







“Effect of crises on human resources management in small and medium enterprises: Evidence from manufacturing industry in the Czech Republic”

AUTHORS	Eva Hoke  Kamil Peterek  Katerina Vichova  Pavel Taraba  
ARTICLE INFO	Eva Hoke, Kamil Peterek, Katerina Vichova and Pavel Taraba (2022). Effect of crises on human resources management in small and medium enterprises: Evidence from manufacturing industry in the Czech Republic. <i>Problems and Perspectives in Management</i> , 20(2), 10-21. doi: 10.21511/ppm.20(2).2022.02
DOI	http://dx.doi.org/10.21511/ppm.20(2).2022.02
RELEASED ON	Monday, 11 April 2022
RECEIVED ON	Monday, 15 November 2021
ACCEPTED ON	Friday, 25 March 2022
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

53



NUMBER OF FIGURES

2



NUMBER OF TABLES

2

© The author(s) 2022. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 15th of November, 2021
Accepted on: 25th of March, 2022
Published on: 11th of April, 2022

© Eva Hoke, Kamil Peterek, Katerina Vichova, Pavel Taraba, 2022

Eva Hoke, Ph.D., Senior Lecturer,
Department of Crisis Management,
Faculty of Logistics and Crisis
Management, Tomas Bata University in
Zlín, Czech Republic. (Corresponding
author)

Kamil Peterek, Ph.D., Senior Lecturer,
Department of Logistics, Faculty of
Logistics and Crisis Management,
Tomas Bata University in Zlín, Czech
Republic.

Katerina Vichova, Ph.D., Senior
Lecturer, Department of Logistics,
Faculty of Logistics and Crisis
Management, Tomas Bata University in
Zlín, Czech Republic.

Pavel Taraba, Ph.D., Senior Lecturer,
Department of Logistics, Faculty of
Logistics and Crisis Management,
Tomas Bata University in Zlín, Czech
Republic.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0
International license](https://creativecommons.org/licenses/by/4.0/), which permits
unrestricted re-use, distribution, and
reproduction in any medium, provided
the original work is properly cited.

Conflict of interest statement:
Author(s) reported no conflict of interest

Eva Hoke (Czech Republic), Kamil Peterek (Czech Republic),
Katerina Vichova (Czech Republic), Pavel Taraba (Czech Republic)

EFFECT OF CRISES ON HUMAN RESOURCES MANAGEMENT IN SMALL AND MEDIUM ENTERPRISES: EVIDENCE FROM MANUFACTURING INDUSTRY IN THE CZECH REPUBLIC

Abstract

The current turbulent times have never been so demanding to adapt to ever-changing conditions. Small and medium enterprises (SMEs) form the cornerstone of the economy. Moreover, they are the driving force of economic processes in all countries. Therefore, this paper aims to empirically map and identify the causes of the crisis and statistically verify how these crises affect the personnel measures taken and human resource management (HRM) in SMEs. The chi-square test and Cramer's coefficient were used to verify the statistical dependences of research questions and hypotheses. A statistically significant impact of external economic influences on enterprises' activities was empirically confirmed (59%). It was proved that nowadays, the most important external factor influencing the activities of enterprises in the market is the COVID-19 pandemic. The study also focused on the personnel measures taken during the crisis. It was confirmed that small businesses apply alternative personnel measures, namely reducing variable wage components before radical redundancies.

Keywords SMEs, crisis, personnel, personnel impacts, COVID-19, HRM

JEL Classification L26, M12, M54

INTRODUCTION

The contemporary pandemic situation is a significant challenge for all stakeholders. National economies, government organizations, and entrepreneurs have possibly never faced such powerful turbulence in changing market conditions. All these changes affect the existence of enterprises. It is necessary to identify the causes of crises and understand them. Businesses should be prepared because that is the only way to face a crisis. Employees are undoubtedly the end of the whole process. The human factor is a critical driving force in the enterprise, so it is only necessary to pay attention. Enterprises usually apply inadequate staffing measures. Enterprises that find themselves in a critical situation frequently dismiss employees immediately, although there are numerous other alternatives within HRM. The paper provides an exciting view of the insufficiently empirically researched causes of crises in SMEs and how the crises in the organization affect the personnel measures taken depending on the organization's size. The geographical delimitation is considered a limitation of this paper, as the analysis is carried out only in the Czech Republic. Another significant limitation is the lack of comparative studies, which is a novelty of the problem. In addition, the paper considered a relatively small list

of researched personnel measures applied in SMEs. More measures could yield more diverse results, but respondents would be deterred from cooperating due to the comprehensive questionnaire. In the COVID-19 pandemic, it is possible to observe progressive developments regarding severe economic and personnel impacts. Recently, the impacts have been most pronounced in the manufacturing industry. Therefore, this sector has become the target sample for this investigation.

1. LITERATURE REVIEW

The literature review is divided into several parts. Firstly, it is focused on scientific studies dealing with crises and their causes. Bundy et al. (2017) point out an organizational crisis as a problem that is unexpected, significantly disruptive, and can jeopardize the organizational goals, especially relationships with stakeholders. There are several definitions of a crisis; however, they all consider a negative impact in all cases. Ritter and Pedersen (2020) state that crises are sequences of events that could substantially negatively affect an organization if not sufficiently managed. Catullo (2017) adds that predicting their appearance is considered problematic. A crisis can be different. The causes of a crisis can be internal or external. Internal causes can include strategic (bad strategic decisions of the enterprise management), economic, or operational risks. External causes of a crisis include general market risks (lack of qualified staff, competition, customers, and suppliers), natural disasters and catastrophes, financial markets, state policy, or globalization.

Both groups of risks are interdependent and together create corporate risks. Among the internal causes of a crisis, it is possible to include top managers' poor decisions. Conversely, the external causes of the crisis may be caused by a disaster. Disasters can be naturogenic or anthropogenic. Pandemics, such as COVID-19, can be classified as natural disasters. One of the tools for solving a crisis in enterprises is the initiation of crisis management. It is essential to apply analysis of enterprises and seek ways to reduce the likelihood of a crisis, minimize the damage caused by a crisis, and restore order after a crisis (Bundy & Pfarrer, 2015; Branicki, 2020).

Secondly, the literature review focuses on the present economic crisis caused by the COVID-19 pandemic. This issue is discussed in several research papers. Their focus is divided into information on

the coronavirus itself and its impacts. Jebran and Chen (2021) stated that coronaviruses had spread worldwide in a few months due to globalization and massive international air traffic. They further state that the current coronavirus pandemic has hit human lives dangerously and poses a significant threat to economic activities worldwide. From history, one can remember that the first human coronavirus was identified in 1960 (Vassilara et al., 2018). SARS-CoV and MERS-CoV preceded the current pandemic (AminJafari & Ghasemi, 2020). In addition to endangering the lives and health of citizens worldwide, this pandemic has had a significant impact on the economy. A considerable part of organizations has been affected by this crisis. Several researchers widely considered this problem (Yagi & Managi, 2021; Winarsih et al., 2021; Jebran & Chen, 2021; Cepel et al., 2020; Brodner et al., 2021; Padhan & Prabheesh, 2021; Gollier, 2021; Susskind & Vines, 2020; Kochanczyk & Lipniacki, 2021; Cowan et al., 2021; Mofijur et al., 2021; Bouckaert et al., 2020). This situation has been unparalleled in recent history. The COVID-19 pandemic has caused the global economy to hibernate. Compared to the economic crisis of 2008, this was mainly reflected by a substantial drop in demand without further implications on natural mobility. Economic indices, such as gross domestic product, reflect that pandemic-induced economic damage is comparable to and even higher than the damage caused by the global financial crisis in 2008 and 2009. Yagi and Managgi (2021) examined these crises. They compared the production capacity during the crisis in 2008 and 2020. It was found that the production capacity was 0.903 in December 2008.

On the other hand, the production capacity was 0.679 in April 2020. It represents a significant drop in production capacity. Based on these mentioned crises, the most substantial impact has been on SMEs. Eggers (2020) state that the crises and disasters cause further issues for SMEs connected with resource availability and liquidity. This study

points out that these enterprises tend to be less flexible when decision-making powers affect their environment, customers, and other stakeholders.

Thirdly, the literature review is focused on SMEs. The paper focuses on the categorization of SMEs in the Czech Republic according to the number of employees. In accordance with the Recommendation 2003/361/EC, the European Commission (2003) defines small firms as a firm with fewer than 50 employees, and medium firms as a firm with fewer than 250 employees. SMEs are currently one of the main drivers not only of the Czech but also of the European economy and represent an essential role in the economic system of any developed country (Kozubikova et al., 2015). According to the OECD (2017), SMEs play a vital role in the economies of all countries of the world through their contribution to national economic growth and employment. It is stated that SMEs' share in the total number of active enterprises not only in the Czech Republic and Slovakia was more than 99 percent (Virglerova et al., 2017; Kristanti et al., 2019; Kotaskova et al., 2020; Belas et al., 2014; Belas et al., 2020; Ivanova, 2017). Thus, the primary source of employment are SMEs, accounting for about 70% of jobs on average, and they are major contributors to value creation, generating between 50% and 60% of value added on average (OECD, 2017). SMEs are very sensitive to changes in the business environment, which is always reflected in the quantitative characteristics of this sector in a certain time interval (Hudakova et al., 2018; Lastauskas, 2021). All these enterprises and their employees were affected by the pandemic and have been plagued by the health, social, and economic consequences (Weaver, 2020; Kuckertz et al., 2020). Globalization brings benefits but also increasing challenges in the form of economic uncertainty or increasingly competitive labor markets (Sorribes et al., 2021). The COVID-19 pandemic paralyzed the global economy due to the preventive measures concerning the population and enterprises of all sizes, including SMEs. The current situation related to the pandemic proves that it is necessary to be prepared for adverse situations in the business environment, mainly through prediction (Achim et al., 2021; Kljucnikov et al., 2021). According to Hudakova et al. (2021), the most significant risks are market, financial, economic, and

personnel risks, which negatively affect the business environment of SMEs. Enterprise practice proves that risk management is limited to financial and investment risks, while HRM remains neglected. The attention must be focused on individuals – employees, which requires a sophisticated approach to HRM. In some enterprises, risk management only takes place in the event of extraordinary events and unforeseen circumstances. One possible reason may also be that enterprises often apply risk management initiatives late when they already have problems, and then deal with the consequences rather than the prevention. This fact is mainly due to the underestimation of risks in the enterprise and the lack of knowledge and practical experience with the application of risk management, i.e., general approaches of managers to risk management (Hudakova et al., 2018). Dvorsky et al. (2021) and Belas et al. (2020) show that proper risk management prevents problems and increases business value and competitiveness.

The final part of the literature research is focused on the importance of HRM and personnel measures taken in times of crisis. The negative impact of the pandemic on businesses and employees is indisputable. The pandemic has changed the way people work. It also brings numerous challenges to the work of human resources practitioners. As key players in strategic HRM, personnel practitioners need to take advantage of management innovations during the crisis to improve employees' work flexibility (Chen, 2021). It is interesting to examine the causes of crises and personnel impacts depending on the organization's size (Lastauskas, 2021; Chen, 2021; Hudakova et al., 2018). Studies on the adjustment in the face of adverse shocks, firms' reactions, and the macroeconomic implications of stringent, government-imposed lockdowns are much less understood due to their novelty (Lastauskas, 2021). Due to the COVID-19 pandemic-related crisis exposure of the Czech Republic and the rest of the world, wholly appropriate measures need to be adopted to mitigate the economy's already strong negative impact. The most common response of enterprises to the crisis is an inappropriate solution, namely redundancies. However, enterprises are offered several alternative options. These include reducing working hours or setting up a home office. This economic crisis also brings other unpopular measures, such

as wage cuts. The attention of the contribution is also focused on reducing the variable components of wages due to the crisis. The HRM area shows great potential that can contribute to the stabilization of the current crisis. HRM is an inevitable part of every enterprise. During a crisis, enterprises realize the significance of HR quality as a critical factor in economic performance and competitiveness. Business recovery is impossible without employees. A burgeoning body of strategic HRM research has shown that the use of HR practices systems intended to enhance employee knowledge, skills, abilities, motivation, and opportunity to contribute is associated with a positive outcome in enterprises (Jiang et al., 2012). HRM must be an equal partner with corporate crisis management in times of crisis. A pandemic with a corporate impact places a great demand on the readiness and ability to respond to the situation that has occurred dynamically. Hudakova et al. (2021), Alagaraja et al. (2014), Hurt et al. (2014), and Garavan and Carbery (2012) recognized the role of HR development in business enterprises. These studies emphasize enterprises' dependence, large or small, on their employees' skills and strengths in the success and growth of an enterprise.

In conclusion, it should be noted that it is good to look for opportunities even in this not extremely favorable period. These consist mainly of modernization, digitization, and new approaches to HRM. Adapting to the situation and managing this crisis can give the business a competitive advantage in the future.

The paper aims to empirically map and identify the causes of a crisis and then statistically verify how these crises affect the personnel measures taken and human resource management (HRM) in SMEs concerning the organization's size.

The research questions are formed as follows:

- A – Whether a crisis was caused by owners or management of an enterprise.
- B – Whether an internal economic structure triggered a crisis.
- C – Whether an external economic environment caused a crisis.

- D – Whether a shortage of skilled workers caused a crisis.

The primary analysis is followed by the secondary analysis, which complements the researched issues and is focused on the external causes of a crisis and its impact on employees. The most significant external threat is now the COVID-19 pandemic. Secondary research questions follow the research questions from the primary analysis.

All research questions are related to the COVID-19 pandemic, and they were settled as:

- A – Whether the size of an enterprise affects a business closure.
- B – Whether the size of an enterprise affects a dismissal of employees.
- C – Whether the size of an enterprise affects a reduction of working hours.
- D – Whether the size of an enterprise affects introduction of home offices.
- E – Whether the size of an enterprise affects a reduction of variable wage components.
- F – Whether the size of an enterprise affects a reduction of the basic wage.

2. METHODOLOGY AND DATA

The study was focused on the manufacturing industry. Therefore, all of the questions used a closed-matrix method. The questionnaire survey and data collection were performed in two steps, so the methodology is divided into two parts.

Firstly, the primary analysis is focused on SMEs and finding out the most common causes of crises. The investigation was conducted in February 2020, just before the outbreak of the global COVID-19 pandemic. Only the respondents who stated in the questionnaire that they had experienced a crisis during the operation of an enterprise were used for statistical processing. Thus, 53% of the addressed small-sized enterprises (up to 50 employees) were

not included in the statistics, where the representatives categorically rejected any solution to a crisis connected with the enterprise. In the category of medium-sized enterprises (51-250 employees), it was 30% of enterprises, and in the category of large-sized enterprises (251 and more employees), it was 28%. The remaining answers were examined and statistically processed. The category of large-sized enterprises was used for a comprehensive comparison, although it was not the subject of this study.

The results of the survey were processed using basic descriptive statistics. Boxplots were used to publish the research results. The most common location measures were determined using the median and the mode. The measure of variability was then found by using the discrete ordinal variance. Converting the discrete ordinal variance to the standardized form of the discrete ordinal variance (NORM) was necessary to compare selected categories (with the different numbers).

Secondly, based on the primary analysis of the causes of SMEs' crises, the secondary analysis focused on the external factors causing the problem. The most influential external factor influencing the operation of enterprises in the market is the COVID-19 pandemic.

The literature review showed that the external economic environment caused the most frequently mentioned crises. Therefore, it is offered to investigate the most common topic of today. Moreover, that is undoubtedly the impact of the COVID-19 pandemic. It should be noted that this paper complements previous investigations. However, it was started only after the previous one; in other words, the respondents' sample is entirely different.

During the questioning, the answers of 166 interviewees were obtained. This study was conducted in September 2020. After validation of the answers, only 142 completed questionnaires could

be used for analysis. The first reason was to select only those enterprises negatively affected by the COVID-19 pandemic. Moreover, the second reason for such a low number of completed questionnaires was the earlier termination of the survey due to government measures addressing emergencies caused by COVID-19. Finally, the chi-square test and Cramer's coefficient were used to verify the statistical dependence of individual responses on enterprises' size.

3. EMPIRICAL RESULTS

The obtained results are divided into two parts. Firstly, this paper presents the primary analysis results dealing with the causes of a crisis. Four research questions (cases) were set and analyzed based on a questionnaire. Statistical dependence of individual answers concerning the size of an enterprise was verified.

The incidence of particular responses from the examination was assessed in accordance with a scaled assessment of the research questions 1-4, based on the size of an enterprise. The designation "S" defines small-sized, "M" defines medium-sized, and "L" defines large-sized. The incidence of particular responses from the examination was assessed following a scaled assessment of the research questions 1-4, based on the size of enterprises. The explanation of the rating scale's grades is settled as follows: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, and 4 – Strongly agree.

Essential statistical characteristics of collected data are briefly presented in Table 1.

The same statistics could be expressed as boxplots given in Figure 1. It was exploited to examine the location and variability measures of all four research questions. Table 1 accompanies this graphical evidence with descriptive statistics.

Table 1. Measures of location and variability of research questions (Q1-4)

Source: Authors' calculations.

Cases	1.S	1.M	1.L	2.S	2.M	2.L	3.S	3.M	3.L	4.S	4.M	4.L
NORM	0.14	0.78	0.60	0.15	0.50	0.57	0.31	0.50	0.51	0.40	0.72	0.71
Mode	1	1	1	1	1	1	4	4	4	1	1	1
Median	1	1	1	1	1	1	4	4	4	1	2	2

Source: Authors' results.

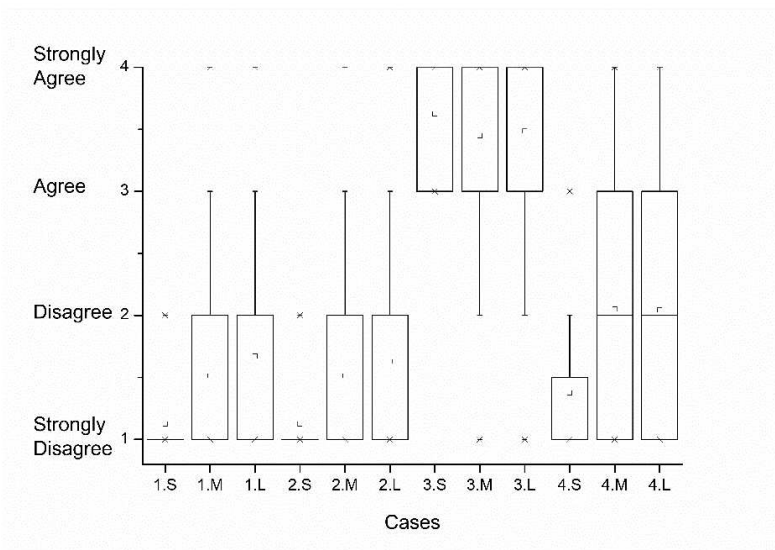


Figure 1. Boxplots of the responses to research questions (Q1-4)

The first research question was about the crisis caused by the enterprise's owners or management. Based on Table 1, it cannot be concluded that the size of the incidence of particular responses from the examination was assessed in accordance with a scaled assessment of the research questions 1-4, based on the size of an enterprise affects the perception of this crisis. There were no statistically significant differences in the individual categories of enterprises. Therefore, the probability of a crisis was identified as rarely in all monitored categories. However, it can be observed from the results that the answers of medium-sized enterprises are very scattered. The same one could see in the category of large-sized enterprises. The opposite is true for small-sized enterprises, where the answers are less scattered. For example, only 5% of the answers "Strongly Agree" were recorded for medium-sized enterprises.

The same trend is observed in the next research question – whether an internal economic structure triggered the crisis. Thus, the representatives of the individual categories agreed and marked the occurrence of this crisis as rare. The only noticeable change is in the gradual increase in the variance. The answers of small-sized enterprises are less scattered; the variance is smaller but not significant. Thus, it cannot determine from the collected data whether there are significant differences between some categories between the occurrence of a crisis and the size of enterprises are found here either. Only 15% of respondents marked the answer "Agree" in medium-sized enterprises.

The third research question concerned the crisis caused by an external economic environment. Here one can conclude that representatives of enterprises of all categories have identified this crisis as highly probable. This finding could be logical and expected, primarily due to the impact of the COVID-19 pandemic, which was also the reason for further investigation in this area. There were no statistically significant differences in the individual categories of enterprises. Nearly 63% of respondents in the category of small-sized enterprises selected the answer "Strongly Agree." In the category of medium-sized enterprises, it reached 59%.

The last research question examined whether a shortage of skilled workers caused a crisis. Here, one cannot identify significant statistical differences in the data found with the second research question. The response "Agree" was selected by 13% of respondents in the category of small-sized enterprises, and 36% of respondents selected a similar response in the category of medium-sized enterprises.

Secondly, based on the identified indicators, the study decided to supplement the survey with external threats causing a crisis in SMEs. Therefore, the investigation focused on the impact of the COVID-19 pandemic on SMEs and solutions. The answers of 166 interviewed were obtained. Following a survey, another six kinds of research questions were investigated. The scientific hypotheses (null – H_0 and alternative – H_1) were also es-

established for each scientific question. The questions were confirmed by the statistical dependence of individual responses concerning the size of the enterprises. Therefore, all research questions and their hypotheses are related to the COVID-19 pandemic, and they were settled as:

Q5 – Whether the size of an enterprise affects a business closure.

H_0 : The size of an enterprise does not affect a business closure.

H_1 : The size of an enterprise affects a business closure.

Q6 – Whether the size of an enterprise affects a dismissal of employees.

H_0 : The size of an enterprise does not affect a dismissal of employees.

H_1 : The size of an enterprise affects a dismissal of employees.

Q7 – Whether the size of an enterprise affects a reduction of working hours.

H_0 : The size of an enterprise does not affect a reduction of working hours.

H_1 : The size of an enterprise affects a reduction of working hours.

Q8 – Whether the size of an enterprise affects introduction of home offices.

H_0 : The size of an enterprise does not affect introduction of home offices.

H_1 : The size of an enterprise affects introduction of home offices.

Q9 – Whether the size of an enterprise affects a reduction of variable wage components.

H_0 : The size of an enterprise does not affect a reduction of variable wage components.

H_1 : The size of an enterprise affects a reduction of variable wage components.

Q10 – Whether the size of an enterprise affects a reduction of the basic wage.

H_0 : The size of an enterprise does not affect a reduction of the basic wage.

H_1 : The size of an enterprise affects a reduction of the basic wage.

The incidence of individual responses from the survey was assessed according to the contingency tables. The relationship between the variables was summarized in these tables. A chi-square test could be carried out on these contingency tables to test if there is a relationship between variables. The intensity of the relationship between variables was measured by the Cramer’s coefficient varying from 0 to 1. Values close to 0 show a weak enterprise between the variables. Oppositely, values close to 1 demonstrate a strong enterprise. The Cramer’s coefficient was applied only when the dependent relationship between the variables was determined. Therefore, the results of hypothesis testing are given in Table 2.

Table 2 demonstrates the computations of chi-square testing of research questions (Q5-10). There

Table 2. Computations of chi-square testing of research questions (Q5-10)

Source: Authors’ calculations.

Research question identifier	Chi-square statistic	Critical value	p-value	Is the relationship between variables statistically significant?	
5	2.434	5.991	0.296	NOT SIGNIFICANT at $p < 0.05$	
6	0.008		0.996		
7	3.019		0.221		
8	4.82		0.090		
9	10.24		0.006		SIGNIFICANT at $p < 0.05$
10	3.636		0.162		NOT SIGNIFICANT at $p < 0.05$

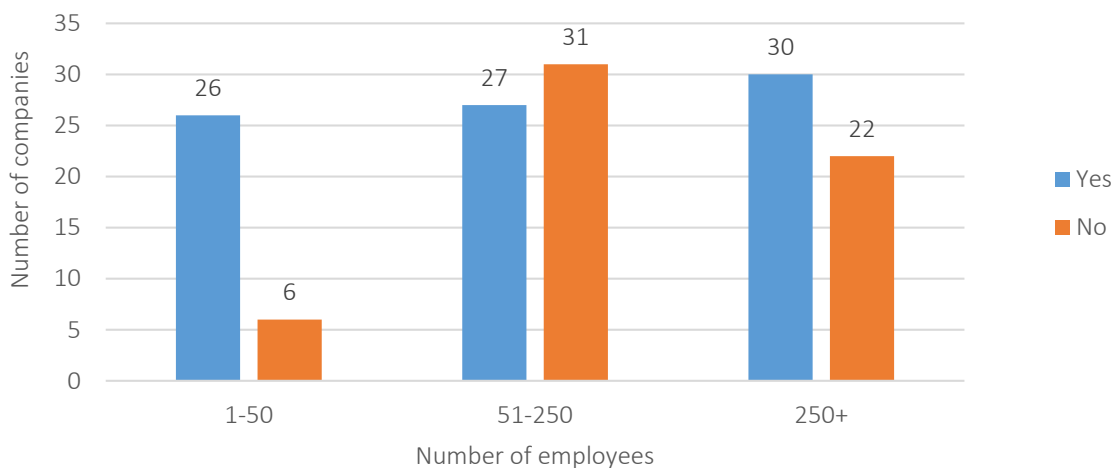


Figure 2. Structure of respondents' answers to the research question 9

were no significant dependencies in relation to the monitored phenomena and the size of the enterprises in research questions Q5-8 and Q10. The only recognized statistical dependence can be observed in the reduction of variable wage components (Q9). The structure of specific answers is provided in Figure 2.

The relationship between variables is statistically significant in Q9. In this research query, a chi-square test of independence was completed to observe the relation between the enterprise's size and the reduction of variable wage components. The relationship between these variables was considerable. The null hypothesis could be rejected, and it can be concluded that the size of enterprises influences the reduction of variable wage components. The most considerable difference between the observed and expected values can be traced in the category of small-sized enterprises. It can be concluded that small enterprises are more likely to reduce variable wage components. Mean dependence between variables is expressed as the Cramer's coefficient reaching 0.269. The remaining research questions do not exhibit statistical dependencies (null hypotheses could not be rejected), and the relations between these variables were not considered.

4. DISCUSSION

SMEs, considered the backbone of the whole economy, are currently facing the problem of the COVID-19 pandemic. COVID-19 has hit

the economies of all countries around the world. Nevertheless, this has led to the hibernation of the world economy. The International Monetary Fund (2020) expects the world economy to shrink the most since the Great Depression in the 1930s. The decline is almost immediate, and the depth unprecedented. It is an immediate shutdown of some parts of the economy. A vast number of SMEs went bankrupt (Amankwah-Amoah et al., 2021).

To make the enterprise successful in the long run, it should have a functioning system of risk management (Taraba et al., 2016). Some factors could cause a crisis in a flash, such as COVID-19. Sometimes the cause is immediately known, and a long search is seldom needed to find the causes of an unfavorable situation. To start the treatment of the enterprise – remediation – it is also necessary to determine at what development stage of a crisis the enterprise is currently in. Although it is not regularly possible to proceed in a unified manner in the case of crisis management, there are several generally valid principles and recommendations that, when applied, are remarkably likely to prevent the catastrophic consequences of a crisis. If an enterprise is already in crisis, it should act immediately. The key is an accelerated top management meeting and setting up a crisis team, which will continuously monitor this crisis. The main task will be to find a solution to a crisis so that the enterprise's performance and prosperity can be restored as soon as possible. The crisis team should be composed of all representatives of critical departments (finance, HR, marketing, purchasing and sales, production, etc.).

The crisis team should focus on core business areas. In HRM, it is necessary to look for savings, both short-term, or operational, and long-term, or strategic. The big mistake is that enterprises start laying off immediately. It is necessary to identify key positions that must be filled and dispensable (e.g., control or project). An enterprise should have simulated plans on how to produce, assuming a reduction in the number of employees by 20% or 50%, and in which outage it would be appropriate to stop the production/operation completely. These plans are also used at the financial level because an essential point for maintaining the enterprise's operation in a period of most tremendous uncertainty is to ensure sufficient funds to cover the enterprise's liabilities. It is recommended to postpone loan repayments or start negotiations with creditors on the possibility of a later payment or repayment schedule. It is also appropriate to quickly inventory all contracts that the enterprise should perform during and after the crisis. This inventory should analyze all contractual sanctions and fines for non-delivery, delivery after the deadline, problems with the commissioning of delivered equipment/pre-sales service, etc. Particular attention should be paid to whether and how force majeure is treated in contracts. All these steps significantly help in the field of finance, and it is an effort to increase revenues and sales and restore enterprise liquidity. There are several recommendations and validated procedures, but this would already go well beyond the scope of this paper. Coronavirus is not a local issue but a global challenge. The first cases of the COVID-19 disease were confirmed in Europe in January 2020 (Spiteri et al., 2020). European leaders needed to

proceed quickly, and numerous began introducing anti-pandemic measures.

Governments introduced measures to minimize the risk of contagion. Various measures impacted everyday life, including professional life, which placed great demands on enterprises. The study showed that the introduction of the proposed measures was not limited to SMEs. However, it could also be applied to large enterprises with over 250 employees.

Readiness to change and corporate risk management has never been as vital as now. SMEs nature makes the implementation of risk control more complex and needs a wide-ranging skills and resources (Rostami et al., 2015). Risk control is considered a principal factor in enterprise design and management (Qazi et al., 2016). Risk management implementation in SMEs may considerably contribute to stabilizing the situation during the crisis caused by the COVID-19 pandemic.

The aspects that come to the foreground include work flexibility and communication technologies in teams and with clients. Enterprises think more about the level of flexibility and introduction of appropriate measures, especially in HRM. As follows from the questionnaire-based inquiry results, enterprises in the Czech Republic have mainly responded to the negative impact of the coronavirus crisis by implementing working from home, reducing floating wage components, and shortening working hours. Only if SMEs realize the importance of the above system steps can they succeed at this time.

CONCLUSION

This paper aimed to empirically map and identify the causes of a crisis and then statistically verify how these crises affect the personnel measures taken and human resource management (HRM) in SMEs concerning the organization's size. Only if crises are identified, organizations can manage them effectively. The study included all SMEs from the manufacturing industry in the Czech Republic. The methodology was divided into two parts, two types of analysis, which followed each other. Data sets were expressed and presented using boxplots and chi-square. The first phase of analysis focused on identifying and analyzing the causes of crises and showed that the most common cause of crises is the factor of external influences. More than half of the respondents answered that the biggest threat is an external factor in the form of a pandemic (almost 63% of small enterprises and 59% of medium-sized enterprises). The COVID-19 pandemic has a devastating impact on the activities of enterprises and, of course, on the economies of all countries. The pandemic has also caused a social crisis that is absolutely closely

linked to the human factor. The second phase of the analysis (secondary survey) has therefore focused on the effects of the pandemic on the personnel area. The Cramer's coefficient of 0.269 stated that small enterprises most regularly reduce variable wage components. The conclusions show that if an enterprise knows the causes of crises, it can effectively prepare for them and learn to manage them. Therefore, a functioning risk management system is necessary, which also applies to human resources management.

AUTHOR CONTRIBUTIONS

Conceptualization: Eva Hoke, Kamil Peterek, Katerina Vichova, Pavel Taraba.

Data curation: Eva Hoke, Kamil Peterek.

Formal analysis: Katerina Vichova.

Funding acquisition: Pavel Taraba.

Investigation: Eva Hoke, Kamil Peterek.

Methodology: Kamil Peterek.

Project administration: Eva Hoke.

Resources: Eva Hoke, Katerina Vichova.

Supervision: Eva Hoke, Pavel Taraba.

Validation: Kamil Peterek.

Writing – original draft: Eva Hoke, Kamil Peterek, Katerina Vichova.

Writing – review & editing: Kamil Peterek, Katerina Vichova, Pavel Taraba.

ACKNOWLEDGMENT

This study was supported by the project DKRVO Tomas Bata University in Zlín – Risk management in logistics – RVO/FLKŘ/2021/03, Faculty of Logistics and Crisis Management, and project GAAA – Project risk management in the conditions of SMEs in the Czech Republic – GA/16/2019.

REFERENCES

- Achim, M. V., Safta, I. V., Văidean, V. L., Muresan, G. M., & Borlea, N. S. (2021). The impact of covid-19 on financial management: evidence from Romania. *Economic Research-Ekonomska Istraživanja*. <https://doi.org/10.1080/1331677X.2021.1922090>
- Alagaraja, M., Kotamraju, P., & Kim, S. (2014). A conceptual framework for examining HRD and NHRD linkages and outcomes: Review of TVET literature. *European Journal of Training and Development*, 38(4), 265-285. <https://doi.org/10.1108/EJTD-01-2013-0009>
- Amankwah-Amoah, J., Khan, Z., & Wood, G. (2021). COVID-19 and business failures: The paradoxes of experience, scale, and scope for theory and practice. *European Management Journal*, 39(2), 179-184. <https://doi.org/10.1016/j.emj.2020.09.002>
- AminJafari, A., & Ghasemi, S. (2020). The possible of immunotherapy for COVID-19: A systematic review. *International Immunopharmacol*, 83, 106455. <https://doi.org/10.1016/j.intimp.2020.106455>
- Belas, J., Khan, K. A., Marousek, J., & Rozsa, Z. (2020). Perceptions of the importance of business ethics in SMEs: A comparative study of Czech and Slovak entrepreneurs. *Ethics & Bioethics*, 10(1-2), 96-106. <https://doi.org/10.2478/ebce-2020-0010>
- Belas, J., Machacek, J., Bartos, P., Hlawiczka, R., & Hudakova, M. (2014). Business Risks and the Level of Entrepreneurial Optimism among SME in the Czech and Slovak Republic. *Journal of Competitiveness*, 6(2), 30-41. <https://doi.org/10.7441/joc.2014.02.03>
- Bouckaert, G., Galli, D., Kuhlmann, S., Reiter, R., & Van Hecke, S. (2020). European Corona-tionalism? A Hot Spot Governing a Pandemic Crisis. *Public Administration Review*, 80(5), 765-773. <https://doi.org/10.1111/puar.13242>
- Branicki, L. J. (2020). COVID-19, Ethics of Care, and Feminist Crisis Management. *Gender, Work & Organization*, 27(5), 872-883. <https://doi.org/10.1111/gwao.12491>
- Broduer, A., Gray, D., Islam, A., & Bhuiyan, S. (2021). A literature review of the economics of COVID-19. *Journal of Economic Surveys*, 35, 1007-1044. <https://doi.org/10.1111/joes.12423>
- Bundy, J., & Pfarrer, M. D. (2015). A Burden of Responsibility: The Role of Social Approval at the Onset of a Crisis. *Academy of Management Review*, 40(3), 345-369. <https://doi.org/10.5465/amr.2013.0027>

11. Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2017). Crises and Crisis Management: Integration, Interpretation, and Research Development. *Journal of Management*, 43(6), 1661-1692. <https://doi.org/10.1177/0149206316680030>
12. Catullo, E. (2017). Chapter 5 – Early Warning Indicator for Crises in an Agent-Based Macromodel. In *Introduction to Agent-Based Economics* (pp. 105-124). Academic Press. <https://doi.org/10.1016/B978-0-12-803834-5.00007-2>
13. Cepel, M., Gavurova, B., Dvorsky, J., & Belas, J. (2020). The impact of the COVID-19 crisis on the perception of business risk in the SME segment. *Journal of International Studies*, 13(3), 248-263. <https://doi.org/10.14254/2071-8330.2020/13-3/16>
14. Chen, Z. (2021). Influence of Working From Home During the COVID-19 Crisis and HR Practitioner Response. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.710517>
15. Cowan, E., Khan, M. R., Shastri, S., & Edelman, E. J. (2021). Conceptualizing the effects of the COVID-19 pandemic on people with opioid use disorder: and application of the social ecological model. *Addiction Science and Clinical Practice*, 16(4), 1-6. <https://doi.org/10.1186/s13722-020-00210-w>
16. Dvorský, J., Čepel, M., Simionescu, M., & Ďurana, P. (2021). The influence of competitiveness on start-up in SMEs segment. *E&M: Ekonomika a Management*, 24(1), 102-117. <http://dx.doi.org/10.15240/TUL/001/2021-1-007>
17. Dvorsky, J., Belas, J., Gavurova, B., & Brabenc, T. (2021). Business risk management in the context of small and medium-sized enterprises. *Economic Research-Ekonomska Istrazivanja*, 34(1), 1690-1708. <https://doi.org/10.1080/1331677X.2020.1844588>
18. Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research*, 116, 199-208. <https://doi.org/10.1016/j.jbusres.2020.05.025>
19. European Commission. (2003). *Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (Text with EEA relevance) (notified under document number C(2003) 1422)*. Brussels. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003H0361>
20. Garavan, T. N., & Carbery, R. (2012). A review of international HRD: incorporating a global HRD construct. *European Journal of Training and Development*, 36(2/3), 129-157. <https://doi.org/10.1108/03090591211215579>
21. Gollier, Ch. (2021). Insurance economics and COVID-19. *Journal of Risk and Insurance*, 88(4), 825-829. <https://doi.org/10.1111/jori.12366>
22. Hudakova, M., Gabrysova, M., Petrakova, Z., Buganova, K., & Krajcik, V. (2021). The Perception of Market and Economic Risks by Owners and Managers of Enterprises in the V4 Countries. *Journal of Competitiveness*, 13(4), 60-77. <https://doi.org/10.7441/joc.2021.04.04>
23. Hudakova, M., Masar, M., Luskova, M., & Patak, M. R. (2018). The Dependence of Perceived Business Risks on the Size of SMEs. *Journal of Competitiveness*, 10(4), 54-69. <https://doi.org/10.7441/joc.2018.04.04>
24. Hurt, C. A., Lynham, A. S., & McLean, N. G. (2014). Investigating the HRD cube and explicating extant paradigms of HRD. *European Journal of Training and Development*, 38(4), 323-346. <https://doi.org/10.1108/EJTD-07-2013-0081>
25. Ivanova, E. (2017). Barriers to the development of SMEs in the Slovak Republic. *Oeconomia Copernicana*, 8(2), 255-272. <https://doi.org/10.24136/oc.v8i2.16>
26. Jebran, K., & Chen, S. (2021). Can we learn lessons from the past? COVID-19 crisis and corporate governance responses. *International Journal of Finance and Economics*. <https://doi.org/10.1002/ijfe.2428>
27. Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How Does Human Resource Management Influence Organizational Outcomes? A Meta-Analytic Investigation of Mediating Mechanisms. *Academy of Management Journal*, 55(6), 1264-1294. <https://doi.org/10.5465/amj.2011.0088>
28. Kljucnikov, A., Civelek, M., Fialova, V., & Folvarcna, A. (2021). Organizational, local, and global innovativeness of family-owned SMEs depending on firm-individual level characteristics: evidence from the Czech Republic. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 16(1), 169-184. <https://doi.org/10.24136/eq.2021.006>
29. Kochanczyk, M., & Lipniacki, T. (2021). Pareto-based evaluation of national responses to COVID-19 pandemic shows that saving lives and protecting economy are non-trade-off objectives. *Scientific Reports*, 11, 1-9. <https://doi.org/10.1038/s41598-021-81869-2>
30. Kotaskova, A., Belas, J., Bilan, Y., & Khan, K. A. (2020). Significant Aspects of Managing Personnel Risk in the SME Sector. *Management & Marketing. Challenges for the Knowledge Society*, 15(2), 203-218. <https://doi.org/10.2478/mmcks-2020-0013>
31. Kozubikova, L., Belas, J., Bilan, Y., & Bartoz, P. (2015). Personal characteristics of entrepreneurs in the context of perception and management of business risk in the SME segment. *Economics and Society*, 8(1), 41-54. <https://doi.org/10.14254/2071-789X.2015/8-1/4>
32. Kristanti, F. T., Rahayu, S., & Isywardhana, D. (2019). The Survival of Small and Medium Business. *Polish Journal of Management Studies*, 20(2), 311-321. <https://doi.org/10.17512/pjms.2019.20.2.26>
33. Kuckertz, A., Brandle, L., Gaudig, A., Hinderer, S., Reyes, C. A. M., Prochotta, A., Steinbrink, K. M., & Berger, E. S. C. (2020). Startups in Times of Crisis – a Rapid Response to the COVID-19 Pandemic. *Journal of Business Venturing Insights*, 13, 1-13. <https://doi.org/10.1016/j.jbvi.2020.e00169>

34. Labas, D. (2017). The Impact of Organizational Crisis Preparedness on Firm Business Performance. *Market-Tržište*, 29(1), 75-92. <https://doi.org/10.22598/mt/2017.29.1.75>
35. Lastauskas, P. (2021). Lockdown, employment adjustment, and financial frictions. *Small Business Economics*, 58, 919-942. <https://doi.org/10.1007/s11187-021-00496-3>
36. Lockwood, N. R. (2005). *Crisis Management in Today's Business Environment: HR's Strategic Role*. United States of America: SHRM. Retrieved from <https://www.shrm.org/hr-today/news/hr-magazine/documents/1205rquartpdf.pdf>
37. Mofijur, M., Fattah, I. M. R., Alam, M.A., Islam, A. B. M. S., Ong, H. CH., Rahman, S. M. A., Najafi, G., Ahmed, S. F., Uddin, M. A., & Mahlia, T. M. I. (2021). Impact of COVID-19 on the social, economic, environmental and energy domains: Lessons learnt from a global pandemic. *Sustainable Production and Consumption*, 26, 343-359. <https://doi.org/10.1016/j.spc.2020.10.016>
38. OECD. (2017). *Enhancing the Contributions of SMEs in a Global and Digitalised Economy*. Retrieved from <https://www.oecd.org/mcm/documents/C-MIN-2017-8-EN.pdf>
39. Padhan, R., & Prabheesh, K. P. (2021). The economics of COVID-19 pandemic: A survey. *Economic Analysis and Policy*, 70, 220-237. <https://doi.org/10.1016/j.eap.2021.02.012>
40. Pedersen, C. L., Ritter, T., & Di Benedetto, C. A. (2020). Managing through a crisis: Managerial implications for business-to-business firms. *Industrial Marketing Management*, 88, 314-322. <https://doi.org/10.1016/j.indmarman.2020.05.034>
41. Qazi, A., Quigley, J., Diskson, A., & Kirytopoulos, K. (2016). Project complexity and risk management (ProCRiM): Towards modelling project complexity driven risk paths in construction projects. *International Journal of Project Management*, 34(7), 1183-1198. <https://doi.org/10.1016/j.ijproman.2016.05.008>
42. Ritter, T., & Pedersen, C. L. (2020). Analyzing the impact of the coronavirus crisis on business models. *Industrial Marketing Management*, 88, 214-224. <https://doi.org/10.1016/j.indmarman.2020.05.014>
43. Rostami, A., Sommerville, J., Wong, I. L., & Lee, C. (2015). Risk management implementation in small and medium enterprises in the UK construction industry. *Engineering, Construction and Architectural Management*, 22(1), 91-107. <https://doi.org/10.1108/ECAM-04-2014-0057>
44. Sorribes, J., Celma, D., & Martínez-García, E. (2021). Sustainable human resources management in crisis contexts: Interaction of socially responsible labour practices for the wellbeing of employees. *Corporate Social Responsibility and Environmental Management*, 28, 1-17.
45. Spiteri, G., Fielding, J., Diercke, M., Campese, Ch., Enouf, V., Gaymard, A., Bella, A., Sognamiglio, P., Sierra, M. M. J., Riutort, A. N., Demina, Y. V., Mahieu, R., Broas, M., Bengner, M., Buda, S., Schilling, J., Filleul, L., Lepoutre, A., ... & Ciancio, B. Ch. (2020). First cases of coronavirus disease 2019 (COVID-19) in the WHO European Region. *Eurosurveillance*, 25(9), 1-6. <https://doi.org/10.2807/1560-7917.ES.2020.25.9.2000178>
46. Susskind, D., & Vines, D. (2020). The economics of the COVID-19 pandemic: an assessment. *Oxford Review of Economic Policy*, 36(suppl_1), S1-S13. <https://doi.org/10.1093/oxrep/graa036>
47. Taraba, P., Hart, M., & Pitrova, K. (2016). Risk Management of Projects in the Czech Republic. *Polish Journal of Management Studies*, 13(1), 181-191.
48. The International Monetary Fund. (2020). *A Crisis Like No Other, An Uncertain Recovery*. Retrieved from <https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020>
49. Vassilara, F., Spyridaki, A., Pothitos, G., Deliveliotou, A., & Papadopoulos, A. (2018). A Rare Case of Human Coronavirus 229 E Associated with Acute Respiratory Distress Syndrome in a Healthy Adult. *Case Reports in Infectious Diseases*, 2018, 1-4. <https://doi.org/10.1155/2018/6796839>
50. Virglerova, Z., Dobes, K., Kramolis, J., & Kotaskova, A. (2017). The influence of the SME owners' education on their perception of business environment in Czech Republic. *Economics and Sociology*, 10(3), 321-332. <https://doi.org/10.14254/2071-789X.2017/10-3/22>
51. Weaver, R. L. (2020). The Impact of COVID-19 on the Social Enterprise Sector. *Journal of Social Entrepreneurship*. <https://doi.org/10.1080/19420676.2020.1861476>
52. Winarsih, Indriastuti, M., & Fuad, K. (2021). Impact of Covid-19 on Digital Transformation and Sustainability in Small and Medium Enterprises (SMEs): A Conceptual Framework. In L. Barolli, A. Poniszewska-Maranda, & T. Enokido (Eds.), *Complex, Intelligent and Software Intensive Systems. CISIS 2020. Advances in Intelligent Systems and Computing* (pp. 471-476). Cham: Springer. https://doi.org/10.1007/978-3-030-50454-0_48
53. Yagi, M., & Managgi, S. (2021). Global Supply Constraints from the 2008 and COVID-19 Crises. *Economic Analysis and Policy*, 69, 514-528. <https://doi.org/10.1016/j.eap.2021.01.008>