey results and the conclusions of the analysis are presented in a second article. In our opinion, the pandemic has reminded us of the extraordinary degree of interconnectedness of the world.*

*Thus, studies from individual countries – such as Hungary – and regions can provide important local insights in finding global solutions*

*Keywords: COVID-19; pandemic; crisis; human resource management; home office*

---

## **1 Introduction**

The COVID-19 pandemic had drastic consequences for the entire society. It can be generally stated that the poor and vulnerable people in the world [1, 2], as well as those who are more exposed (young people, migrants, and the elderly) have become even more so [3, 4]. For the purpose of stopping the spread of the virus, the governments of numerous countries in the world ordered unprecedented intervention, which in most cases resulted in the lockdowns of entire regions and countries [5, 6, 7]. The suspension of economic activities had serious consequences for employment [8, 9] and the income of employees as well as the revenue of companies. Drastic changes became necessary on every level of society to protect health and security [10]. Companies could not stay out of the pressure of this fast reaction either, they had to retain their most important resource, human capital. It represented a particularly great challenge how to assist their employees to adapt and overcome the changes that occurred in workplaces and social life. For example, how to create a home office without violating the interests of either the employer or the employee? How can the separation between work and private life be ensured [11, 12]? In the present research, we deal with the questions of what responses, solutions, and practices organisations used against the appearance of the pandemic and the changes caused by it, in general, and with particular attention to the area of Human Resource Management (HRM). Did they view the current crisis as a problem, challenge, or possibly as an opportunity? The results and conclusions of our work are contained in our second article. According to Budhwar and Cumming [13], the COVID-19 crisis has drawn attention to the importance of an international perspective. As we wrote earlier, in their opinion, the pandemic reminded us of the extraordinary degree of interconnectedness of the world. Thus, studies from individual countries and regions can provide important local insights, e.g. in relation to the organizational HRM management of the epidemic, they can also help us find global solutions [14].

As we presented in the abstract, the main contributions of the first part of our study are the empirical hypotheses derived from literature analysis, and the description of the methodology for testing these hypotheses. The results will be reported and the conclusions will be discussed in the second article.

## 2 Literature Review

In human resource management, which was considered one of the most problematic areas of the management of East-Central-European companies in the first decade after the transition [15, 16, 17], “*by the beginning of the new millennium, considerable positive changes had occurred at Hungarian companies*” [18]. In Hungary the total number of employees is 4.5 million, and 13.33% [19] of them are employed by multinational companies that settled in the country, where the modern HRM principles and methods of parent companies were quickly adopted by Hungarian companies into their everyday work [20]. Because of rising market competition, an increasing number of *Hungarian (domestically) owned* organisations apply innovative HR knowledge and professionals with this type of knowledge [21]. Initially, the expert supporters of the development that commenced in the area of human resource management were large – also international – *HR consultancy companies*, which were later joined by more and more Hungarian consultancy companies [22]. Nowadays, in the Bologna system bachelor’s and master’s degree programmes, an increasing number of colleges and universities offer high-quality HRM programmes. Before the breakout of the coronavirus epidemic, in Hungary – similar to other Eastern-European countries [23, 24, 25, 26] – substantial workforce shortage developed in certain sectors [27], which to a certain degree ‘was alleviated’ during the epidemic. But during the second wave, the first signs of the previous situation started to show. By today the rate of employment has reached and exceeded the 70% level [28].

First wave: On March 11, 2020, the Hungarian government declared a state of emergency for the entire territory of the country. The repayment of principal and interest rate was suspended until the end of the year 2020. In the sectors with serious problems (tourism, hospitality, entertainment, gambling, film, performing arts, event management, and sports); by 30 June, employers were released from the obligation to pay public charges [29]. According to analysts, the first wave of the pandemic affected the Hungarian labour market more severely than it appears from official statistics [28, 30], partially, for instance because workhour reductions are not indicated in the data and partially because of ‘waiting it out’ and informal solutions that are characteristic of both sides [31].

Second wave: From September 2020, the reintroduction of emergency measures and more rigorous mask wearing obligations occurred. The government extended the credit moratorium for 6 months. Administrative burdens were further reduced, from the second half of 2020 the tax office prepared a draft VAT return for each company. Business support program for enterprises: up to half a million forints per job seeker was introduced. Employment is picking up again, and the wage support programs established in the economic protection action plan still protected for more than a quarter of the total number of 280,000 beneficiaries. From

November, the attendance regulations for mass events as well as the rules for wearing a mask were tightened again.

The effect of the COVID-19 pandemic caused broad and great challenges to employees, organisations, communities, nations as well as the entire world [32]. During previous economic crises the lockdown mode had never been applied [33]. However, the world did know its effects in connection with the Nipah virus epidemic in Vietnam, which was more dangerous than COVID [34]. The currently applied methods, government intervention methods, and multilateral solutions greatly differ from the crisis management measures applied in 2008 [35]. Unlike previous crises [36, 37], coronavirus led to a recession, not because of overproduction or loss of confidence, it rather endangered human resources that represent the foundation for the growth of modern economies [38, 39, 40, 41, 42]. With this, the protection of human resources and an increase in their significance gained new momentum. The study by [43] points out that during an economic downturn, those who are still employed may experience workplace uncertainty caused by reductions in salary and work hours, deteriorating physical and mental health, long forced vacations, and challenging conditions.

Worldwide COVID-19 has a yet unpredictable effect on social and economic actors, and here the questions of work organisation during the global crisis (and after it) can be identified as a serious research trend. Specifically, it is a shared interest of employers and employees to achieve undisturbed business processes during the pandemic, for the employers to continually employ the employees who thus receive their salary, to avoid mass layoffs and downsizing [44]. The legal-political reactions [45, 46], restrictive measures, and limitations of mobility introduced as a consequence of the pandemic considerably transformed the HR practices generally applied in the labour market. The majority of organisations took the following important measures as a response: stopped business travel, company events, provided disinfectants and masks at workplaces, furthermore permitted or ordered work-from-home and flexible work performance [47]. During decision making processes management had to consider two important issues: 1) Which things are the most important to employees, and along with this 2) What is important for HR?

From the aspect of companies one of the greatest problems was retaining liquidity and within that particularly paying salaries. Despite this fact, more than half of all companies considered it extraordinarily important to retain their pre-pandemic headcount, either by work organisation or workhour and pay reductions, or by remote work, and in the worst-case scenario by forced unpaid vacations instead of layoffs [48]. Based on [49], the social distancing effect of the pandemic weighs more heavily on working women, the elderly, and immigrants. The loss of jobs and the reduction of income can have an effect, particularly on temporary workers and those with lower qualifications [50].

From the aspect of employees, the most important factor is the loss of income or the fear of it. Financial troubles among the population of all member states worsened, and a loss of income was felt by over 30% of respondents in 21 member states, in other countries people were more concerned about being forced to spend savings [51]. The crisis intensified inequalities (e.g. jobs, salaries, and workplace opportunities), especially in the case of young people and less qualified employees [37, 50].

The other challenge was creating a balance between work and private life. Researchers discovered a number of challenges in connection with this (e.g. increased stress, loneliness, increased overtime at home, merging of worktime and private life, etc.) [52, 53]. Although according to the latest forecasts, instead of the creation of a work-private life balance, integrated well-being design is emerging. According to the experts of [54], these two areas of life can only function well if they are integrated. During the pandemic, we have witnessed phenomena such as the development of social isolation, segregation, uncertainty, and sense of fear. In this situation, organisations must be more flexible and innovative in unexpected HR related issues that affect employees. The coronavirus has forced organisations to introduce new and radical methods in the area of work performance, these processes had started earlier, but the pandemic greatly accelerated them [55]. According to the above-mentioned research by [54], the future of work is influenced by three factors that are closely related to each other. The first is the type of work, as a result of increasing automation certain job positions are eliminated or transformed and in parallel with this new ones are created. The second is the issue of the workforce: who will perform the work? New combined talent models and diverse workforce-stocks are established. The third factor is the site of work performance, the experience of the past year and a half definitely established the basis for the long-term application of flexible work strategies.

The COVID-19 pandemic moved millions of employees from offices to their homes worldwide, for the purpose of isolating themselves. During the quarantine a considerable number of articles were published in the press about the difficulties of remote work, and the suggestions of business consultants regarding how to organise work and cooperation [56, 57], through the recommendations of HR consultants regarding how to maintain the productivity of employees [58, 59], to comments by psychologist regarding the balance of work and private life in a situation where work and private life go on simultaneously without leaving home [60]. At the same time, it is important to emphasise that the pandemic-related advice and suggestions of experts and consultants were based on the knowledge that had been accumulated before the pandemic.

Based on [61], employees are more concerned about their financial security, and personal and family health than the financial situation and possible instability of their employers, thus the HR strategy must consider the concerns of employees. According to Hungarian research experience [62], the greatest challenge to

employers is effective internal communication, informing, and maintaining contact. This is followed by the difficulty of workforce retention, the introduction/operation of a home office and remote work, as well as compliance with health protection and hygiene regulations. Critical points are maintaining motivation, wage management, panic management, and the development of digital processes. In the future, they must strive to develop strategies where practical application contributes to balancing the relationship between the workforce and the changed labour market conditions, and it is necessary to facilitate the development of effective learning methods by utilising the opportunities provided by digital transformation. The above train of thought was supplemented by [63]; the engine of organisational development and HR are creativity and innovation, which human resource possesses as human capital, thus its role is expected to grow exponentially in the near future. By [64], despite the current era of innovation and automation, the human factor is irreplaceable.

As it can be seen from the above, the coronavirus epidemic also plays a significant role in the HR activities of organisations. According to [65], the biggest challenge for HR professionals is how to contribute to the survival of companies in this challenging situation. In order to adapt to rapidly changing market needs, they need to incorporate the tools of agile methods into their operations. Indeed, the restrictive measures and mobility restrictions implemented as a result of the pandemic have significantly transformed HR practices that have become commonplace in the labour market.

The state supplements the role of HR with social and economic assistance measures – including fiscal incentives and the expansion of social safety nets – which are essential to prevent the further rippling of the effects of the pandemic [66]. Of course, money is required to solve the economic problems caused by the pandemic, but that should not be invested into production, it rather should be spent on the protection and development of human capital. It is not a coincidence that government-level measures primarily serve the protection of health and jobs [67, 68]. On the company level, these same measures are in the range of tasks of HR. So far, Hungarian experts have processed the experiences of the pandemic's first and second wave. Broad-ranging company-level surveys were conducted about the issue during the spring and autumn waves as well [69]. Based on the research reports it can be stated that on top of the usual measures new solutions also appeared, moreover were given central roles, which HR professionals expressly adapted to the pandemic as the root cause.

### 3 Hypotheses

We would like to contribute to the above-introduced literature in the area of HR crisis management by testing the following two hypotheses empirically. The first one is derived from the findings of [70, 71]:

H1: The typically occurring crisis management measures [70] in the area of HRM caused by the effects of the pandemic are primarily related to headcount management/workforce requirements (hiring freeze, downsizing, downsizing of temporary staff, reducing labour requirements by automation/technical solutions and the innovative handling of work hours like reduction of working hours, enabling/directing home offices, elaboration/re-planning of replacement plans) [71].

Our second hypothesis is built on the previous research by [72, 73, 74, 75, 76, 55]:

H2: In the sample, the most frequently applied HR crisis management measures are correlated with the organisation's revenue and headcount: Enabling/directing home offices [72], New occupational health and safety measures [73], hiring freeze and downsizing are considerably more frequent at larger companies than at smaller ones [75, 76]. We supplemented the hypothesis H2 with sub-hypotheses.

H2a: In the sample, the most frequently applied HR crisis management measures are correlated with the organisation's two main indicators: revenue and headcount.

H2b: Enabling/directing home offices, new occupational health and safety measures, and reducing the risks of the pandemic HR crisis management measures [55] are correlated with the organisation's two main indicators: revenue and headcount [74].

H2c: The "No task" attitude is mainly typical at organisations that are smaller according to revenue and headcount.

### 4 Material and Methodology

We tested our above-specified hypotheses on the databases of the first two phases of our Covid-19 HR research. The research team was established with the joint effort of the professors of 14 Hungarian universities and 1 Slovakian university. The nationwide online survey started at the beginning of May 2020, a few months after the first European infections caused by COVID-19. To examine the topic, we conducted benchmark-type research, which allows us to monitor and compare the changes in the selected indicators over time. Such studies are typically run regularly (monthly, quarterly, annually) and evaluate how the experiences with a

particular issue change over time [77, 78]. In the emergency caused by the pandemic, employers had to face daily changes, an uncertain, unpredictable situation. Benchmarking allows us to track the progress of the changes and revisions, therefore we conducted our research several times in a relatively short period, so that the changes in HR solutions during the coronavirus crisis could be monitored.

- 1) The first phase of the data collection was conducted between 12 June and 31 July 2020 with a questionnaire survey, where the number of respondent organisations was 508.
- 2) The second phase of data collection was conducted between 1 August and 15 November 2020 by an online questionnaire survey, where we received 1,041 useful responses from various organisations.

The survey is fundamentally ex-post [79] type, thus it examined the effect of the crisis caused by Covid-19 on the human resource management practices in the Hungarian company/institutional sector based on opinions and factual data related to the surveyed time period. Figure 1 describes the research model in connection with the hypothesis.

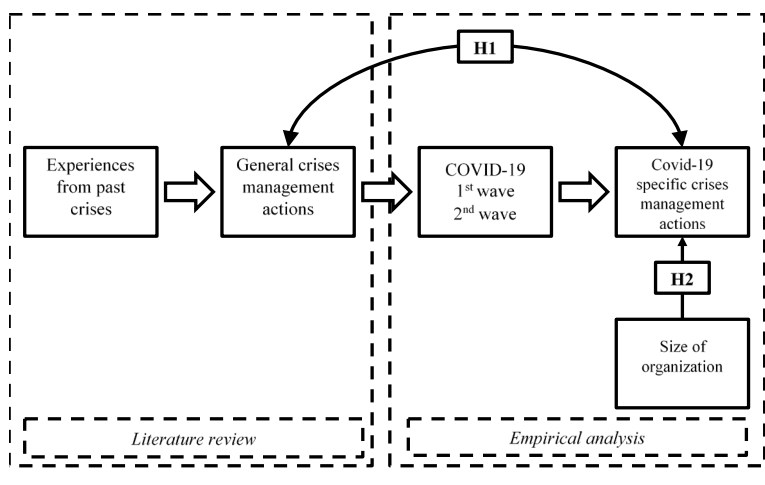


Figure 1  
Research concept

The results of the two phases of the research are not directly comparable, since the range of respondents did not remain unchanged, thus in the present study we analyse them separately.

Figure 2 summarises the distribution of respondents according to the form of ownership. In the two phases, a considerable portion of the respondents were Hungarian private organisations (58.7% and 46.9%, respectively) and approximately one-quarter of them were in foreign or mixed ownership.

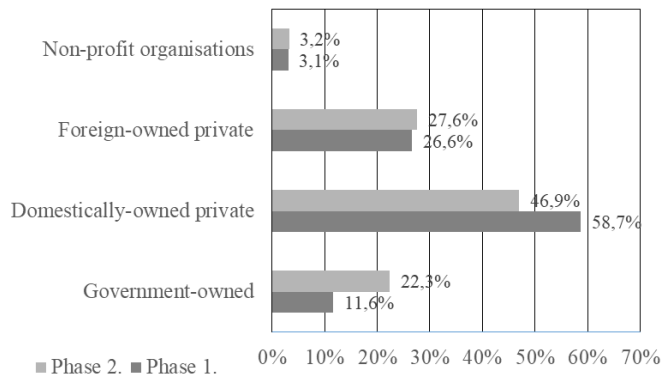


Figure 2

Distribution of respondents according to form of ownership during the first and second phase

We conducted the examination of organisation size based on two aspects, employee headcount and revenue (according to the practice of the [80], among others). For the interpretation of the below-presented data and results, we describe some Hungarian data as a basis for comparison.



Figure 3

Distribution of respondents according to headcount during the first and second phase

Based on the 2019 data of [19], regarding the number of enterprises, the overwhelming majority (91.4%) have an employee headcount of 1-10 people. 3.8% of all enterprises have an employee headcount of 10-49 people. Employee headcount of 50-249 people is at 0.6% of companies, and over 250 people at 0.1%, while at 4% of registered companies, there are no employees at all. In 2020, in Hungary, the number of budgetary organisations and organisations managed according to budgetary rules was around 12,800, which is 0.7% of registered business organisations [81]. Based on employee headcount, the highest percentage of respondents (in the first phase 72.1%, in the second phase 63.6%) were in the SME category (Figure 3).

Another widely applied indicator in categorising organisation size (see [80]) describes samples according to revenue (Figure 4). Based on KSH data, in 2019 the average revenue of business organisations was around HUF 141.6 million [19]. From among the respondents in the first phase, 37.4% fell in the category under this revenue, while in the second phase 32.4%, thus the proportion of respondents with lower-than-average revenue decreased by 5% in the sample. The proportion of respondents with higher than the national average revenue was 45.5% at the first data collection, and it rose to 50.9% by the second phase (i.e. by 5.4%).

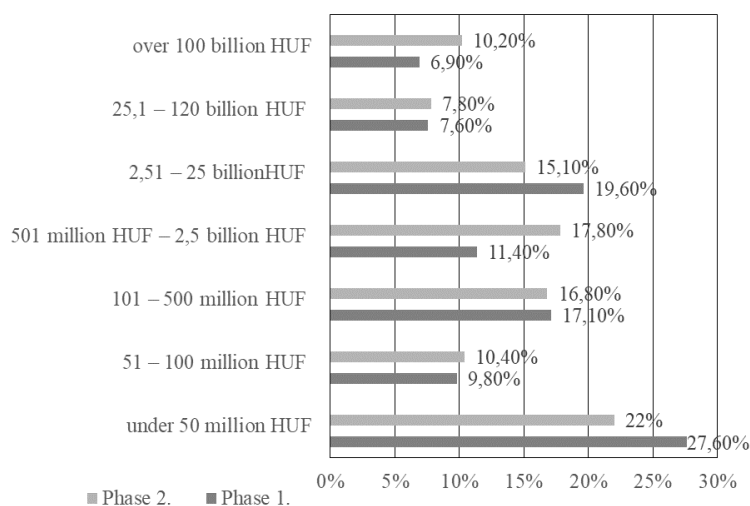


Figure 4

Distribution of respondents according to revenue during the first and second phase

\* 1 EUR = 351.1 HUF [80]

The same questionnaire was used during both phases of the survey (in original language: <http://limesurvey.sziesz.hu/index.php/44678?lang=hu>; the authors will provide the English translation electronically) and the questions highlighted for the present study (“*Annual budget/revenue in 2019*”, “*Average number of*

*employees in 2019*”, “Please indicate if your firm practiced the following crisis management HR measures for your organisation”) were unchanged. The applied questionnaire were discussed with academic experts and then with practicing HR executives to ensure understanding and validity. The instrument was finalized after several rounds of tryout and correction.

We have conducted the following statistical methods to test our hypotheses.

We conduct the examination of the H1 hypothesis by the analysis of frequencies and relative frequencies of responses to questions about the use of 19 HR crisis management measures in both waves (separately).

We inspect the H2 hypothesis through its sub-hypotheses. For the examination of the H2a, H2b, and H2c hypotheses – since revenue (I2), headcount (I3), and the question related to HR measures (I4) can be coded as sequential variables –, the analyses were performed with Spearman’s rank correlation (which does not require ratio-scale variables or normality). The examination tests if there is a correlation between size variables (headcount or revenue) and the use of the 19 HR crisis management measures. The analyses were performed with pairwise method, thus the sample size differ by the tested variable-pairs. Samples from the two surveys are examined separately.

In the first round we examine the correlations between the HR measure and the revenue variable as well as the headcount variable, then to examine H2a we checked if among the measures showing a significant correlation, there are some that were found to be the most typical at the examination of H1, for the examination of H2b we checked the significance of the “Enabling/directing home offices”, “New occupational health and safety measures”, and “Reducing the risks of the pandemic through training” questions, while for H2c we inspected if there is a correlation between the “No tasks” measure and the revenue variable as well as the headcount variable, and if yes, whether the coefficient is negative.

We also analysed the H2c sub-hypotheses with the chi-square test (by calculating Cramér’s  $V$ ). For this we transformed the four-value “No task” variable into three dummy variables:

- *No task at all*: its value is 1 if the respondent somewhat or more agreed that there is no task, otherwise 0.
- *Medium level no task*: if the respondent intermediately or more agreed that there is no task, otherwise 0.
- *Very much no task*: if the respondent strongly agreed that there is no task, otherwise 0.

In this way, we can determine if we can find a significant divergence between each headcount and revenue category as well as combined categories (e.g. we can create two headcount categories of 0-49 people and over 50 people). The Results chapter – in the second part of our paper – describes the formation of categories

because that is based on the preceding survey results, thus it would be early to show them here.

As it was mentioned above since the two samples are structured differently, and there may be overlaps between respondents, they are always analysed separately. This is otherwise also justified by the time that passed between the data collection and the different pandemic situations.

## 5 Summary of the First Part

In the presented part of our study, we have reviewed the literature background of the possible negative and positive effects and aspects of the COVID-19 pandemic on HRM practice. As the main output of this paper, based on this literature analysis we have drawn two empirical hypotheses and described the methodology to test them.

The presentation and discussion of the empirical results are presented in the second part of this study, which is titled “*Characteristics of Crisis Management Measures in the HR Area during the Pandemic in Hungary – Reflected in a Nationwide Empirical Research*”. In that article, we report the results of testing the hypotheses, we draw our conclusions and discuss limitations of our research, as well as possible future research directions.

### References

- [1] Ch. Lakner: How Much Does Reducing Inequality Matter for Global Poverty?, working paper, World Bank Group, Washington, 1 June 2020
- [2] N. Madarász, B. Pásztor, K. Lazányi: Individual decisions during the coronavirus. In: Keszthelyi, A. et al (eds.) 18<sup>th</sup> International Conference on Management, Enterprise, Benchmarking. Proceedings (MEB 2020) Budapest, Hungary, Óbuda Universty, 2020, 118-126
- [3] Ferenci T.: Different approaches to quantify years of life lost from COVID-19, Eur J Epidemiol 36, 2021, pp. 589-597
- [4] Z. D. Paget: “COVID-19 and its impact on society”, available at: <https://www.openaccessgovernment.org/covid-19-and-its-impact-on-society/110928/> (accessed 26 June 2021)
- [5] IMF “Policy Responses to COVID 19”, working paper, International Monetary Fund, Washington, 1 July 2021
- [6] X. Chen, Z. Qiu: COVID-19: Government interventions and the economy, available at: <https://voxeu.org/article/government-interventions-covid-19-and-economy> (accessed 26 June 2021)

- 
- [7] T. Hale, N. Angrist, R. Goldszmidt, B. Kira, A. Petherick, T. Phillips, S. Webster, E. Cameron-Blake, L. Hallas, S. Majumdar, H. Tatlow: A global panel database of pandemic policies (Oxford Government Response Tracker), *Nature Human Behaviour*, Vol. 5, No. 4, pp. 529-538 (2021)
- [8] D. Gros, A. Ounnas: Labour market responses to the Covid-19 crises in the United State and Europe, working paper WD2021-01, Centre for European Policy Studies, Brussels, April 2021
- [9] Röst G, Bartha F. A., Bogyá N., Boldog P., Dénes A., Ferenci T., Horváth K. J., Juhász A., Nagy C., Tekeli T., Vizi Z., Oroszi B.: Early Phase of the COVID-19 Outbreak in Hungary and Post-Lockdown Scenarios. *Viruses*. 12(7):708. 2021
- [10] D. W. Eggers, M. Flynn, J. O’Leary, B. Chew: Governments’ response to Covid-19 From pandemic crisis to a better future, available at: <https://www2.deloitte.com/us/en/insights/economy/covid-19/governments-respond-to-covid-19.html> (accessed 1 June 2021)
- [11] N. Chawla, R. MacGowan, A. Gabriel, N. P. Podsakoff: Unplugging or staying connected? Examining the nature, antecedents, and consequences of profiles of daily recovery experiences *Journal of Applied Psychology*, 2019, Vol. 105, No. 1, 19
- [12] J. B. Carnevale, I. Hatak: Employee adjustment and well-being in the era of COVID-19: Implications for human resource management, *Journal of Business Research*, 2020, Vol. 116, 183-187
- [13] P. Budhwar, P., D. Cumming: New Directions in Management Research and Communication: Lessons from the COVID-19 Pandemic, 2020, *British Journal of Management*, Vol. 31, 3, 441-443, <https://doi.org/10.1111/1467-8551.12426>
- [14] N. Sipos, Á. Jarjabka, G. Kuráth, T. Venczel-Szakó: Higher education in the grip of COVID-19: 10 years in 10 days? Quick report on the effects of the digital transition in work at the University of Pécs, 2020, *Civil Review*, special issue 1, 71-90
- [15] J. M. Morley, N. Heraty, S. Michailova: Studying human resource management in the international context: The case of Central and Eastern Europe, *Managing Human Resources in Central and Eastern Europe*. London, Routledge, 2009, 1-24
- [16] Halmos K.: The effect of FDI, exports and GDP on income inequality in 15 Eastern European countries. *Acta Polytechnica Hungarica*, 2011, Vol. 8, No. 1, 123-136
- [17] J. M. Morley, D. Minbaeva, S. Michailova: HRM in transition in the transition states of Central and Eastern Europe and the former Soviet Union, Brewster, Ch. et al. (Eds.) *Handbook of Research on Comparative*

- Human Resource Management, Edward Elgar Publishing, London, UK, 2018, 469-487
- [18] Karoliny Ms.: Overview of human resource management (In Hungarian), 23-60, In Karoliny Ms. and Poór J. Handbook of Human Resource Management Budapest: Wolters Kluwer, 2017
- [19] KSH Enterprise performance indicators by headcount category (in Hungarian), available at: [http://www.ksh.hu/docs/hun/xstadat/xstadat\\_eves/i\\_qta001.html](http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qta001.html) (accessed 1 January 2021)
- [20] Bácsi K., Szőtsné Kovács K., Takács S., Toarniczky A.: Human Resource Management, leadership and competitiveness (in Hungarian), working paper, Corvinus University, Budapest, Hungary, 31 August 2007
- [21] Bakacsi Gy. Takács S., Bokor A., Császár Cs., Gelei A., Kovács Klauudia: Strategic Human Resource Management (in Hungarian) KJK-KERSZÖV Publishing House, Budapest, Hungary, 2006
- [22] Consultancy.eu: Consulting industry of Hungary breaks through €400 million mark, available at: <https://www.consultancy.eu/news/1803/consulting-industry-of-hungary-breaks-through-400-million-mark> (accessed 7 July 2021)
- [23] Z. B. Schwidrowski, W. Li, T. Yousef: Skill and labor market outcomes in Central Europe. Economic Systems, Vol. 33, No. 1, 45-59
- [24] Takács M.: Multilevel fuzzy approach to the risk and disaster management. Acta Polytechnica Hungarica, Vol. 7, No. 4, 91-102
- [25] C. Patricolo: Czech Republic looks east to ease labour shortages, available at: <https://emerging-europe.com/news/czech-republic-looks-east-to-ease-labour-shortages/> (accessed 1 May 2020)
- [26] J. Łukomska-Szarek, A. Martynko, Z. Warzecha: Management under Crisis Conditions – the Impact of the COVID-19 Pandemic on the Formation of Respondents’ Opinions within the e-commerce Market, in Poland. Acta Polytechnica Hungarica, 2021, Vol. 18, No. 11, 251-267
- [27] PwC: Central and Eastern Europe Private Business Survey 2019, available at: <https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/PwC-PBS-CEE-Report-2019-final.pdf> (accessed: 1 June 2020)
- [28] Bakó T., Lakatos J.: The Hungarian labour market in 2019–2020. Fazekas, K. et al. (Eds.), The Hungarian Labour Market (in Hungarian), Centre for Economic and Regional Studies Institute of Economics, Budapest, Hungary, 2021, 15-34
- [29] Kaszás F.: First Wave vs. Second Wave: When Did the Gov’t Implement Stricter Restrictions?, Hungary Today, 13 November 2020, available at <https://hungarytoday.hu/first-wave-vs-second-wave-when-did-the-govt-implement-stricter-restrictions/> (accessed 3 July 2021)

- 
- [30] Köllő J., Reizer B.: The impact of the first wave of the coronavirus epidemic on employment and corporate sales (in Hungarian), *Hungarian Economic Review*, 2021, Vol. 68, No. 4, 345-374
- [31] Palócz É., Matheika Z.: Dilemmas on the economic effects of the Covid-19 crisis in Hungary (in Hungarian), Kolosi, T., et al. (Eds.) *Társadalmi Riport TÁRKI*, Budapest, Hungary. 2020, 573-590
- [32] J. Li, R. Ghosh, S. Nachmias: In a time of COVID-19 pandemic, stay healthy, connected, productive, and learning: words from the editorial team of HRDI. *Human Resource Development International* 2020, Vol. 23, No. 3, 199-207, DOI: 10.1080/13678868.2020.1752493
- [33] Lazáry J.: Acute effects of the COVID-19 pandemic on mental status in the first phase of the epidemic, *Neuropsychopharmacologia Hungarica* 2020, Vol. 22, No. 2, 172-177
- [34] V. Thomas: Containing a deadly virus: Lessons from the Nipah outbreak in India. Brookings, <https://www.brookings.edu/blog/future-development/2018/07/23/containing-a-deadly-virus-lessons-from-the-nipah-outbreak-in-india/> (accessed: 12 February 2021)
- [35] M. E. Strauss-Kahn: Can we compare COVID-19 and 2008 crises?, available at: <https://www.atlanticcouncil.org/blogs/new-atlanticist/can-we-compare-the-covid-19-and-2008-crises/> (accessed 17 Febr 2021)
- [36] A. S. Blinder, M. Zandi: The Financial Crisis: Lessons for the Next One. CBPP, available at: <https://www.cbpp.org/research/economy/the-financial-crisis-lessons-for-the-next-one> (accessed 4 March 2021)
- [37] A. Adams-Prassl, T. Boneva, M. Golin, C. Rauh: Inequality in the impact of the coronavirus shock: Evidence from real-time surveys, *Journal of Public Economics*, Vol. 189, <https://doi.org/10.1016/j.jpubeco.2020.104245>
- [38] R. W Fogel: Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy, *The American Economic Review* 1994, Vol. 84, No. 3, 369-395
- [39] T. W. Schultz: Investment in human capital, *The American Economic Review* 1961, Vol. 51, No. 1, pp. 1-17
- [40] T. W. Schultz: The Economics of Being Poor, *Bulletin of the Atomic Scientists* 1980, Vol. 36, No. 9, 32-37
- [41] D. Torrington, L. Hall, S. Taylor, C. Atkinson: *Human Resource Management*. Harlow: Pearson Education Limited, 2014
- [42] D. Ulrich, J.H. Dulebohn: Are we there yet? What's next for HR? *Human Resource Management Review* 2015, Vol. 17, No. 1, 1-9
- [43] M. R. Frone: What happened to the employed during the Great Recession? A U.S. Population study of net change in employee insecurity, health, and

- organizational commitment, *Journal of Vocational Behaviour* 2018, Vol. 107, 246-260
- [44] Csiszárík-Kocsir Á., Garai-Fodor M., Varga, J.: What has Become Important during the Pandemic? – Reassessing Preferences and Purchasing Habits as an Aftermath of the Coronavirus Epidemic through the Eyes of Different Generations. *Acta Polytechnica Hungarica* 2021, Vol. 18, No. 11, 49-74
- [45] Kun A.: Hungary – The impact of the labour law measures taken by the authorities: reflections one year after the official recognition of Covid-19 as a pandemic (in Hungarian), working paper, Budapest, Hungary, 1 March 2021
- [46] Váradi B.: Policy responses to the coronavirus pandemic in Hungary during the first half of 2020, Fazekas, K. et al. (Eds.) *The Hungarian Labour Market 2020*, Centre For Economic and Regional Studies Institute of Economics 2021, Budapest, Hungary, 204-210
- [47] Vörös M., Fűrész D. I.: Empirical study of the effectiveness of part-time employment (in Hungarian), *Hungarian Economic Review* 2021, Vol. 68, No. 2, 178-204
- [48] MNB: The MNB's corporate survey examining the economic effects of the coronavirus epidemic (in Hungarian), available at: <https://www.mnb.hu/sajtoszoba/sajtokozlomenyek/2020-evi-sajtokozlomenyek/az-mnb-koronavirus-jarvany-gazdasagi-hatasait-vizsgalo-vallalati-felmeresenek-eredmenyei> (accessed 20 February 2021)
- [49] Csehné Papp I., Varga, E.: Epidemic phenomenon in a labour market context. *Controller Info* 2021, Vol. 9, No. 1, pp. 51-55
- [50] Bagó J.: Pandemia and work (in Hungarian), *New Hungarian Labour Review* 2020, Vol. 1, No. 3, pp. 14-25
- [51] European Parliament: Uncertainty | EU | Hope – Public opinion in times of COVID-19, 1-23, available at: <https://www.europarl.europa.eu/resources/library/media/20200713RES83231/20200713RES83231.pdf> (accessed: 4 March 2021)
- [52] P. Bilge, C. A. Alkan, R. Ağanoğlu: *Managing work-life balance during the Covid-19 crisis – A survey with 1500+ participants worldwide*. Berlin: Technical University, 2020
- [53] Szellő J.: Pandemic and the Global Labour Market (in Hungarian), *New Hungarian Labor Review* 2021, Vol. 1, No. 4, pp. 17-22
- [54] Deloitte: *The social enterprise in a world disrupted. Leading the shift from survive to thrive – 2021 Deloitte Global Human Capital Trends*, available at: [https://www2.deloitte.com/content/dam/insights/us/articles/6935\\_2021-HC-Trends/di\\_human-capital-trends.pdf](https://www2.deloitte.com/content/dam/insights/us/articles/6935_2021-HC-Trends/di_human-capital-trends.pdf) (accessed 4 March 2021)

- 
- [55] ILO: Guidelines on occupational safety and health management systems, ILO-OSH 2001. Geneva: International Labor Organization. Second edition: Guidelines on occupational safety and health management systems, ILO-OSH 2001 (accessed: 3 July, 2021)
- [56] T. Kawashima, S. Nomura, Y. Tanoue, D. Yoneoka, A. Eguchi, S. Shi H. Miyata: The relationship between fever rate and telework implementation as a social distancing measure against the COVID-19 pandemic in Japan. *Public Health* Vol. 192, No. 9, pp. 12-14, doi: 10.1016/j.puhe.2020.05.018
- [57] A. Belzunegui-Eraso, A. Erro-Garcés: Teleworking in the Context of the COVID-19 Crisis, *Sustainability* 2020, Vol. 12, No. 9 (special issue) 1-18
- [58] S. Raghuram, N. S. Hill, J. L. Gibbs, L. M. Maruping: Virtual Work: Bridging Research, *Academy of Management Annals*, Vol. 13, No. 1, 1-34, doi: 10.5465/annals.2017.0020
- [59] H. Bouziri, D. R. M. Smith, A. Descatha, W. Dab, K. Jean: Working from home in the time of COVID-19: How to best preserve occupational health? *Occup. Environ. Med.*, Vol. 77, pp. 509-510, doi: 10.1136/oemed-2020-106599
- [60] K. Čulo: Virtual Organization – The Future Has Already Begun, *Media, Culture and Public Relations* 2016, Vol. 7, No. 1, pp. 35-42
- [61] W. Al Mala: How COVID-19 Changes the HRM Practices (Adapting One HR Strategy May Not Fit to All), *2SRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.3736719>
- [62] HR Portal: The companies had a ready-made action plan for the second wave. HR, available at: <https://www.hrportal.hu/hr/kesz-cselekvési-tervvel-rendelkezték-a-vallalatok-a-masodik-hullámba-20210106.html> (accessed 20 December 2020)
- [63] Hegedűs H.: Review of the publication “The World of Work at the Beginning of the 21<sup>st</sup> Century. Handbook on Employment Policy and the Labor Market” (in Hungarian), *Military Science*, 2018, Vol. 28, E-Issue pp. 185-187
- [64] K. Lazányi, Pál. Fehér-Polgár, I. Vida: Identification of the most important European productivity factors through the dimension reduction. *Economic and Managerial Spectrum*, 2020. 14:1,77-86
- [65] A. Gulo: Transformational Human Resources Through Remote Working and Upskilling for Digital PT Eigerindo MTI.SSRN; 2021 unpublished manuscript, Europe PMC doi: 10.2139/ssrn.3815399
- [66] D. Laborde: COVID-19 risks to global food security, *Science*, 2020, Vol. 369, No. 6503, 500-502
- [67] MTI: Almost 10,000 companies have benefited from job protection wage subsidies (In Hungarian), HR-portál. <https://www.hrportal.hu/c/majdnem->
-

- 10-ezer-vallalat-vette-igenybe-a-munkahelyvedelmi-bertamogatast-20200526.html (accessed: 20 February, 2021)
- [68] MTI: Thousands of applications for job protection wage subsidies are received every day. HR Portál. <https://www.hrportal.hu/hr/naponta-tobb-ezer-kerelem-erkezik-a-munkahelyvedelmi-bertamogatasra-20200619.html> (accessed: 20 February, 2021)
- [69] Balogh, G. et al.: Objectives, methods and first experiences of the Hungarian national Korona HR research project (in Hungarian) *New Hungarian Labour Review*, 2020, Vol. 2, No. 4
- [70] G. D. Collings, J. McMackin, A. J. Nyberg, P. M. Wright: *Strategic Human Resource Management and COVID-19: Emerging Challenges and Research Opportunities*, 2021, Vol. 58, No. 5, 1378-1382
- [71] S. Hamouche: Human resource management and the COVID-19 crisis: implications, challenges, opportunities, and future organizational directions, *Journal of Management & Organization*, 1-16, doi:10.1017/jmo.2021.15
- [72] N. Lewis: HR Managers Rethink Their Role During the Coronavirus Pandemic available at: <https://www.shrm.org/hr-today/news/hr-news/pages/hr-managers-rethink-their-work-coronavirus-pandemic.aspx> (accessed 1 June 2021)
- [73] F. Weidemeyer: COVID-19 crisis management: ten better questions to ask, available at: [https://www.ey.com/en\\_gl/covid-19/covid-19-crisis-management-essential-ten-better-questions-to-ask](https://www.ey.com/en_gl/covid-19/covid-19-crisis-management-essential-ten-better-questions-to-ask) (accessed 1 June 2021)
- [74] N. Chanana, Sangeta: Employee engagement practices during COVID-19 lockdown, academic paper, *J. Public Affairs* □2020;e2508□ Wiley, Hoboken, New Jersey, Oct 1 2020, doi:10.1002/pa.2508
- [75] IFC: How Firms are Responding and Adapting During COVID-19 and Recovery opportunities for accelerated inclusion in emerging markets, working paper, International Finance Corporation (IFC, a member of World Bank Group), Washington
- [76] OECD: *OECD Economic Outlook Vol. 2020 Issue 1, No. 107*, <https://doi.org/10.1787/0d1d1e2e-en>
- [77] B. Karlöf: Benchmarking, in Bidgoli, H. (ed.) *Encyclopedia of Information Systems*. pp. 65-80, ISBN 9780122272400, Elsevier, doi: <https://doi.org/10.1016/B0-12-227240-4/00005-8>
- [78] S. Mannan (ed.): *Benchmarking in the Process Industry*, in *Lees' Loss Prevention in the Process Industries (Fourth Edition)*, Butterworth-Heinemann, 2012, 2484-2491, ISBN 9780123971890, doi: <https://doi.org/10.1016/B978-0-12-397189-0.00038-0>
- [79] Usunier, J-C., H. van Herk, J. A. Lee: *International and Cross-Cultural Business Research*. SAGE Publications Ltd., 2017, ISBN: 9781473975897

- [80] European Commission: Economic Forecast: A deep and uneven recession, an uncertain recovery. available at: [https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2020-economic-forecast-deep-and-uneven-recession-uncertain-recovery\\_fr](https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2020-economic-forecast-deep-and-uneven-recession-uncertain-recovery_fr) (accessed 12 June 2021)
- [81] KSH: STADAT – 3.2.1.3. Number of registered economic organizations (in Hungarian), available at: [https://www.ksh.hu/docs/hun/xstadat/xstadat\\_eves/i\\_qvd010.html](https://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_qvd010.html) (accessed 10 February 2021)
- [82] MNB: Hungarian National Bank (in Hungarian), available at: <https://www.mnb.hu/arfolyamok> (accessed 28 June 2021)