

# Balkans Journal of Emerging Trends in Social Sciences – Balkans JETSS –

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# **Balkans Journal of Emerging Trends in Social Sciences – Balkans JETSS**

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## PANDEMICS AND DEVELOPMENT OF THE WORLD ECONOMY: A HYPOTHESIS OF CORRELATION

Le Chen<sup>1</sup> 

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**Abstract:** *Coronavirus disease 2019-nCoV is a novel and highly transmissible infectious disease. However, in the history of human development, there have already been many infectious diseases that caused pandemics. Through a review of pandemics over centuries, the author tried to understand whether there was any correlation between the pandemics and the development of the world economy of the associated period. Although 2019-nCoV pandemic is deeply affected every country varying only in the degree, and the response measures taken by countries against the pandemic are also various, however, the pandemic has spread globally without exception; therefore, this study aims to call on to adopt a prevention strategy to face the new challenges ahead with a healthy rhythm of progressive globalization.*

**Keywords:** *Pandemic, Development, Environment, Correlation, Prevention.*

**JEL Classification** F63 · I15 · O11

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## 1. INTRODUCTION

Historically, economic development at amazingly fast speed has enormously contributed to human development while has also sacrificed the environment, especially the development of the modern economy and the rapid rise of economic globalization has exacerbated environmental problems. The earth we depend on for survival is suffering from unprecedented disasters, and the destruction of the earth's natural ecology will eventually threaten the basic survival and development of human beings. In a sense, the 2019-nCoV pandemic once again coincides with history. As a reflection upon the current situation caused by 2019-nCoV, it is natural to think back about the previous pandemics.

## 2. OBJECTIVES AND RESEARCH METHODOLOGY

Nothing has killed more human beings than infectious disease, despite today being a technology-led, innovation-driven globalization stage is no exception. Helpless we may feel in the case of coexistence with infectious disease, but we are far from powerless in this campaign. Therefore, this study attempts to learn from history for making a research proposal of a hypothesis on the potential correlation between the pandemics and the development of the world economy of the associated period. The aspects of research questions are as follows: hypothesis based on a review of six pandemics; rethinking the inevitability of the pandemics; what prevention should be taken to reduce the public safety risks triggered by a pandemic.

In this paper, the research proposal of a hypothesis is based on a review method with analysis of correlation to study the relationship between the pandemics and the development of the world economy of the associated period.

## 3. HYPOTHESIS BASED ON A REVIEW OF SIX PANDEMICS

As a first step towards the hypothesis, found in the previous research on a review of six pandemics is illustrated in the following table.

**Table 1.** A review of six pandemics

Nr	Name of Pandemic	Virus Subtype	First in	Year	Historical Back-ground→ Economy	Estimated GDP <sup>1</sup> (US\$, trillion)			
						Min	Max	Span of Years	Mean
1	Russian Flu	H3N8	RU	1889-1890	Modern industrial age → New transport links, British banking crisis in 1890 and the world economy was in recession	1.1014	2.7048	44	1.8484
2	Spanish Flu	H1N1	ES	1918-1920	World War I <sup>2</sup> → Cramped conditions of soldiers and poor war-time nutrition	2.7048	5.3361	38	3.1664

<sup>2</sup> GDP is the final value of the goods and services produced within the geographic boundaries of a country during a specified period, normally a year.  
Available at: <http://www.ggd.c.net/maddison/ortindex.htm>, <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> <https://www.imf.org/external/datamapper/NGDPD@WEO/OEMDC/ADVEC/WEOWORLD>



3	Asian Flu	H2N2	CN	1957-1958	Vietnam War <sup>3</sup> → The first world economic crisis after World War II <sup>4</sup>	5.3361	16.0592	24	9.1339
4	Hong Kong Flu	H3N2	HK	1968-1969	Vietnam War → Another economic crisis since the Great Depression	2.451	2.705	2	2.578
5	Swine Flu	H1N1	MX	2009-2010	The world economy has shown negative growth for the first time since World War II	60.396	66.113	2	63.2545
6	COVID-19	2019-nCoV	CN	2019-2020 Oct	The world economy continues to be sluggish, and issues such as trade frictions, geographic conflicts, and financial market turmoil frequently arise	87.698	83.84	1.833	85.5936

**Source:** Based on Eprints.ugd.edu.mk, Worldbank.org, Ggdc.net

Cato stated in his book, “I am equally sure that the source of the current environmental stress – the evidence for which accumulates daily - is in economic activity” (Cato, 2020, p. 3). Environmental indicators are essential tools for tracking environmental progress. Since the early 1990s, such indicators have gained importance in many countries and international fora, and OECD countries increasingly use a reduced number of indicators, so-called “key indicators”, selected from larger sets to report on major environmental issues. So far, there has not been a single indicator for measuring the world’s environment.

As we all know that economic development has overwhelmed the air which represents one of the most crucial factors both for the ecological environment and for being influenced by the development of the world economy. Moreover, experts believe the virus that causes Coronavirus disease 2019-nCoV spreads mainly from person to person through the air. The air quality reflects the degree of air pollution. Especially, the development of the modern economy has made air quality a topic of increasing concern.

Air pollution can be measured by air quality indicators. They stated, “AQI (air quality index) is a numerical index based on measured concentrations of selected ambient air pollutants. It reports the severity of air pollution to the public and policy makers and specifies its adverse effects on human health. The AQI has been globally utilized to define the level of urban air pollution to protect human health and environmental resources”. (Jassim and Coskuner, 2017, p.19). The following table lists more details.

**Table 2.** AQI and Interpretations

Air Pollution Level	AQI	Mean AQI - > World AQI	Air Quality Scale	Main Interpretation
L1	0-50	25	Good	Air quality is considered satisfactory
L2	51-100	75.5	Moderate	Air quality is acceptable

<sup>3</sup> The data “about 125,000 tons of chemical agent were employed during World War I, and about 96,000 tons during the Viet-Nam conflict.” is available at: Robinson, J. P. (2013). *The Effects of Weapons on Ecosystems: Unep Studies* (Vol. 1). Elsevier.

<sup>4</sup> The Vietnam War (1955-1975) had significant environmental implications due to chemical agents which were used to destroy militarily significant vegetation.

L3	101-150	125.5	Unhealthy for sensitive groups	Members of sensitive groups may experience health effects
L4	150-200	175.5	Unhealthy	Everyone may begin to experience health effects
L5	201-300	250.5	Very Unhealthy	Health warning of emergency conditions
L6	300-500	400.5	Hazardous	Everyone may experience more serious health effects

**Source:** Based on Waqi.info, 2020

As is known to all that the total amount and level of a country's economic development is based on the gross domestic product (GDP). Therefore, we use the total world GDP at the time of the pandemic. At the same time, let us obtain the support of this data from the AQI as a medium because we believe that in the past few centuries before this indicator came out, the impact of air quality on human health is no less important than today, and air quality is gradually deteriorating with economic development. Therefore, we subjectively assume the average value of AQI as the world AQI at that time and assign this value to the gradually developing world economy.

- a. We have used Pearson Correlation Coefficient (Pearson's r) analysis to complete the calculation. In this paper, it is developed directly by the formula and graph embedded in excel. We assume world AQI as the variable Y and Estimated Mean GDP as the independent variable X. Where two values are derived from Table 1 and Table 2. We examine whether the dependent variable Y has a significant relationship with the independent variable X, that is, Value r. The calculation based on Pearson's r is given as follows:

$$r = \rho_{X,Y} = \frac{Cov(X,Y)}{\sigma_X \sigma_Y} \quad (1)$$

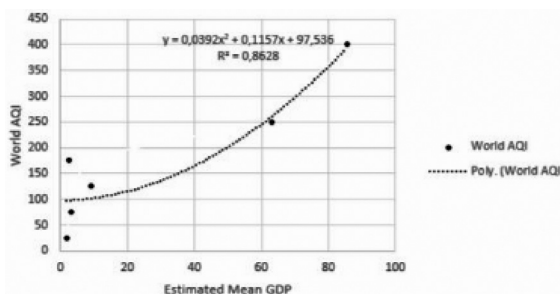
A detailed logic is shown in the following table:

**Table 3.** Correlation calculation

Nr Pandemic	1	2	3	4	5	6
Independent Variable X	1.8484	3.1664	9.1339	2.578	63.2545	85.5936
Dependent Variable Y	25	75.5	125.5	175.5	250.5	400.5
Pearson's r	0.917 $\approx$ 0.9					

**Source:** Author's own calculation

- b. Figure 1 shows scatterplots simulated with a correlation coefficient. As illustrated,  $R^2 = r = 0.8628 \approx 0.9$  indicates that there is linear relationship between the variables. Generally, second the interpretation of the correlation coefficient is 0.9 which indicates a close relationship<sup>5</sup>.



**Figure 1.** Correlation coefficient between Estimated Mean GDP and World AQI

Source: Author's own calculation

<sup>5</sup> Available at: Schober, P., Boer, C., & Schwarte, L. A. (2018). *Correlation coefficients: appropriate use and interpretation*. *Anesthesia & Analgesia*, 126(5), 1763-1768.

#### 4. RETHINKING THE INEVITABILITY OF THE PANDEMICS

Potter (2001) found *“From the history of influenza epidemics and pandemics, which can be traced back with some accuracy for the past three hundred years, and with less certainty before this time... pandemics, occurring at 10 to 50 years’ intervals, are due to new virus subtypes resulting from virus reassortment. Nothing has been introduced during the past 100 years to affect the recurrent pattern of epidemics and pandemics”* (p. 572). The author even believes that the occurrence of pandemics correlates with the development of the world economy of the associated period.

- a. First, the existence of the virus has its own meaning. According to Domingo and Perales (2007), *“Viruses probably had an ancient origin and have survived as agents of gene transfer and promoters of cell variation”* (p. 1). It means that in the entire evolutionary process of our humans, viruses have played a particularly important role. Although the number and types have changed, they will never disappear. This point is also reiterated by Van Blerkom (2003) *“Viruses may also have affected human evolution as agents of the genetic change via recombination and gene conversion. With their close association with cellular DNA, viruses have been in a position to directly affect the genomes of their hosts”* (p. 37).
- b. Secondly, there has never been a lack of a host that provides a living environment for viruses. Both the natural environment and the human beings, animals, and plants as part of nature are the natural hosts of viruses. They stated, *“Viruses are extremely diverse and ubiquitous in nature. They evolve in continuous interaction with their host cells and organisms, following the general Darwinian principles: genetic variation, competition among variant forms and selection of the most fit variants in a given environment”* (Domingo and Perales, 2007, p. 1). In the 20th century, after the First World War, the environment was greatly destroyed, non-limited to ecological imbalances, excessive production and consumption, weakness public health safety, etc. And in the 21st century, the destructive economic development models provided the most powerful breeding base for the breeding and reproduction of viruses. What is more important is that these do not contribute to the development of a healthy economy. They stated, *“Today, the field of climate change and human health has expanded enormously, but still policymakers and the general public do not have a full understanding of its significance”* (Weiss and McMichael, 2004, p. 18).
- c. There are many types of viruses in nature, and they occasionally cross populations and spread to people or other animals. This is the virus „spillover” that virologists worry about (Olival, 2017, p. 646), especially as shown in the figure Guangdong Province, which has had SARS and SADS outbreaks, which is specially circled with a red color. Also, we can see other 3 provinces as Yunnan, Guizhou, Hubei (starting place of 2019-nCoV) in which the degree of diversity and clustering of species distribution is relatively high. Other pandemics in Table 1 also have a similar feature. Van Blerkom found (2003), *“Most animal viruses (about 70%; Domingo et al., 2008) carry their genomes in the form of RNA...The capacity for RNA viruses to evolve extremely rapidly under some circumstances...”* (p. 22), and *“Coronaviruses, a common cause of colds in humans and enteric and respiratory infections in a variety of animals...”* (p. 24). Besides, one of the big driving forces of infectious disease is also closely related to human activities. Human activities are expanding on a global scale, not only globalization but also including deforestation, agricultural intensification, wildlife trade, etc., which leads to the significantly increased frequency between animals and humans. All has triggered the possibility of new diseases appearing and spreading exponentially, and pandemics may become more frequent and more devastating in the future.



**Figure 2.** Distribution of bat coronavirus in China

Source: Reprinted from Fan, Y., Zhao, K., Shi, Z. L., & Zhou, P. (2019). Bat coronaviruses in China. *Viruses*, 11(3), 210. © 2019 by the authors. Reprinted with permission of Creative Commons Attribution License.

## 5. PREVENTION THAT SHOULD BE TAKEN TO REDUCE THE PUBLIC SAFETY RISKS TRIGGERED BY A PANDEMIC

- a. Professor Stiglitz, Joseph E in the latest book he has pointed out that “*Globalization’s impact goes far beyond economics*” (Stiglitz, 2019, p. 98). With the great increase in productivity, the world’s production capacity is hastily enhanced, and the standard of living is also rapidly improved. At the same time, it has also destroyed and polluted the surrounding environment, caused a series of environmental problems, such as severely over-exploited scarce resources, environmental degradation, ecological imbalance, species extinction, frequent calamities. We must learn from history and adjust today’s economic model, and gradually globalize. If we have recognized some potential direct or indirect risks, we should change our behavior orientation, because prevention is far more economical, more effective, and more rational than remedy.
- b. The “Double Smart” Prevention Strategy (including aspects of politics, institutions, economy, science, society, etc.) is developed in the context of 2019-nCoV pandemic. It is built based on a developmental perspective of the future of globalization aiming to provide a set of logics to improve public safety globally as the following (table 4).

**Table 4.** “Double SMART” Prevention Strategy

	Security	Mechanism	Awareness	Resource	Transmission
<b>Share</b>	<b>1) Establish <i>V-GenBank</i></b> (a shared worldwide pathogen and global virus gene bank)  <b>2) Establish <i>High-Risk Pathogens of Wild Animals and Plants Database</i></b>  <b>3) Establish <i>Systems of Exchange</i></b> (regularly discuss and exchange the latest research trends about virus at the international level)	<b>1) Establish <i>UN Agency for Epidemic Control and Prevention</i></b> (as a permanent Agency in the UN, promptly report and share epidemic data from all over the world, issue global or local regional warnings, and make mission-oriented decisions, coordinate responses in the first time, allocate and distribute medical and relief supplies)  <b>2) Establish <i>Global Epidemic Control and Prevention Mechanism</i></b> (as a permanent mechanism including countries around the world to quickly respond to emergencies under the Policy and Guidance of the UN)  <b>3) Establish <i>High-Risk Pathogens of Wild Animals and Plants Monitor Mechanism</i></b>  <b>5) Establish <i>Wildlife Biosecurity Trade Monitor Mechanism</i></b> (put an end to illegal transactions and protect wild species)	<b>1) Establish <i>International Standard for Wildlife Market Safety Management Systems (SWMSMS)</i></b>  <b>2) Supervise and Improve <i>Management of the Safety of the Biological Environment and the Human Being Environment</i></b> (to reduce the key risks of common diseases between Human and Animal)  <b>3) Enhance <i>Sensitivity to Species in Diverse Habitats</i></b> (especially for domestic or catering purposes)  <b>4) Advocate <i>Science</i> and correctly Guide a <i>Sustainable-Healthy Diet</i></b>	<b>1) Research to improve the <i>Biosecurity of Wildlife</i></b>  <b>2) Comprehensively and continuously Research to improve <i>Public Health Services</i></b> (personal hygiene, and mental health services <sup>6</sup> , and there is an <i>Urgent Need to Increase Corresponding Funds</i> )  <b>3) Scientifically Increase <i>Protection of Human-Wildlife Contact</i></b>	<b>1) Establish <i>Prophase Warning Systems</i></b> (such as Body temperature tests, Various virus carrying records and self-certification, Special Training Dog, etc.) <b>to Customs, Airports, Railway stations and other Traffic Hubs</b> (to ensure the safety of the largest crowd)  <b>2) Establish a <i>Global Epidemic Prevention Network System</i></b> , (including <b>Hospitals, Gymnasiums, Museums, Hotels, and other Places with High Traffic</b> )
<b>Monitor</b>					
<b>Alert</b>					
<b>Research</b>					
<b>Technology</b>					

Source: Author's own elaboration

## 6. RESULTS

In the study, the author reports a correlation coefficient of 0.9 for the relationship between the pandemics and the development of the world economy of the associated period. Although the correlation is not equal to causality, proposal research between them showed the necessity of thinking about the important enlightenment they give us from the perspective of sustainable development.

That is to say, we should not only calculate the huge benefits that economic development brings to the development of human society, but also calculate the enormous costs of environmental changes for the survival and development of humans and other organisms in the future.

<sup>6</sup> COVID-19 disrupting mental health services in most countries, WHO survey.  
 Available at: <https://www.who.int/news/item/05-10-2020-covid-19-disrupting-mental-health-services-in-most-countries-who-survey>

## 7. FUTURE RESEARCH DIRECTIONS

The present study, therefore, aimed at launching a research proposal, but more research is still needed to validate it. It has its limitations such as regards air as the primary measure of the quality of each period's environment, and high level of the subjectivity of assumptions on historical AQI values, and the very limited historical GDP data during the first three pandemics. Hereby, further studies should be performed to elucidate the potential correlation between the pandemics and the development of the world economy of the associated period.

## 8. CONCLUSION

Overall, economic and environmental development are in a dialectical and unified relationship. Their relationship is ultimately the relationship between humans and nature. How to handle their relationship and realize the benign interaction between the two is a life-or-death issue facing all mankind. We hope that this paper will have the objective effect of arousing the profound introspection of the whole society at the important moment for globalization, and we hope that it will help to further elaborate our proposed framework on this topic in order to achieve prevention-oriented international cooperation.

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## IMPACT OF CORONAVIRUS CRISIS ON SMALL AND MEDIUM-SIZED ENTERPRISES IN THE SLOVAK REPUBLIC

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**Abstract:** *The crisis caused by the coronavirus COVID-19 pandemic has hit the corporate sector from an economic point of view particularly hard. The forced closure of operations led to a dramatic drop in sales and disruption of normal cash flow. In this regard, SMEs have been affected the most. Because of their economic and social importance for the economies, governments have taken many measures to help them. This article aims to evaluate the impacts of the coronavirus crisis on small and medium-sized enterprises in the Slovak Republic. For this purpose, we surveyed 139 SMEs up to the end of 2020. The results of the survey show that the existing help from the state has not compensated for the loss of sales and losses that entrepreneurs have had to deal with. The negative impact of the measures related to the second wave of the COVID-19 pandemic was felt by up to 96% of the addressed SMEs. The article also includes proposals from interviewed SMEs regarding business support measures. In this regard, it is necessary to focus especially on eliminating the technical and procedural shortcomings of the measures.*

**Keywords:** *Small and medium-sized enterprises, COVID 19 pandemic, Financial support.*

**JEL classification** G38 · G2 · L25

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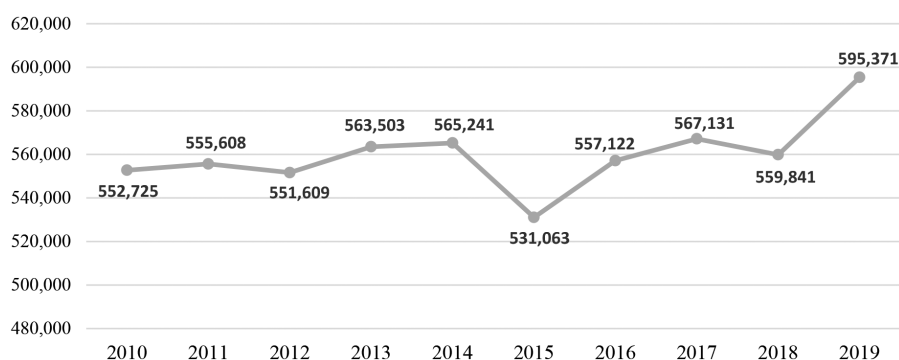
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## 1. INTRODUCTION

The attention of governments, professionals and ordinary people all around the world is focused on addressing the consequences of the pandemic caused by the spread of COVID-19. However, in addition to measures aimed at prevention from further uncontrolled spread of coronavirus and the collapse of health systems, it is important to consider the state of the economy. Compared to the crisis of 2008, the current economic recession caused by the COVID-19 pandemic has a more significant impact on the business sector.

In Slovakia, the business sector is represented by small and medium-sized enterprises (SMEs)<sup>2</sup>. According to the Report on the State of SMEs prepared by the Slovak Business Agency (2020a), SMEs accounted for 99.9% of the total number of business entities in the Slovak economy in 2019 (i.e. 595,371 SMEs out of 596,042 enterprises totally). The development of SMEs in the SR is presented in Figure 1. In 2020, the number of SMEs – legal persons increased by 4.8% to 258,174. There were 328,916 active sole proprietors. SMEs accounted for 73.8% of employment in the corporate economy and contributed by more than half (54.9%) to total value added in 2019. They bring innovative products to the market, represent an important source of economic growth and they are of great importance in job creation.



**Figure 1.** Development of SMEs in the SR

Source: Own processing according to data of the Statistical Office of the SR

Since the onset of the coronavirus crisis, many companies have not been using their capacity to the full for several reasons:

- the measures are taken to control the disease limit or make it completely impossible for entrepreneurs to carry out their business activities;
- employees must take care of children as a result of school closures;
- employees are not in good health;
- supply chains are interrupted or limited, leading to a lack of inputs necessary for business.

<sup>2</sup> The size categorization of enterprises used in this article is in accordance with the recommendation of the European Commission no. 2003/361 / EC valid from 1.1.2005. The SME category consists of enterprises with less than 250 employees and the large enterprise category includes enterprises with 250 or more employees. Within the SME category, a distinction between micro-enterprises (0-9 employees), small enterprises (10-49 employees) and medium-sized enterprises (50-249 employees) is made. In cases where the category of micro-enterprises is not distinguished separately, all enterprises with the number of employees 0-49 are included among small enterprises. The criterion of the number of employees is not the only one that characterizes SMEs. The criteria of turnover, asset value and ownership structure are also taken into account. However, due to the unavailability of current data in the classification according to all SME criteria, we take the number of employees as a relevant criterion.



Although companies of all sizes have been affected by the crisis, the category of SMEs is facing the greatest difficulties.

Due to their economic and social importance for the economies, surveying the business environment of SMEs, in particular their financing possibilities, has received considerable attention in the literature. The available research shows that this segment is affected by much greater complications in obtaining traditional forms of external financing compared to larger organizations. As we can find for example in the Report by the European Commission (2019), SMEs due to their characteristic features, are becoming particularly vulnerable to external shocks, esp. in terms of financing. SMEs typically find themselves at a disadvantage with respect to large firms in accessing debt finance. It is connected with their smaller size, a lower degree of diversification, more limited market and higher riskiness. In some cases, measures related to the saving of human lives have an existential impact on them.

Potential problems for SMEs can be caused by a relatively low level of digitization. In this regard, SMEs are not able to make sufficient use of their work capacity. SMEs will be more burdened by the cost of underutilized labor and technology equipment in the case of a decline in production than large companies.

According to the Analysis by Slovak Business Agency (SBA, 2020b), a total of 53,243 SMEs (i.e. 8.9% of active SMEs) operated in the sectors most affected by quarantine measures, and these were forced to close down completely in the first phase of the measures (from March to May). Within this group, micro-enterprises employing less than 10 employees were affected the most. They account for almost 96.2% of affected SMEs. In terms of legal form, sole proprietors, who make up almost two-thirds (59.7%) of the total number of vulnerable SMEs, are the most affected group. Quarantine measures that required the closure of establishments, were generally operated by small and medium-sized enterprises in the areas of retail trade, accommodation and food service activities, transport and business and other services.

The impact of the pandemic on the Slovak economy may be in combination with a high degree of openness of the economy and, as a rule, with a limited number of SME suppliers, much more pronounced than in less open countries.

As table 1 shows, according to the European Payment Report (Intrum Slovakia, 2020), the most common crisis measures for companies include cost reduction, caution in indebtedness and restrictions on the recruitment of new employees.

**Table 1.** The most common measures taken by companies during a pandemic (percentage)

Measure	Slovakia	Europe
Cost reduction	54	38
Greater caution when borrowing	22	35
Restriction on the recruitment of new staff	23	29
Identification of endangered segments	18	29
Ensuring faster collection of payments from clients	21	26

**Source:** Own processing according to European Payment Report, 2020

As the supply of manufactured products or services has decreased, so has the demand for goods and services. It causes a significant reduction in corporate incomes. In particular, consumers' fear and uncertainty raise consumers' concerns about loss of income, and, as a result, consumers are radically reducing consumption costs. The companies faced a significant drop in sales during the first, spring wave of the pandemic. During the summer months, the situation began to improve gradually. This improvement was extremely fragile and accompanied by significant risks. In autumn 2020, a second, even stronger wave of the pandemic broke out and the result was the introduction of even more significant restrictive measures at the end of 2020. While in 2020 the crisis mainly affected companies that were in a worse financial situation even before the crisis, in 2021 the crisis may get even healthier businesses into existential problems. Vaccination of the population could play an important role, but this will take some time.

In this context, the provision of rapid and effective assistance to prevent business closures is a major concern in all countries of the world.

While over the past decade, especially in Europe, consolidation has prevailed in the fiscal area and central banks have been the main actors in the fight against economic shocks, public finance is currently being activated to an unprecedented extent. Public resources are directed to a wide range of support programs, starting with funding for increased health system costs, through to employment support schemes and measures to compensate for revenue shortfalls in the corporate sector - either as a whole or specifically in the selected most affected sectors - up to capital injections into strategic companies.

A smaller part of the fiscal stimulus goes through the revenue side of budgets and takes the form of various concessions and deferrals for the payment of tax advances and levies. A third, and a significant, group of public sector assistance is loan guarantees, which are intended to support the availability of credit to businesses, in particular, to enable them to overcome temporary liquidity shortages.

It is clear that without these measures, the economic consequences of the coronavirus crisis would have been even more pronounced. This applies not only to the help drawn so far, but also to support measures to compensate for the negative effects of the crisis in the coming period. Given the existing imbalances in the business sector and the continuing uncertainty associated with the further development of the pandemic, the termination of individual support measures needs to be considered very sensitively. The main target group of ongoing support measures should be, in particular, promising companies with a sustainable business model, which need to bridge the temporary shortfall in sales.

The article aims to evaluate the impacts of the coronavirus crisis on small and medium-sized enterprises in the Slovak Republic. For this purpose, we surveyed 139 SMEs up to the end of 2020. Although some research on surveying the coronavirus' impacts has been conducted by several domestic organizations, academic engagement in this field is rare. The consequence is missing evaluation of the governmental measures taken to mitigate the consequences of the pandemic and recommendations for improvement of the environment of SMEs. Our motive for the survey was especially to fulfill the existing gap in the current empirical literature dealing with SMEs' environment and to propose measures for improvement of their current situation.

The results of the survey show that the existing help from the state has not compensated for the loss of sales and losses that entrepreneurs have had to deal with. The most endangered sectors of

the Slovak economy include catering services, but also arts, entertainment, recreation and sports. The package of economic measures of the state to mitigate the economic effects of the corona crisis is insufficient.

The remainder of the paper is organized as follows. We start with the literature review, next section specifies the measures taken by the government of the Slovak republic to help SMEs to overcome the negative consequences of the coronavirus crisis, we continue by the description of the dataset used for the empirical analysis, then we present the results of the empirical analysis and outline our conclusions and recommendations.

## 2. LITERATURE REVIEW

Though the full economic impact of the pandemic is hard to predict, the literature offers starting points that can be useful in the evaluation of coronavirus crisis' impacts.

Didier et al. (2020) dispute the fact that the expectations regarding a problem-free functioning of companies after the pandemic can be very surprising. The authors state that companies have interrupted cash flows, which can trigger inefficient bankruptcies with long-term detrimental effects. Similarly, Lu et al. (2020) listed cash flow risks as the main difficulty regarding SMEs' survival due to numerous fixed expenses, but only when there's a low or no income. Their study also serves as an appeal for the creation of recommendations regarding work recovery, stimulation of consumption, and cash flow relief, all in order for SMEs to survive during the economic recovery followed by the COVID-19 pandemic.

Prohorovs (2020) introduces the need for a clear understanding of the COVID-19 crisis's specifics so that enterprises can adapt to the new situation faster while reducing damages. On the other hand, SMEs are more flexible and adaptable than their larger counterparts because of their small size, their tendency to be privately owned, and their relatively flat hierarchical structures, all of which can be beneficial during a crisis. Alves et al. (2020) state that the sudden drop in market demand influenced especially small enterprises. At the same time, small and young enterprises are highly flexible in the reaction to a crisis, mainly thanks to less bureaucracy and limited adherence to social responsibility.

As we can see, there are always two sides to the story. The crisis is always a certain milestone, a sudden interruption of the development of the economy. It is a way for the market to cope with bad decisions, reducing misinvestment. It should also be a source of lessons for the business sphere, an impetus for change and the search for new solutions.

Support for small and medium-sized enterprises is very important to ensure SMEs' sustainability in these difficult business conditions. Juergensen et al. (2020) state that the policy mix will need to shift from its initial focus on the survival of European SMEs in the short term, towards a more structural and longer-term approach based on promoting their renewal and growth through innovation, internationalization and networking.

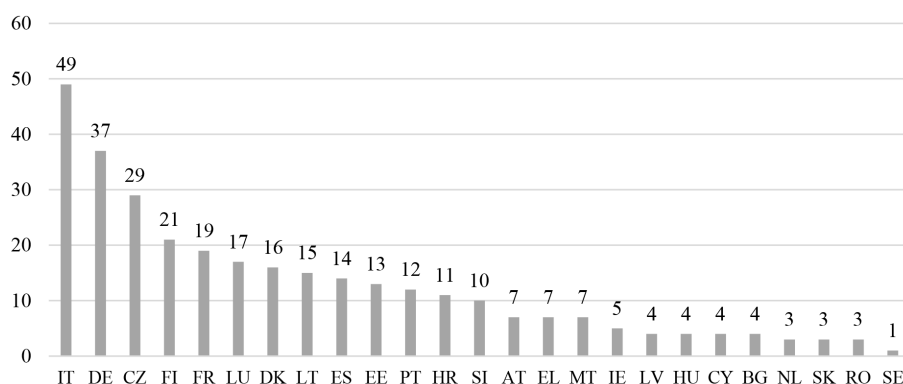
Quantifying the effectiveness and quality of the measures taken, either individually or as a whole, is extremely challenging. State help in connection with the coronavirus crisis is constantly evolving. The conditions for individual state contributions are being updated, and new measures regulating (not only) the financial area are being approved. In general, however, the measures taken have one thing in common: it is the high time flexibility with which they were introduced.

The Government of the Slovak Republic also reacted promptly to the pandemic and presented measures that should provide first aid for entrepreneurs, sole traders and employers affected by the crisis. The characteristics of the measures taken are the subject of the following text.

### 3. COVID-19 MITIGATION MEASURES

In response to the different development of the pandemic in individual countries, the governments of these countries have taken various measures.

The extent of measures responding to the health as well as the economic consequences of a pandemic varies from country to country, from almost none to about half of gross domestic product. This is also evidenced by Figure 2, which shows the total amount of the expected fiscal response to the pandemic in the EU countries, expressed as a percentage of GDP of individual countries.



**Figure 2.** The total amount of fiscal measures expressed as a share of GDP

Source: EU Independent Fiscal Institutions (2020), to June 2020

Funding spent by all EU Member States to combat the pandemic averages around 13% of GDP. The Czech Republic, Germany and Italy are among the countries with the highest fiscal response to the pandemic. The largest volume of fiscal measures is in Italy. They amount to almost 50% of the country's GDP, of which 44% are public guarantees. Fiscal measures in Germany account for 37% of GDP. In the Czech Republic, state guarantees represent approximately 19% of GDP, while the overall fiscal response should reach up to 29% of the country's GDP. The smallest "packages" of fiscal support measures are in countries such as Sweden, Romania and Slovakia. Sweden has taken measures of only 1% of GDP, which can be explained by the fact that, unlike other EU countries, it has not introduced a national quarantine. Romania and Slovakia have taken measures to combat the pandemic of around 3% of GDP.

The overall fiscal response stated as a percentage of GDP consists of direct and indirect fiscal measures. In all EU countries, direct measures prevailed, which are borne by the state budgets of individual countries. These measures include fiscal expenditures aimed at reducing unemployment and alleviating the short-term problems of companies with cash flows. Direct fiscal measures also include tax breaks, the main aim of which is to reduce the burden on taxpayers.

The second group of fiscal responses is indirect fiscal measures. The most common indirect fiscal measures are governmental guarantees for loans granted by financial institutions and loans

granted directly by government institutions. These measures aim to facilitate access to working capital for companies and sole proprietors without an immediate and significant impact on the fiscal deficit. The several EU Member States have also decided to increase public investment in strategic corporations or infrastructure.

### 3.1. SME Support Measures

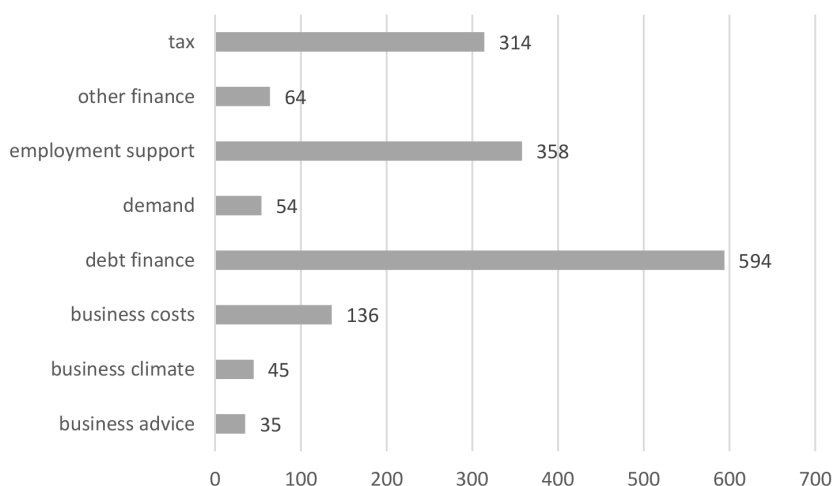
Regarding governmental measures to help businesses, there are differences in the targeting of measures in individual countries. In some countries, measures are available to all active businesses. In other countries, measures are granted to specific sectors or only to those companies that have experienced a significant drop in revenue. Finally, instead of focusing on the sectors most affected by the COVID-19 virus, countries focus on SMEs or sole proprietors, as they are expected to face much higher liquidity constraints compared to other businesses. The Czech Republic and Slovakia are also such countries.

Most countries have introduced measures to support SMEs – legal persons and the self-employed persons, mainly concentrated on maintaining short-term liquidity and employment. These measures take various forms in the following areas:

- Employment,
- Deferment of payments,
- Financial instruments,
- Structural policies.

Deferred income taxes, loan guarantees, direct loans and wage subsidies were the most widely used measures by individual governments to support SMEs in times of pandemic. The use of grants, debt moratoriums, or special measures for self-employed persons varies considerably across OECD countries.

According to the World Bank's findings by the end of 2020, a total of 1,600 measures have been taken to support SMEs in more than 120 countries around the world (Figure 3).



**Figure 3.** Number of SME support measures according to support type  
Source: World Bank (2020)

As for Slovakia, measures in the area of structural policies have not been taken.

Within the framework of financial instruments which are of special importance to SMEs, the Government of the Slovak Republic responded to extraordinary circumstances by adopting several measures, in areas such as deferral of lease or loan repayments, bank guarantee from the state, subsidies but also by providing advantageous financial products and services through state financial institutions.

As of 31 July 2020, loans of EUR 136 mil. with a state guarantee for 1,437 companies were provided. In the first phase, only 3 de minimis guarantee schemes were available to companies, under which large companies were excluded from the beneficiaries. As a result, the main beneficiaries were mainly micro and small enterprises (cumulative 74% of the volume, but up to 93% of the number of enterprises). Of the total volume of newly granted loans for the period from May 2020 to July 2020 (micro-enterprises, small and medium-sized enterprises), loans with a state guarantee accounted for 14%. In July 2020, banks began to provide loans from the so-called large guarantee scheme.

From the point of view of international comparison, Slovakia neither belongs to the active countries in the overall allocation, nor in the drawing of this form of aid to GDP. However, it should be mentioned that the use of this instrument is relatively modest among EU countries. Italy, Poland and Spain are among the most active countries in the use of this instrument. The possibility of deferring loan repayments is undoubtedly an important measure in the area of financial instruments.

By the end of July 2020, the deferral of repayments was approved for 12% of corporate loans. As table 2 reveals, the possibility of deferral of repayment was used to a greater extent by micro-enterprises and small enterprises and sectors significantly affected by the coronavirus crisis. However, this lower level is due to the fact that the legally defined deferral of installments does not apply to large companies that have agreed on deferral of installments individually with the financing bank. From the point of view of individual economic sectors, companies from the economic sectors most affected by the crisis made the most of the possibility of postponing installments. In the case of accommodation and food services, deferred loans account for half of the total loans, while in the arts, entertainment and recreation sector, these loans account for one-third.

**Table 2.** Share of deferred loans according to the size of the enterprise (in %)

	micro	small	medium	large
Share of deferred loans	15.0	15.2	11.8	5.9
Share of loans granted to enterprises that have been granted a deferral of repayments on at least one loan	17.7	19.5	21.0	13.1

**Source:** Own processing according to the data of the National bank of Slovakia, data to September 2020

In an international comparison of EEA countries, Slovakia, with the volume of deferred loans to the total loan portfolio at the level of approximately 7.5% to the end of the first quarter of 2020, ranked slightly above the EU average. Countries that make much greater use of this instrument include Cyprus, Hungary, Portugal, Malta, Italy, Croatia and Greece.

The nature of the setting and use of the deferral instrument varies across EU countries. Among the countries that have published the parameters of this instrument, the deferral lasting from 3

to 6 months is the most widespread, while in Slovakia almost half of the deferred loans had an approved deferral of 6 to 9 months.

### 3.2. Research Methodology

Within the secondary research (desk research), available secondary sources of data and information on the impacts of the coronavirus crisis were processed, for example, reviews, articles, publications and websites (especially those of Statistical Office of the Slovak Republic, Ministry of Economy of the Slovak Republic, Ministry of Finance of the Slovak Republic, Slovak Business Agency). Because it is a worldwide problem, international materials dealing with this issue, e.g. World Bank (2020), resp. OECD (2020), were also surveyed.

The primary data were collected to investigate the views of self-employed, small and medium-sized enterprises on the anti-pandemic measures taken in connection with the second wave of the corona crisis, as well as obtaining information on preferred support measures based on a survey questionnaire.

The survey of the business environment was carried out on a sample of 139 entrepreneurs in the period 1.9.2020 - 30.11.2020. We used the method of non-random deliberate selection when selecting the sample, as we tried to select the respondents to include small and medium-sized enterprises active in the most affected sectors (accommodation services, catering services, arts, entertainment, recreation, sports, education, retail) and all regions of Slovakia. We contacted the selected SMEs via email.

In total, 3,400 SMEs were approached. The response rate was 4.1%. The questionnaire contained 7 open and closed questions, the results of which are presented in the next section. To increase the explanatory power of the questionnaire, we compared our results with the results of two similar surveys conducted in the Slovak Republic in 2020.

### 3.3. Results and Discussion

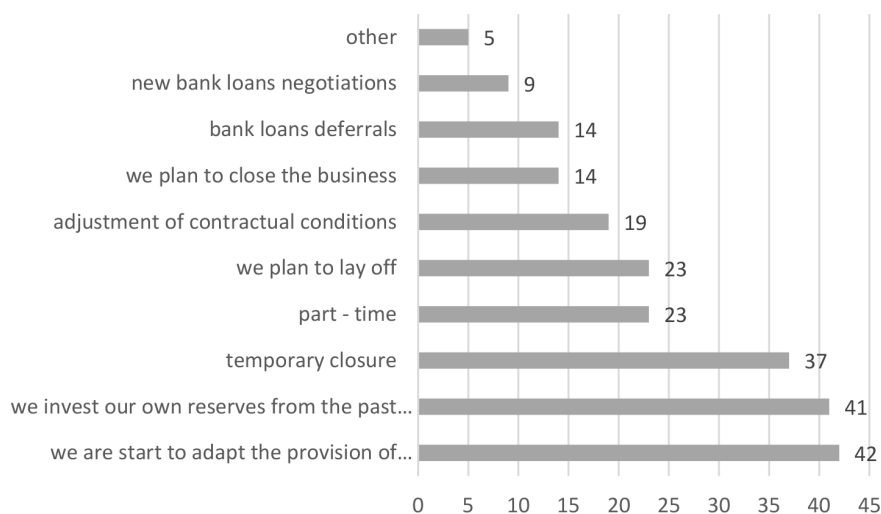
Up to 96% of the addressed companies in the most endangered sectors felt the negative effects of the adopted anti-pandemic measures in connection with the second wave of the Covid-19 pandemic in Slovakia (as of 15 October 2020, ie before the decision on the partial lockdown of Slovakia).

Most entrepreneurs, who feel the significant negative effects of the measures taken, work in catering services, but also arts, entertainment, recreation and sports. As many as 9 out of 10 entrepreneurs from the Bratislava region expect a significant impact on the measures taken.

The adopted anti-pandemic measures until 15 October 2020 did not have a negative impact on only 4% of companies operating in the most endangered sectors of the Slovak economy.

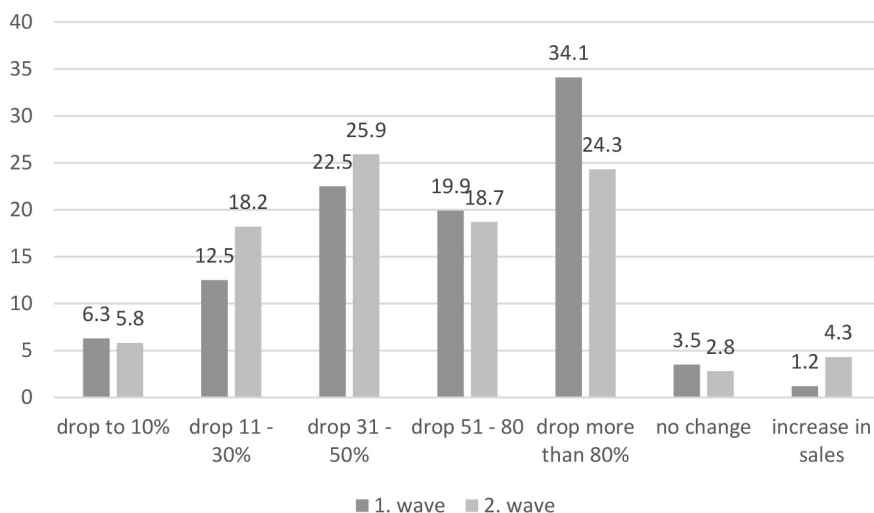
Figure 4 shows the wide range of loss reduction measures implemented by SMEs in response to the second wave of the coronavirus crisis.

According to the answers of entrepreneurs, during the first wave of the coronavirus crisis (March-May 2020), up to 95% of the addressed SMEs from the most endangered sectors recorded a decrease in sales, while most companies, more than one third, recorded a significant drop in sales by more than 80%. A decrease in sales of up to 50% in the first wave was declared by 41% of SMEs.



**Figure 4.** Measures introduced in business in response to the second wave of the coronavirus crisis (%)  
Source: Own data collection

A little bit lower share, 93% of SMEs recorded a decline in sales even in the second wave of the crisis (Figure 5).



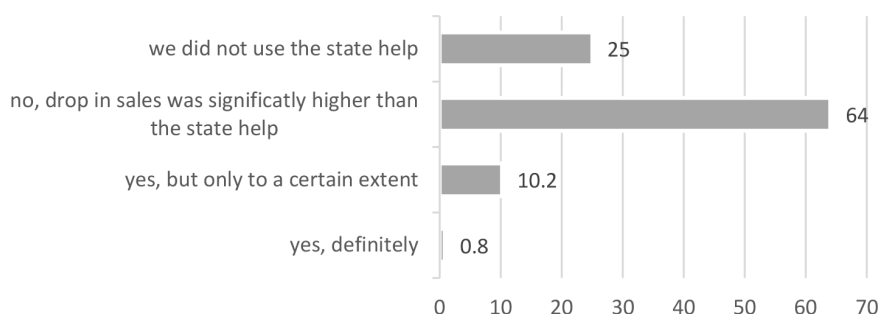
**Figure 5.** Year-on-year change in sales  
Source: Own data collection

A survey conducted by the Centre for Better Regulation (2020) shows that almost 34% of SMEs expected a drop in sales of up to 100% during the first spring wave of the coronavirus crisis. This survey was conducted among 53 entrepreneurs in the period between 31.03 - 13.04.2020, i.e. it included the effects of restrictive measures adopted by the Slovak government.



Almost half of the surveyed SMEs from the most vulnerable sectors (48%) in the survey stated that they could not do business for more than 2 months with the current restrictions (restrictions valid on 15 October 2020). The current situation is perceived most critically by 15% of the surveyed representatives of companies, which assume that they will end their business within one month. The results showed that companies in the catering and accommodation services sector are also at risk, as start-up entrepreneurs who have not been able to create sufficient reserves in the past to overcome unprecedented times.

In connection with the introduction of anti-pandemic measures, more entrepreneurs expect more significant assistance than in the first wave. The results of the survey suggest that the existing aid from the state did not compensate for the fall in sales of entrepreneurs in Slovakia. The decrease in sales was significantly higher than the aid provided by the state for 64% of the addressed companies. The worst situation is among entrepreneurs in the gastronomy sector, where more than half (73%) of entrepreneurs recorded a significantly higher decline in sales than state aid (Figure 6).



**Figure 6.** Was the existing assistance from the state able to compensate you for and the loss of sales since the beginning of the outbreak of a pandemic (%)?

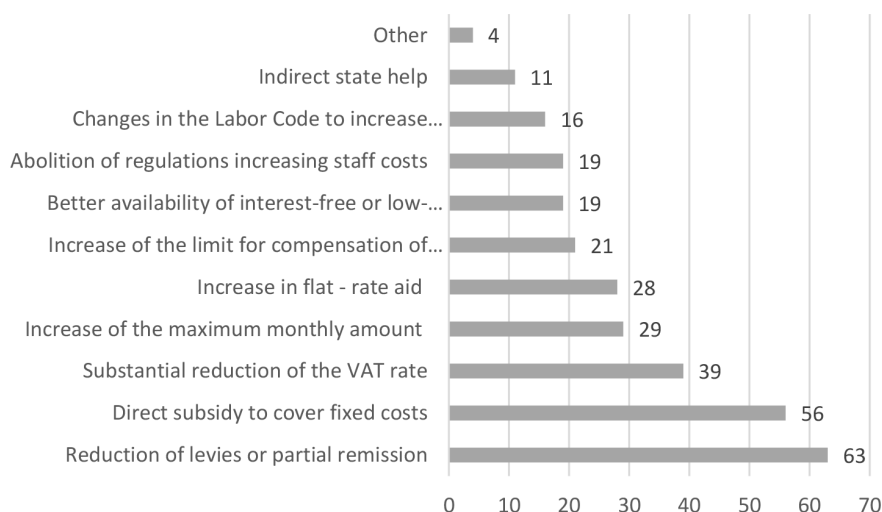
Source: Own data collection

The seriousness of the current situation for entrepreneurs in Slovakia is also documented by their proposals for business support measures, which we present in Figure 7.

The results of our survey largely coincide with the results of a survey conducted by the Slovak Business Agency (SBA, 2020c) on a sample of 1,043 respondents between 15.5 - 22.5.2020, to seek the views and experiences of micro, small and medium-sized enterprises in using support measures to mitigate the effects of the corona crisis.

Its results reveal that more than half (56.1%) of small and medium-sized entrepreneurs consider the package of economic measures of the state to mitigate the economic effects of the corona crisis to be insufficient.

Measures taken are the most critically perceived by entrepreneurs from the catering sector (76.1%), accommodation (69.2%) and arts, entertainment and recreation (63.9%), which include e.g. sports activities or realization of events. On the contrary, they are the least critically perceived by entrepreneurs in the construction industry.



**Figure 7.** What support measures would help your business the most in relation to the current restrictions? (select max. 3 possibilities)

Source: Own data collection

Addressed entrepreneurs, who applied for state aid criticize in particular the complexity of support measures and the problematic orientation in them (22.9%). Another problem is the ambiguity of the information provided on the possibilities of using the support (16.9%).

Representatives of SMEs call for the need to adopt several changes to the current support system. Entrepreneurs would especially welcome the simplification of the conditions for obtaining support (23.5%), the simplification of applications for support (18.1%) and the improvement of awareness of the possibilities and ways of support drawing (15.2%).

#### 4. CONCLUSION

The ongoing pandemic of the new COVID-19 virus has affected the world not only in terms of health but also in terms of politics and economics. Restrictions due to quarantine and preventive measures in response to the pandemic have affected the economic activity of all countries in the world. The economic consequences of this situation will be felt by companies of all sizes, but above all by the most vulnerable group of companies, which is micro, small and medium-sized enterprises.

The available research shows that this segment is affected by much greater complications in obtaining traditional forms of external financing compared to larger organizations. This often has a negative impact on the prosperity of the business and can significantly affect its future. Due to the continuous decline in revenues and excessive fixed costs, it is necessary to provide aid and support to these enterprises to overcome this exceptionally unfavorable situation.

The scope and form of the measures taken vary from country to country. Some countries focus mainly on employment promotion, others on deferral of payments or financial instruments. However, most countries (as well as Slovakia) use a combination of support measures focused on different areas.

Based on the findings of our survey on the business environment, as well as on the basis of objective data from the financial assistance provided by the state so far, we conclude that financial assistance from the state is not used as expected. We present several alternative proposals, the application of which would remove barriers to access or entitlement to aid, thus creating a precondition leading to an increase in its use by entrepreneurs:

- Elimination of technical and procedural shortcomings of measures. These cause that measures in the form of financial contributions are - due to the administrative complexity of applying for and obtaining them - more criticized than appreciated;
- Simplification of disproportionately strict conditions for obtaining financial assistance, which means that many entrepreneurs do not qualify for assistance or the amount of aid granted is insufficient;
- Mitigation of the consequences of identifying any deficiencies in the retrospective control of the use of financial assistance, consisting in declaring the full amount of the contribution to be reimbursed in the case of any deficiencies being identified;
- Testing the functionality of the measures on the target group before putting them into practice, which would prevent some of the above-mentioned as well as subsequently eliminated shortcomings and errors within the measures;
- Finding and comparing existing and implemented solutions in the surrounding countries;
- Application of innovative and creative measures without impact on public finances
- Primary provision of aid to the most affected sectors, with an emphasis on the most vulnerable groups of businesses - SMEs
- Coordination of all public authorities with the aim of timely, correct and up-to-date information. We consider it appropriate to cover all state measures to help entrepreneurs in times of corona crisis with an extensive information campaign that clearly and comprehensibly explains who is the eligible recipient of aid and what the aid consists of.

Moreover, we think that the coronavirus crisis is a suitable opportunity to open the topic of the overall regulatory burden on entrepreneurs in the Slovak Republic. At the same time, any crisis is an opportunity to change those rules that proved to be ineffective.

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## TELEWORKING IN THE MANAGEMENT OF INTERNATIONAL TEAMS – EXPERIENCE REPORT

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**Abstract:** *The use of information and communication technologies in an organizational context allows enhancing performance and defining business support strategies. The objective of this paper is to research the importance of teleworking in order to reflect the conditions for monitoring international project teams, and in this sense to contribute to the optimization of the practices instituted. The most common business processes of organizations are supported by generic software products, also called enterprise resource planning, in which the organization consolidates its experience over time in order to provide increasingly better services. The main contributions of the paper focus on the presentation of the fundamental competences of the teams regarding the performance in configuration projects in view of the practical experience in the international labor market in face of pandemic scenario.*

**Keywords:** *Project management, Telework, Sustainability, Information and communication technologies, Information systems.*

**JEL Classification** J53 · M15

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## 1. INTRODUCTION

The use of information and communication technologies as an abutment to the information systems in an organizational context allows enhancing performance and defining business support strategies. The theme of implementing/configuring/customizing enterprise resource planning (ERP) systems (Ahmad & Cuenca, 2013, Daneva & Wieringa, 2008, Dittrich, Vaucouleur, & Giff, 2009, Silva & Alves, 2001, Silveira, Faria, Aguiar, & Vidal, 2005) or enterprise system (Davenport, 2000, Haines, 2009) also designated generic software products. An ERP system provides organizations with a comprehensive way to manage their business. It should be flexible in order to accommodate or enhance existing processes, or even propose new approaches to bring added value to the organization. These can be internal processes or processes that interact with other systems.

The transfer of knowledge between teams that implement generic software products, in an international context, is the main motivation. This is a knowledge that is encapsulated and sometimes difficult to transfer. Also the need to include sustainability concerns (Becker, et al., 2015, Reis & Silveira, 2020, Reis, Silveira, Carvalho, & Mata, 2020, Reis et al., 2020, Venters et al., 2018) in implementation projects is an increased motivation.

Sustainability is comprehensive and multi-dimensional, in order to include the economic, social, environmental, technical and individual (personal) dimensions to tend to the nature of sustainability in any situation (Becker et al., 2015). The increasing dissemination of the use of information and communication technologies and information systems as support for people management activities can be a competitive advantage and a contribution to the promotion of sustainable development (Reis, Silveira, Carvalho, & Mata, 2020). Combining technological innovation with the various dimensions of where there is no sustainability becomes increasingly necessary, allowing the environment to be preserved and new market opportunities achieved.

## 2. PROBLEM FORMULATION IN THE CONTEXT OF THE PANDEMIC

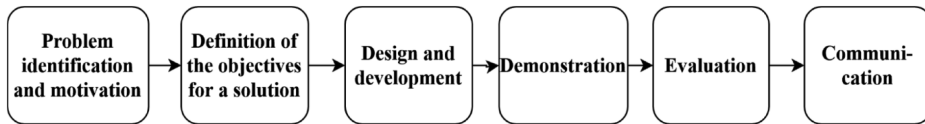
The implementation of information systems and technologies in international projects is more and more frequent in the global world in which we live. The management of teams in international projects faces different challenges in relation to national projects. The issue of distance, the language, the culture puts small obstacles in the way.

The way to manage these aspects and others is what the authors want to answer to be successful. Another point, that is no less important, is that the management of these projects is being put under the effect of the pandemic. The challenge is creating trust in the customer with an implementation in telework carried out almost entirely remotely.

## 3. METHODOLOGY

The design science research (DSR) methodology is one of the research methods that has been established (Bianchi & Sousa, 2015) and has been adopted in the area of IS (Roquete, 2018) to solve organizational problems. Thus, the DSR methodology (Peppers, Tuunanen, Rothenberger, & Chatterjee, 2007) was selected as the theoretical basis to support the scientific validity of this work.

As it is a research methodology indicated for research projects in technologies and IS, system architectures (Ferreira, Ferreira, Silva, & Carvalho, 2012), and parameterization/customization activity of generic software products, it ensures discipline, rigor and transparency.



**Figure 1.** Design science research steps

Source: Adapted from (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007)

The scheme of this methodology is shown in Figure 1 (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007). The DSR process (Figure 1) includes six steps: problem identification and motivation, the definition of the objectives for a solution, design and development, demonstration, evaluation, and communication. The DSR methodology allows, in this context, to identify the underlying problem in the evaluation of international project teams in order to create an artefact.

#### 4. TELEWORKING IN THE INTERNATIONAL PROJECT TEAMS

The term telework or teleworking is an umbrella for the use of information and communication technology to perform work *at a distance*, as well as after-hours work activity by commuters (Mokhtarian, Collantes, & Gertz, 2004). Telecommuters, or paid employees who work from home instead of commuting daily, are a subset of teleworkers and are the focus of current attention (Moos, Andrey, & Johnson, 2006). The social sustainability implications of using information and communication technologies can be difficult to deduce and measure.

On the other hand, the digital transformation is changing many sectors of activity and possibly making the world more sustainable, allowing to preserve the environment, and achieving new opportunities. Therefore, Figure 2, analyses teleworking in the five dimensions of sustainability (Becker, et al., 2015), under different perspectives, such as:

**Dimension One:** Economic sustainability aims at maintaining capital and added value;

**Dimension Two:** Social sustainability aims at preserving the societal communities in their solidarity and services;

**Dimension Three:** Technical sustainability refers to longevity of information, systems, and infrastructure and their adequate evolution with changing surrounding conditions;

**Dimension Four:** Individual sustainability refers to maintaining human capital (e.g., health, education, skills, knowledge, leadership, and access to services);

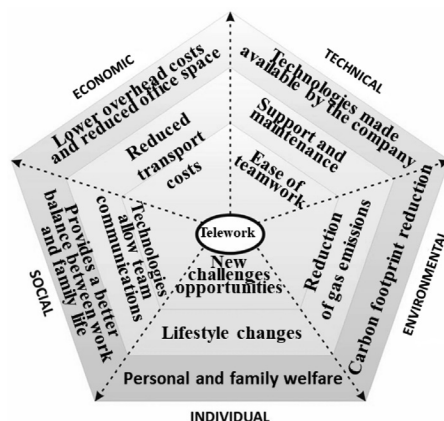
**Dimension Five:** Environmental sustainability refers to improving human welfare by protecting the natural resources: water, land, air, minerals and ecosystem services.

These dimensions are interrelated and provide an instrument to disaggregate and analyse relevant issues, taking into account that sustainability is fundamental to our society. The central factors of telework are represented in individual, social and environmental sustainability. The role of technologies is illustrated in the technical dimension.

Analyzing Figure 2, the economic dimension shows an advantage that many organizations see with telecommuting that is lowered overhead costs and reduced office space (Duarte, Reis, & Silveira, 2020). This can be a significant advantage to an organization looking to reduce expenses.

The appearance of the pandemic has brought drastic changes in project management. In projects taking place in face-to-face, the teams had to return to their country of origin leaving the client's premises where the project was being implemented. This situation arose practically from one

moment to the next without warning, and of course it is due to governmental impositions, leaving people confused. In particular, customers felt the change in the project implementation from one moment to the next, without knowing how the project would proceed. In projects that were about to start, given the impossibility of traveling and carrying out a face-to-face implementation (as planned), the big challenge was to convince customers that the project could be started remotely in telework. In the two previous situations, creating trust in the customer was the first challenge that a project implementation in teleworking is possible.



**Figure 2.** Sustainability dimensions - teleworking in the international projects

Source: Duarte, Reis, & Silveira, 2020

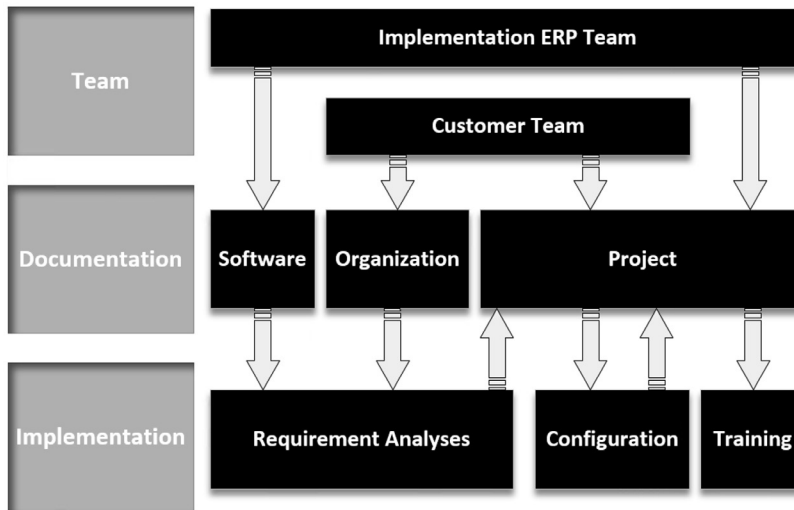
Another challenge, not less important, is the management of working hours. In projects in Europe, the time difference can be compatible, and it is possible to reconcile the working hours between the customer and the ERP provider for a normal 8-hour working day. However, in projects in Asia the time difference is no longer compatible, a time of 4 to 5 hours' maximum can be reconciled, not more. This issue causes the direct work with the customer to be drastically reduced by half. One of the obvious consequences is that the duration of the project, which was foreseen for a face-to-face implementation, will have a longer duration for the adoption of remote work, the only possible way to continue the project.

## 5. EXPERIENCE DESCRIPTION

Describing experiences is a resource for those who want perspectives on what others do and the lessons they have learned along the way. In this sense, it is intended to promote knowledge and the sharing of experiences that occurred during the pandemic in the implementation of ERP in an international context. The scope of the experience report presented here is always directed towards international projects. In this case, these are projects run by a Portuguese company in countries other than Portugal.

With the aim of carrying out the implementation of a project for a generic ERP system, a set of good practices were adopted in order to enhance the results. These good practices can be divided into three categories that are considered to be the main ones and exemplified in Figure 3: Team; documentation and implementation.





**Figure 3.** Organization/basic workflow in the international projects

Source: Authors

In terms of setting up an **ERP Implementation Team** in international projects in the context of the pandemic, the following was considered.

**Point 1:** Be multidisciplinary with necessary knowledge within the scope of the project;

**Point 2:** English language skills;

**Point 3:** Involve a local partner (when possible).

The local partner, for its part, should: have English language skills (in addition to the native language of the country where the project is being implemented), have knowledge of cultural and organizational reality and have knowledge of the legal aspects in force (commercial, stocks, accounting, ...); having defined the role to be played: interlocutor between the ERP implementation team and the customer team.

Regarding the constitution of the **customer team**, the following good practices are proposed:

**Issue 1:** Have knowledge of the English language (sometimes the pronunciation makes communication difficult);

**Issue 2:** Existing processes skills (sometimes knowledge is superficial on the part of key users);

**Issue 3:** Prepared for change (sometimes only key users are aware of this);

**Issue 4:** Be available, practically in full, for the period of implementation of the project. Sometimes, since the organization does not cease activity, availability is affected which causes cancellation of meetings and project delay. In the perspective of (Ahmad & Cuenca, 2013) the implementation processes must be carried out without affecting daily operations throughout the company. This can only be achieved with an understanding of the main elements that make up the organization's infrastructure, an effective plan for implementation and procedures for measuring and evaluating the project throughout the implementation process.

In terms of the **documentation** provided by the ERP implementation team, it is necessary:

**Issue 1:** Provide documentation for installation/configuration of server and client stations;

**Issue 2:** Provide process diagrams (sometimes there are several scenarios);

**Issue 3:** Have general configuration templates;

**Issue 4:** Provide documentation as *Mini User Guides*: they are the substitutes for the How-To documents and FAQs;

**Issue 5:** A daily record of the work carried out, explaining the main decisions taken, always with the customer's agreement;

**Issue 6:** Use of integrated project management software in order to record and document all interactions carried out, in order to allow the entire team to have access to all project information in an integrated and dynamic way;

**Issue 7:** Provide the so-called *User Manual* (preferably online).

In terms of the **documentation** provided by the customer team, it is necessary:

**Issue 1:** Be in English (preferably);

**Issue 2:** Prepare and provide the information about processes/workflows, including used internal and external documents (sometimes this information is only prepared when requested and takes a long time).

Regarding the **implementation** of the project we can divide it into the following points:

**Point 1:** Requirement Analyses;

**Point 2:** Configuration;

**Point 3:** Training.

The **requirement analyses** must consider the following aspects:

**Aspect 1:** Must be with project managers, key users (and end users when necessary);

**Aspect 2:** The customer team can present their own processes or the ERP implementation team can present the processes support by the ERP (this depends on the project to be carried out);

**Aspect 3:** All decisions taken must be documented.

The **configuration** involves the following aspects:

**Aspect 1:** Be with the project manager (and key users when necessary);

**Aspect 2:** Use a general template;

**Aspect 3:** Use the requirement analyses documentation as a process guide;

**Aspect 4:** Make presentations to key users for each configured process.

The **training** must address the following aspects:

**Aspect 1:** It has to be done with the project manager, with key users and end users (sometimes it is a long process due to the necessary translations from English into native language);

**Aspect 2:** Carried out, as a complement, at the end user's workstation;

**Aspect 3:** Provide the respective *Mini User Guide* document to the end user;

**Aspect 4:** Given a period of time to user to carry out their tests.

It is recommended that the configuration/training finishes only when the following aspects are verified by the end user at his workplace: the ERP System must be tested/used; printing of documents; sending emails; import/export data; interaction with other specific devices. One of the great challenges that was faced in operational terms in the management of teams in international teleworking projects, was project planning.

## 6. CONCLUSION

In international projects the management of teams in teleworking faces several challenges that have to be managed carefully. The main question to be successful with this new reality is to carry out an even more careful planning, considering these new factors that are imposed by the pandemic. The time spent on more careful planning will be compensated, in time, by the operational side.

The planning of the project has to be more rigorous, the operational part has to be carried out in a smoother way, which implies more project time. Scheduled meetings must be strictly adhered to, postponements should be avoided as much as possible. The availability of the teams for a new way of working has to be total.

If there is a local partner, who already has worked in the implementation of previous projects, it can prove to be a fundamental asset. His work in helping the customer, preparing for meetings, additional clarifications, training and support will give a significant boost to the project. With a local partner problems issues are minimized.

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## SUPPORT OF BUSINESS INNOVATION IN THE FORM OF TAX BENEFITS FOR R&D OF ENTREPRENEURS IN SLOVAKIA

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**Abstract:** *Since 2015, the tax advantage of the R&D of entrepreneurs in Slovakia has been in the form of indirect support of innovation and creativity in companies. It could be a competitive advantage for the entrepreneurs who apply them. They are important on the revenue level, e.g. in the creation of a new product and on the cost level, in streamlining the conduct of business. This article aims to analyze the application of super-deduction in tax due to R&D carried out by entrepreneurs in Slovakia from the first year and focuses on R&D in the Slovak Republic from 2015 to 2018. Theoretical interpretations of R&D in legislative standards at transnational and national levels, different tax policies on innovation and gross domestic spending are defined at the outset. The theoretical background is important from the point of view of understanding the R&D in the conditions of the Slovak Republic, where the following quantitative research is carried out. As the main method of investigation, we used the quantitative analysis and comparison that we use to compare the increasing number of companies that used the R&D cost (expenditure) deduction in the context of legal form in the period considered for the years 2015 to 2018 and the amounts of applied super-deduction for individual types of companies. The performed quantitative analysis shows a weak use of the provided income tax relief in the form of super-deduction of costs in connection with the implementation of R&D by companies in Slovakia, despite the year-on-year growing trend. Due to the relative representation of individual legal forms of entities in Slovakia, according to our research, Limited Liability Companies apply a super-deduction of R&D costs annually in the period under review. The number of these entities is constantly growing, as is the amount of the super-deduction applied. Based on the findings, we can state that the increased percentage deduction rate had a positive effect on the motivation of entrepreneurs to apply incentives.*

**Keywords:** *Research, Development, Income tax, Tax super deduction, Creativity.*

**JEL Classification** O32 · L26

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## 1. INTRODUCTION

Companies' investments in research and development are one of the factors that stimulate the economic growth and innovative performance of companies and the state (MacGregor Pelikánová, 2019b). Under the effort to support the process of increasing the competitiveness of Europe and employment, the Member States have to intensify the efforts to progress in structural reforms and to provide an appropriate e-framework for that (MacGregor Pelikánová & MacGregor, 2017).

Better use of the European economic and industrial potential as a basic component of the growth and competitiveness program is crucial. A strategic objective is the implementation of policies to support technological and societal innovations using the potentially strong areas and competitive advantages of particular regions and the Member States. A basic precondition for the elaboration of a smart specialization strategy is that the Slovak Republic demonstrates its ability to strategically manage and concentrate permanently limited sources with the aim of sustainable development and develop the country in harmony with principles of smart, sustainable, and inclusive growth to strengthen the competitiveness of the Slovak Republic and the European Union (Turečková & Nevima, 2020). This is why the strategy and its implementation have to comply with the principles of partnership, communication and participative preparation, approval, implementation, monitoring, and evaluation of results with the involvement of direct and indirect stakeholders (Ministry of the Economy, 2013). Such a procedural approach has resulted in a vision, the objective of which is to stimulate a structural change in the Slovak economy towards growth based on increasing innovation ability and excellence in research and innovation to support the sustainable growth of incomes, employment, and quality of life (Ministry of the Economy, 2013).

R&D support can be in direct or indirect form. Direct types of support include the provision of public aid in the form of grants and subsidies. Indirect types of support for the development of R&D can be described as tax incentives in the form of additional deduction of expenses incurred, in the form of a tax credit or preferential treatment for companies. The benefits include exemption royalties or income from the sale of research-related assets or patents, and development. The main goal of tax incentives for R&D is to support the entrepreneurship sector, supporting the competitiveness of companies, increasing the attractiveness of the home country to foreign multinational companies and their transfer of activities to the land countries. In Slovakia, we include government subsidies as direct support for R&D and indirect support for tax relief among which we include a super-deduction of R&D expenditures (costs).

Companies prefer to buy innovations from other countries or carry out the development of these innovations abroad, where better conditions are created for them if the state does not support them, or only weakly supports R&D. The popularity of tax incentives for R&D in the world is growing. It is being evaluated worldwide effectiveness of impact on innovative technologies by various tools (Bockova & Zizlavsky, 2016; MacGregor Pelikánová, 2019b). Governments, for the last half-century to the present, have managed a large sum of public funding to expand the scientific and technical knowledge base to reduce uncertainty, replace inefficient markets by sharing risks and costs and suggest ways to overcome their inaccessibility (Cunningham, Gök & Laredo, 2013). There were various taxes and subsidy measures established to encourage private companies to carry out R&D projects themselves (David, Hall & Toole, 2000). For example, from 2000 through 2013, government finances R&D support instruments accounted for almost 70% of all R&D costs carried out in 2006 OECD countries (Appelt et. al., 2016) in the form of grants, the purchase of R&D services and R&D tax incentives. Exploring the motivation and impacts on the application of R&D and innovations by entrepreneurs, including motivation in the form of various external supports, is still actual and important.

A tax policy harmonization has not succeeded in the European Union either, it has failed to this time and it can be argued that it has never succeeded. Various studies have concluded that the American multinational company requires more thorough research collaboration to disperse R&D in different countries. The link between R&D intensity and tax incentives is three to five times greater when the company is not from the same country. Cross-border cooperation helps companies to achieve tax-efficient investments in R&D (Huang, Krull & Ziedonis, 2020).

This contribution is divided into four chapters, in which we focus on the theoretical definition of various tax policies on innovation, gross domestic expenditure on R&D and public policy support. Our research is focused on the analysis of the application of deduction of expenditures on R&D in the Slovak republic according to the legal form.

In this article, the main objective is to analyze the use of direct tax instruments to relieve R&D implementation according to the legal forms of companies operating in the Slovak Republic and amounts applied on super deduction.

## 2. THROUGH WHAT CHANNELS DO TAX POLICIES SHAPE INNOVATION?

In this section, we conceptually map the effects of different tax policies on innovation, emphasizing the many channels through which policies can play a role.

Firms in “mobile” industries (e.g., pharmaceutical and high-tech industries) have large amounts of intellectual property and produce goods that are used around the world. Therefore, they are better suited to take advantage of the differences in tax rates across jurisdictions. Firms in these industries can use strategic transfer pricing, shift actual assets, and take advantage of global R&D tax incentives, among other strategies, to move profits to low-tax countries, thereby reducing their tax burden (De Simone & Stomberg, 2013).

**The main actors for innovation.** Innovation is done by firms or individual inventors. These key agents of innovation are represented at the center of the column. Inventors can be self-employed or work in companies’ R&D labs (Akcigit & Stantcheva, 2020). Inventors and firms can be of varying productivity, i.e., the efficiency with which they convert R&D and research inputs into innovations (Melecký, 2017; Staníčková, 2014). The way innovation systems are defined has major implications for the balance and mix of policies needed to improve innovation system performance and for the amount of communication and coordination required to create holistic innovation policies (OECD, 2009).

**Innovation inputs and actions.** The production of quality and quantity of innovation requires inputs. These inputs are either tangible – lab space, equipment, or material resources – or intangible – effort, the skill and know-how of workers, or the efficiency of management. Companies have to choose whether to enter a given market, remain in operation, or exit. They also select their geographic location, which could be in multiple places and different for production or research facilities (Akcigit, Hanley & Serrano-Velarde, 2013). Innovative metrics allow you to see if you’re doing enough activities, more specifically enough of the right types of activities (Kylliäinen, 2018).

**General and Specific Tax Policies.** The main tax policies that shape innovation can be classified into general tax policies, such as personal income taxes, corporate income taxes, or education subsidies, and more targeted innovation-specific tax policies, such as R&D tax credits, start-up subsidies, research subsidies for specific types of research and R&D, and location-specific incentives for firms and inventors.



Companies that spend money developing new products, processes, or services; or enhancing existing ones, are eligible for R&D tax relief. If they're spending money on their innovation, they can make an R&D tax credit claim to receive either a cash payment and/or a Corporation Tax reduction. The scope for identifying R&D is huge – in fact, it exists in every single sector (Forrest Brown, 2020).

Regarding general tax policy, inventors and firms could in principle be affected by personal and corporate income taxes. For inventors, the personal income tax directly affects the size of their post-tax income. For self-employed inventors, the corporate income tax matters if and when they decide whether to incorporate it or not. For employed inventors and firms, any surplus-sharing implies that both the personal and corporate tax shape the payoffs. The extent to which the corporate income tax will affect firms' R&D decisions depends on the share of research inputs that can be expensed; with full expensing, corporate income taxes should not affect R&D investment decisions (Akcigit & Stantcheva, 2020). The introduction of R&D Super Deduction in the Czech Republic proved the growth of own R&D expenditures in the manufacturing industry. It also had a positive impact on SMEs (Bočková & Meluzín, 2016).

### **3. GROSS DOMESTIC SPENDING ON R&D**

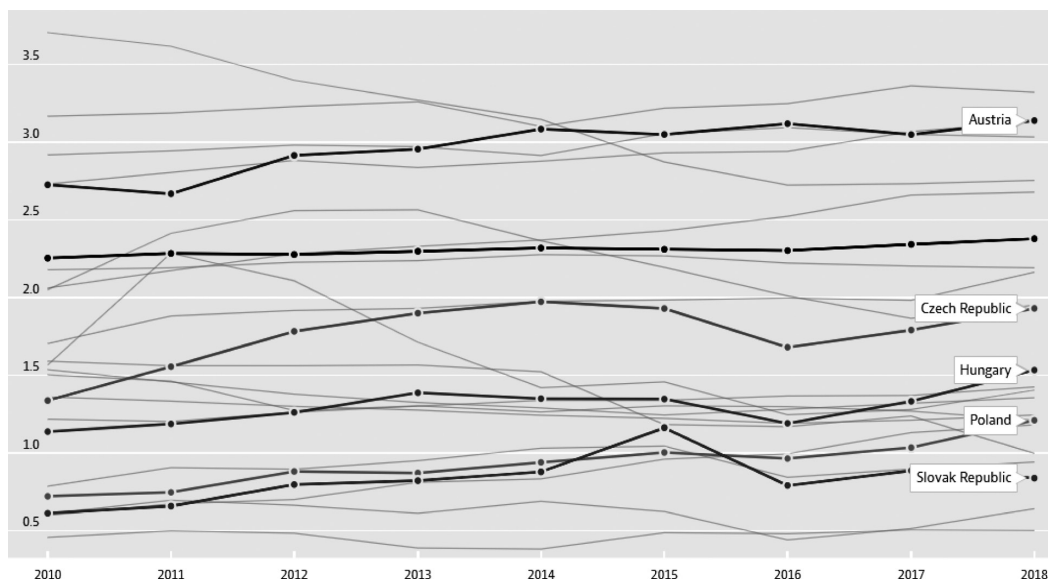
The United Nations have chosen a long-term goal and sustainable development by 2030, strengthening the position of scientific research, and support for innovation. The objectives of the Europe 2020 strategy also lead to a specific goal for R&D. In the conditions of the Slovak Republic, this is the goal of investing publicly and privately in R&D in the amount of 1.2% of gross domestic product. For the European Union, it is worth three percent of the gross domestic product of the countries.

A register of public research institutions has been established. The European Commission has accepted Implementation plan RIS3 SK, which opened the door for companies to draw resources from the European Union for the period from 2014 to 2020 from the Operational Program Research and innovation, which is a major source of the total €2.3 billion allocated to funding for research, development, and innovation. The program is funded by European Structural and Investment Funds. RIS3 SK develops procedures and processes to meet the missing criteria concerning strengthening research, technological development, innovation, and relevant investment priorities. The implementation plan sets the government of the country as a responsible institution to ensure the implementation of RIS3 SK. The plan establishes a schedule, a timetable of policy measures to be implemented to ensure compliance with legislative and budgetary commitments, a monitoring mechanism in place implemented activities, and a mechanism for assessing the effective use of existing research infrastructure. Most governments use a combination of tax incentives and direct subsidies to support private investment in R&D. This supports the view that the concept of the instrument is at least as important as the one used and that complementarity should be used. An example of good practice is that R&D tax incentives should focus on R&D expenditure (inputs) rather than on the outputs of the R&D process (i.e. intellectual property income). They should also better target startups, for example by including transfer and/or refund options. (D'Andrea, Pontikakis & Skonieczna, 2018).

Chart 1 shows the gross domestic spending on R&D in percentage for the years 2010-2018. Gross domestic spending on R&D is defined as the total expenditure (current and capital) on R&D carried out by all resident companies, research institutes, universities, and government laboratories, etc., in the country. It includes R&D funded from abroad but excludes domestic funds for R&D



performed outside the domestic economy. This indicator is measured in USD constant prices using 2010 as the base year and Purchasing Power Parities (PPPs) as a percentage of GDP. As we can see from Chart 1, the Slovak Republic in 2010-2018 lags behind neighboring countries and the EU average.



**Chart 1.** Gross domestic spending on R&D (total percentage of GDP, 2010-2018)  
Source: OECD, 2020

#### 4. APPLICATION OF DEDUCTION OF EXPENDITURES ON RESEARCH AND DEVELOPMENT IN THE SLOVAK REPUBLIC

In this part of the paper, we analyze the development of the number of business entities that applied the super-deduction in the individual years of 2015-2018 (Chart 2) and also their structure from the point of view of the legal form of the entities. For 2019, complete information is not yet available due to the postponement of the filing of tax returns of several companies in Slovakia due to the Covid 19.

In research, the processed data is collected and published by the Financial Administration of the Slovak Republic, which, under the authority of the Ministry of Finance, supervises, among other things, compliance with generally binding legal regulations, EU regulations and international treaties, which ensure the implementation of trade policy, customs policy, tax policy. It administers the collection of taxes and its main mission is to effectively collect and administer customs duties and taxes to fulfill the revenue part of the state budget of the Slovak Republic and the budget of the European Union (EU), the protection of the economic interests of the State and the protection of the expenditure part of the State budget of the Slovak Republic (Financial Administration, 2020a). Our research contains data for the Slovak Republic in the period from 2015, when the super-deduction was introduced into our legislation, until 2018, when the data is fully available. Due to the possibility of deferring business tax returns for 2019 due to the ongoing pandemic until October 2020, data for the use of the super-deduction for 2019 is not yet complete, therefore it is not quantitatively evaluated in the contribution.

We draw all information about companies applying super deduction of R&D costs from current lists published on the Financial Administration of the Slovak Republic. The Financial Administration of the Slovak Republic collects data on enterprises from completed and filed tax returns, in which companies indicate the number of projects, the objectives of individual projects and the amount of the super deduction they applied in the tax period.



**Chart 2.** Number of entities that applied the tax super-deduction for R&D in the Slovak Republic (2015-2018)

Source: Own processing according to Financial Administration (2020b).

The tax super-deduction for R&D has been introduced in Slovak legislation since 2015. Its amount in that period was 25%. Since 2015, the tax super-deduction for R&D has been gradually increasing. Since January 2018, the percentage of super-deduction of expenditures has increased to the level of 100%. In 2019, companies could claim 150%. The amendment to the law makes it possible to deduct up to 200% from its expenditure on research and development from 2020 onwards. The reason for the gradual increase in super-deduction is the effort to motivate Slovak companies to invest more in research and development. Therefore, it will be interesting to continue research into the impact on the application of supercomputing even after 2018, especially concerning the effect of changes in its application.

The tax super-deduction for R&D can be used according to Section 30c of Act no. 595/2003 Coll. Income Tax (2020). It represents support from the state for companies but also for sole proprietors who carry out research and development in the subject of their business. A business entity that wants to use a super-deduction must have a written document Research and development project prepared within the deadline for filing a tax return (the change occurs in that it is no longer necessary for the project to be signed before the start of implementation, as is valid until the end 2019, but from 2020 it must be signed by an authorized person by the deadline for filing a tax return).

Companies and sole traders are obliged to quantify the costs of research and development, and at the same time, they must record the costs separately from other costs. (Vetráková, 2019)

It is clear from Chart 2 that since 2015, when the super-deduction was introduced in the Slovak Republic, the number of entities that applied the deduction has increased every year. A significant increase in entities occurred in 2017 when the deduction was claimed by 51 entities more than in 2016. The reason for this increase may be the fact that the amount of deduction increased from 25% to 100%, which means greater savings on income tax for entities. The growing trend continued in 2018, the deduction was claimed by 101 entities more than in 2017. Based on our knowledge, a limited liability company is the most frequent legal form of business entity (Chart 2) for all years.

Based on Chart 2, we further focused on the amount of super-deduction applied by individual companies according to legal forms. In the following Charts and Tab, we arranged the individual partial results of the research of companies according to their legal forms in the observed period from 2015 to 2018, as we had comprehensive data for these years.

**Table 1.** The total amount of the applied super-deduction for R&D according to legal forms (EUR)

	Cooperative	Contributing Organization	Self-employed	Limited Liability Company	Joint Stock Company	Limited Partnership	Interest Association of Legal Entities
<b>2015</b>	0.00	21,291.42	6,166.18	7,165,943.84	2,012,889.92	879.68	9,839.74
<b>2016</b>	5,137.08	24,651.91	0.00	12,352,050.00	4,102,925.10	0.00	0.00
<b>2017</b>	0.00	4,135.31	92,666.08	34,078,577.10	5,908,194.02	35,093.72	0.00
<b>2018</b>	0.00	8,802.28	497,434.10	55,715,035.30	22,591,512.20	157,851.40	1,859.75

**Source:** Own processing according to Financial Administration (2020b).

Table 1 presents the individual amounts of the applied super-deduction in the observed period according to the legal forms of the companies. In all years, the largest applicator of supercomputing is the legal form of a Limited Liability Company, followed by a Joint Stock Company. On the other hand, we observe a low interest in legal forms such as Cooperative and Interest Association of Legal Entities. A bright factor in the coming years is the constant increase in Self-employed people who were able to promote their project on R&D, even though they have e.g., only 1 employee who had to devise, write and submit the project.

Chart 3 shows the relative total amount of applied super-deduction for research and development in the monitored period according to legal forms of 2015-2018. It is clear, that mostly only two legal forms applied super-deduction for research and development, other legal forms are used rarely, close to 0%.

Limited Liability Companies had the largest share in the application of supercomputing, which we rank among the most used in Slovakia. It does not surprise us that the highest amount of super-compensation was claimed by these companies in the total amount of €109,311,606.00 and this fact is confirmed to us in each observed year when the amount of the super-deduction increased. The least used legal form, which deals with R&D and based on this fact can claim a super-deduction of expenses (costs) for R&D is a Cooperative and Interest Association of Legal Entities. Only €5,137.08 was claimed by companies in the legal form of a Cooperative during the reporting period. Companies with the legal form of a Limited Liability Company will indeed be

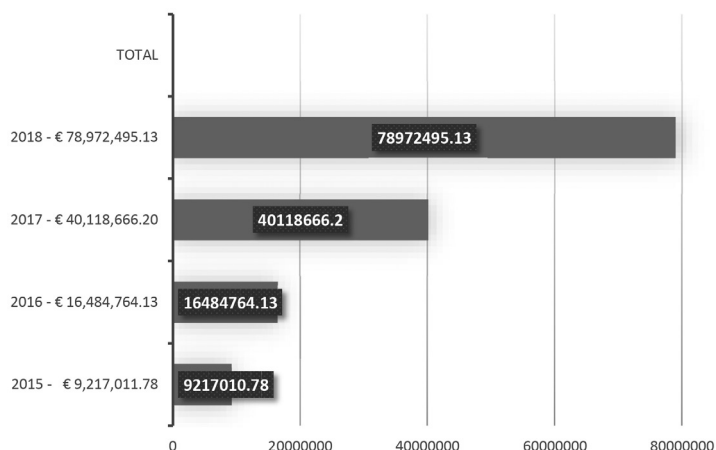
more interested in R&D, but as follows from our analysis, from the beginning of the introduction of super-deduction into the legislation of the Slovak Republic, other legal forms also have the capacity to perform R&D and so they applied the super-deduction. The amount of the applied super-deduction increases every year and therefore it will be interesting to follow the development in the following years in connection with the situation Covid 19.



**Chart 3.** The total amount of applied super-deduction for research and development in the monitored period according to individual legal forms (2015-2018) (%)

Source: Own processing according to Financial Administration (2020b).

Chart 4 shows the total amount of applied super-deduction for research and development in the monitored period according to separate years 2015-2018. The chart shows an increased yearly trend of the total amount of applied super-deduction for research and development.



**Chart 4.** The total amount of applied super-deduction for R&D in the monitored period (2015-2018)

Source: Own processing according to Financial Administration (2020b).

Since the introduction of the super-deduction into the legislation of the Slovak Republic, in 2015 the companies applied a total R&D deduction of €9,217,011.78, which represents the lowest value in the observed period, only 6.00% in the observed period. The amount of the applied su-

per-deduction increased every year, as evidenced by Chart 4. In 2016, the companies claimed €16,484,764.13; in 2017 €40,118,666.20 and in 2018 the highest value of €78,972,495.13 which is more than eight times the amount from 2015.

## 5. POLICY RATIONALE FOR PUBLIC SUPPORT FOR R&D

Government support for business R&D seeks to encourage firms to invest in knowledge that can result in innovations that transform markets and industries and result in benefits to society. All industries rely extensively on fundamental science and ideas originating from or developed within the government sector itself or publicly-funded institutions, but the support of a financial nature is also provided for some reasons. Most often, the support is provided to firms to correct or alleviate difficulties to appropriate the returns to their investment in new knowledge and shortcomings in the market for the financing of risky projects, especially for small start-up firms without collateral. There are, as widely acknowledged, two major types of market failure (Appelt et. al., 2016):

- Difficulties by firms to fully appropriate the returns to their investment. Returns on R&D investments are difficult to appropriate by firms as some of the resulting knowledge – non-rival and partially non-excludable– will leak out or “spill over” to other firms, to the benefit of society. This leads firms to underinvest in innovation relative to what would be the socially optimal level (OECD, 2016).
- Difficulties in finding external finance, in particular for small firms or startups. Innovation is a highly uncertain activity with large differences between the information available to inventors and that available to investors. This may imply that external capital for innovation will only be available at too high a cost or will not be available at all.

Public support for business R&D is typically justified as a means of overcoming these market failures. Also, countries may use tax incentives to attract the R&D activities of multinational corporations (MNEs) which typically account for a substantial share of R&D expenditure. For example, in some small open economies, such as Ireland, Belgium, and Israel, more than 60% of business R&D is accounted for by affiliates of foreign companies (OECD, 2015).

## 6. FUTURE RESEARCH DIRECTIONS

In the Slovak Republic, there is an increasing interest of entities in drawing relief, but these incentives are not used as much as might be expected. This may be due to the extensive administration that the company has to document in order to apply the incentives, and perhaps fears of the subsequent tax inspections, which would not recognize the applied R&D costs and provide them with sanctions, thus playing a role, leading to the expected tax reliefs being not effective for the company. Exploring these reasons will aim at further research to increase its use, and science and research will be an activity that will be motivated by business entities to carry out more. In further research, we will also focus on monitoring dependencies and examining the territorial and sectoral structure of super-deductible beneficiary companies and the area of R&D. Analysis of the development of financial indicators of companies that apply incentives to support science and research and their dependence on the amount of super-deduction is in terms of the effectiveness of their use is also an area of future research that can provide scientific evidence for the rationality of their application in companies in the conditions of Slovakia as an EU member. The main methods used in future research are quantitative statistics and the selection of statistical indicators using the financial indicators of enterprises that use super-deduction for R&D.

## 7. CONCLUSION

With the gradual transformation of the Slovak economy into an educational economy, it is gradually increasing in our legislation with tools to support research and development in the business environment. One of the most important is undoubtedly an element of research and development super-deduction of expenditure on science and research (PWC Slovakia, 2020).

With the increasing amount of super-deduction for R&D, it is, therefore, more than obvious that research and innovation represent the future. We can assume that with the increasing percentage rate of super-deduction for R&D the interest of Slovak entrepreneurs to introduce research and development into their companies will also increase.

By the research results in Slovakia, the number of entities that applied the deduction for R&D increased over time, but only slightly. The largest increase was recorded in 2018 when the deduction was claimed by 101 entities more than in the previous year 2017. The largest number of business entities applying super-deduction during all years examined is the legal form of a limited liability company. This result can be attributed to the most numerous groups of business entities in the business environment of the Slovak Republic. According to legal forms, the largest user of super-deduction in all years is the legal form of a Limited Liability Company, followed by a Joint Stock Company. On the other hand, we observe a low interest in legal forms, such as Cooperative and Interest Associations of Legal Entities. A clear factor in the coming years is the constant increase in the number of Self-employed people who have been able to promote their project in the field of R&D, even though they have e.g., only 1 employee who had to design, write and submit the project.

Based on the findings, we can state that the increased percentage deduction rate had a positive effect on the motivation of entrepreneurs to apply incentives. On the other hand, it cannot be said that entrepreneurs who do not apply the super-deduction do not carry out R&D activities. The intention of the countries should be to increase the attractiveness of super-deduction for R&D and to improve or simplify smaller businesses, but also others in the development of R&D projects, reduce the administrative burden and constantly increase the percentage of super-deduction in the Slovak Republic.

## ACKNOWLEDGMENT

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## KEEP THE PACE: THE UNCORKED POTENTIAL OF WINE TOURISM IN ŠUMADIJA

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**Abstract:** *In the last two decades, Serbia has begun to re-establish itself within other wine-producing countries. One of the Serbian wine regions – Šumadija – caught hold of this opportunity and launched in the wine tourism industry. This paper, based on visits to Šumadija wineries and interviews with winemakers, is a survey of the present tourism infrastructures and wine histories. The aim is to explore the capacity of the wine industry in its attempt to develop tourism as a component of regional developmental progress. It is a review of the wine tourism situation and development in the Šumadija region, a survey of where it is today, and an assessment of its potential in the future. The author conducted interviews with winemakers and collected primary data from tourists at the regional wine event in 2017. In conclusion, recommendations are made for the further development of the area as a wine destination.*

**Keywords:** *Enotourism, Serbia, Tourism development, Wine region.*

**JEL classification** Z32 · L83

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## 1. INTRODUCTION

In the territory of Serbia, wine has been made since the beginning of the Roman Empire. However, the country lacks the status of a tourist or vine-growing destination in the eye of the public. In the last two decades, Serbia has begun to re-establish itself within other wine-producing countries. Simultaneously, it has begun to announce its position on the world wine map and present its tourism potential (Hudelson, 2014a). This would then explain why Serbia was listed as one of Lonely Planet's 'Best Value' destinations of 2020 (Butler, 2019). In addition, wine embodies the perfect product for the further development of any region, where the conditions are convenient for its production. Presently, Serbia would like to represent itself to the world tourist market as a country of delicious food and high-quality beverages (Kubát, 2019a). In order to assume such a position, vine-growing areas need to cooperate on all of the various issues, overcome a number of barriers, and put together a vision that will lead to further expectant progress. For instance, one of the Serbian wine regions – Šumadija – caught hold of this opportunity, launching itself into the wine tourism industry at the regional level. Wine tourism, as a specific form of tourism in Serbia, is in its infancy (Sekulić et al., 2017). This explains the significance of research in the field of wine tourism, the need to explore the capacity of the wine industry in developing tourism as a component of regional developmental progress, as well as the importance of the present wine tourism foundation of one of the Serbian wine regions.

This paper, based on visits to Šumadija wineries and interviews with winemakers, is a survey of the present tourism infrastructures and (regional) wine histories. The aim is to explore the capacity of the wine industry to develop tourism as a component of regional developmental progress and state-of-the-art. It is a review of the wine tourism situation and development in the Šumadija region, a survey of where it is today, and an assessment of its potential for the future. This paper is more akin to an excursus, as it presents a wine-producing country that has begun to devote its interests to wine tourism activities. In conclusion, recommendations are made for the further development of the area as a wine destination.

## 2. BACKGROUND

### 2.1. Wine industry development

The cultivation of grapes in the territory of present-day Serbia dates back to the Roman Empire (Sekulić et al., 2016). Since the founding of the Serbian state, wine has been part of the local culture, and many Serbian rulers, especially the Nemanjić dynasty (11<sup>th</sup> to 14<sup>th</sup> century), have encouraged and promoted viticulture and winemaking throughout the area of Serbia and the Balkans, in general (Đenadić & Rudež, 2018; Radovanović et al., 2017).

Over the centuries, there have been both expansions and slumps in the wine industry and its production. After World War II, Serbian viticulture decline, primarily due to the idea that wine should be accessible to all, meaning quantity took precedence over quality. Many vineyards were nationalized and controlled by the government (Enoteka Premier, 2002). The former Yugoslavia quickly became one of the world's ten largest wine producers. At the peak of its cultivation in the 1970s, the country produced over 6 million hectoliters per year.

The wine was mainly produced in large quantities, and in large agricultural associations with generally low-quality standards at all stages of the winemaking process. The 1980s brought a sharp decline in production and exports, which continued in the 1990s with the disintegration of

Yugoslavia and the subsequent collapse of the Serbian economy. After the civil war, viticulture was finally able to recover slightly. In the first decade of the 21<sup>st</sup> century, the Serbian wine industry began taking real steps toward progress (Radovanović et al., 2017). Many small and medium-sized private wineries, often family businesses, entered the market with a particularly high emphasis on the quality of the wine and the way it tasted. The recovery of the country's economy also contributed to the growth of domestic wine consumption (Lekić et al., 2018). In light of the increasingly favorable conditions for viticulture, Šumadija may be able to achieve a much more stable and high-quality level of wine production, which will only go to strengthen its market position (Kubát, 2019a).

According to data from the Statistical Office of the Republic of Serbia (SORS, 2017), the area of vineyards measures approximately 22.150 ha, with a production of 38.569 liters of wine. Mostly from this utilized vine-growing area is in a size of 2.01-5.00 ha. The Šumadija wine region has a production area of 8.424 ha. During the period in which the wine industry made its recovery in Serbia, the Ministry of Agriculture launched an initiative in 2008 to reform Serbian wine laws and reclassify wine regions (Ivanišević & Jakšić, 2015; Tončev et al., 2016).

A new territorial wine division, replacing the classification from the 1970s, divides the territory of Serbia into 3 units, consisting of 22 regions, 77 vine-growing districts, and many vine-growing oases (Ivanišević & Jakšić, 2015). In Serbia, there are 369 registered, market-oriented wine producers, while there are about 80,000 producers engaged in the growing of grapes (Sekulić et al., 2016). The long tradition of Serbian viticulture has been renewed in the last ten years by several private producers, who have built contemporary cellars and have already established their renown outside of Serbia (Hudelson, 2014a).

Today, Serbian wines have grown in importance in the Balkans. With this in mind, Serbia has great potential for the development of various forms of tourism (Kubát, 2019a; Sekulić et al., 2016). As mentioned by Lonely Planet (2013), "*Serbia is a land of rich hospitality, great food, and passionate revelry. Ditch the calorie counting and dig in!*"

Traditional cuisine and local dishes are some of the attractions preferred by tourists also in other wine-producing countries surrounding Serbia (Wiluś, 2017). They are similar in geography, viticulture and historic background that unite them (Hudelson, 2014a). Bulgaria's wine production dating back to ancient times. Wine tourism is there still at the early stage of development due to underestimation of the significance of wine tourism in the whole territory. The profits from tourists are moderate as only a few tourists are interested and there absent places nearby vineyards where would be possible to taste wine (Stoykova, 2009). North Macedonia is aware of the overall existing potentials of their wine regions and related wine tourism (Marinoski et al., 2017).

Hudelson (2014b) believes that would be lucrative for Bosnia and Herzegovina to follow in the footsteps of its western neighbor – Croatia. The potential for wine tourism in Bosnia and Herzegovina benefits from the region's unique ability to produce distinctive wine varieties, its scenic beauty, and the advantage of low costs and wages.

Montenegro, as well as Romania and Albania, are other wine-producing countries that present an existing potential for wine tourism in the Balkan Peninsula (Hudelson, 2014a). These wine-producing countries are attempting to popularize their wine through tourism. (Wiluś, 2017). To achieve this goal, there is also endeavoring at the national level. In Romania, there is a government program called *Romania – the country of wines* (Ilieş et al., 2017).

## 2.2. Wine tourism definition basis

Wine tourism is a concept that is still undergoing substantial development. There is a great deal to learn about how these two industries can make a positive contribution to one another and their shared regions throughout the world (Radovanović et al., 2017). The very nature of the wine industry allows the creation of a relationship with the tourism industry since wine is associated with relaxation, communication, nutrition, and hospitality, i.e. activities sought by tourists during their holidays (Zuegg, 2016). Therefore, wine and tourism are perceived as natural partners. From an economic point of view, however, both are exposed to tough competition. In the current saturated wine market, which is dominated by large producers, small wineries require local markets and so-called “cellar door sales”, especially in emerging wine regions. This leads to the creation of brand awareness as well as an increase in sales (Tomljenović, 2006). At the same time, this can also act as a catalyst for the regional economic development of emerging tourism destinations that are blessed with the vine and as a tool for improving the image of the destination and diversification of products into new market segments for more established vine-growing regions (Getz, 2000; Tomljenović, 2006). Wine tourism is a substantial marketing tool for wine-related economic activities to increase revenues. The same goes for wine regions as they establish a brand name of origin and boost the rural economy (Hall et al., 2000). Wine constitutes an important element of the attractiveness of a destination region (Kubát, 2019b).

There are many definitions of wine tourism. Sekulić et al. (2016) declare that “*wine tourism is widely recognized as a unique tourism product for visitors who are seeking an authentic multi-dimensional experience, and yet it simultaneously represents an innovative business opportunity for small-scale wine producers who wish to expand their wine production and meet the international demand*”. Pivac (2012) states that “*wine tourism could be defined as visits to wineries and wine events with the same basic motive: wine tasting and enjoying the local food and specialties*”. Thus, as can be inferred from the given definitions, the basic products in wine tourism are wine and visits to wineries (Tončev et al., 2016).

However, there are also additional aspects that may enrich the primary product, including trips into nature, physical outdoor activities, food tasting, as well as supplementing the offer with complementary products (cultural goods) that are typically available near wineries (Byrd et al., 2016). Pivac (2012) mentions “a total wine experience”, which is created by secondary products, activities, and motives for visiting the region with the primary products.

Tončev et al. (2016) conclude that such a “wine experience” includes: wine tasting and buying, socializing with friends, enjoying one’s time outdoors, and appreciating the rural environment and vineyards. Wine tourism mainly involves tasting, however, the consumption or purchasing of wine, visits to wineries and vineyards, organizing and participating in wine tours, wine festivals and other wine-related events also contribute. The term “wine experience” refers to a class of themed tourism, in which contact with the wine is the focus, not the conclusion. For the development of wine tourism, winescape, i.e. vineyards, landscape, tasting rooms, and tourists’ facilities, are exceedingly important (Hall et al., 2000).

## 3. METHODOLOGY

The foundation and structure of the methodology of this paper draw their inspiration from previous research pieces dedicated to wine tourism (Getz & Brown, 2006; Getz, 2000; Hudelson, 2014a). The suggested criteria in wine destinations by Getz & Brown (2006) and Getz (2000) for its development are contributing and helpful in ensuring a thriving wine tourism understructure in the region.

Getz (2000) served as an inspiration of the point of view from three perspectives: wine producers (winemakers), consumers (tourists) and tourism agencies (representing the destinations). The author conducted a semi-structured interview with 9 out of 16 members of the Šumadija Winemakers Association, who were able to cooperate in this research, and were active in wine tourism activities at that time. This method provides the consistent exploration of key themes, while also allowing for the spontaneous probing of new issues as they arise in the conversation (Corbetta, 2003).

The interviews were held primarily in English with small insertions of Serbian terminology. Interpretation of qualitative data was performed using the transcription technique, specifically in the manner of a selective protocol (McLellan et al., 2003). In order to gain a comprehensive point of view on wine tourism in this region, primary data from tourists was collected by spreading a paper questionnaire at the traditional 54<sup>th</sup> Oplenac harvest wine event in October 2017 (Oplenacka Berba, 2019). A sample of 124 tourists randomly chosen was collected from which 98 were valid for this research. Table 1 profiles the respondents, showing basic demographics and socio-economic characteristics. The third perspective was given by visiting a destination and by cooperation with one of the local bodies – REDASP<sup>2</sup>.

**Table 1.** Sample structure of tourists (N=98)

Category of respondents		Absolute number
<b>Gender</b>	men	43
	women	55
<b>Age</b>	less than 30 years	17
	30-40 years	22
	41-50 years	28
	51-60 years	22
	over 60 years	9
<b>Education</b>	primary	17
	secondary	33
	university	48
<b>Monthly income</b>	less than 25 000 dinars/210 €	24
	25 000/210 € - 35 000 dinars/295 €	23
	35 001/295 € - 45 000 dinars/380 €	21
	more than 45 000 dinars/380 €	30
<b>Place of residence</b>	region of Šumadija	69
	Serbia out of Šumadija	26
	out of Serbia	3

**Source:** Own elaboration

#### 4. RESULTS AND DISCUSSION

In building the Šumadija wine brand, none of the wineries are lacking in terms of associativity and involvement. Each of them cooperates with at least one other institution, usually the city. Four wineries cooperate with the tourist organization in the city. Every surveyed winery cooperates virtually with other wineries – this is thanks to their membership in the Šumadija Wine Associa-

<sup>2</sup> Regional Economic Development Agency for Šumadija and Pomoravlje

tion, where all participants (apart from one) see the advantage of being a member. Members of the Šumadija Wine Association strive to move the region to the forefront not only through their wine but now also through tourist services and the common regional brand (Vina Šumadije, 2017). Advantages can be seen in the joint organization of activities and marketing, the group's collective visibility and image, the certain level of prestige and, last but not least, the collegial help and recommendations for their activities connected to wine (Kubát, 2019b).

Nowadays, participation in both wine events and projects is an important part of the presentation and operation of a winery. Every winery participates and cooperates in these public activities. *"Yes, this is our marketing,"* as was mentioned at The King Winery. However, these activities are not seen as being beneficial by three wineries, as was mentioned in one of these facilities: *"One in ten events is profitable"*. The remaining winemakers see these activities as a form of marketing and promoting their business and their products. In most cases, these winemakers have several years of experience with wine production. Six wineries got into the production of wine thanks to their ancestors, and they represent the current successes of the family winemaking tradition. Others became interested in wine and its production relatively recently – between the years 2010-2013. Nevertheless, these wineries already operate at the level of other wine producers. The two most well-known regional wineries (The King Winery and Winery Aleksandrović) represent the family vine-growing tradition that has been going on for decades. According to production rates, three producers are ranked as medium-sized wineries, whereas the rest fall under the category of small (family) wineries. This corresponds to the fact that many small and medium-sized private wineries, often family businesses, entered the market within the first decade of the 21<sup>st</sup> century, right as the wine industry made its recovery (Radovanović et al., 2017).

As already mentioned, Šumadija has a demand to become a well-known wine-growing region not only at the national level thanks to the quality of their wine but also for their services. They are developed in most wineries, one might say, at a slower pace. The winery services that are offered in the field of wine tourism include the following: wine tasting, selling wine directly from the winery, selling brandy and other assortments (honey, jam, etc.), visits to the cellar and vineyards, visits to the museum of wine and viticulture, and a day spent with a winemaker. When it comes to accommodation facilities, in all of the visited wineries they are absent.

Ambitions to increase the accommodation capacity provided by the winery are low. The winemakers prefer to build tasting rooms, or halls (Kubát, 2019b). Generally speaking, there is a lack of accommodation capacity in the wine region. In most cases, you can find accommodation in the city of Topola or one's private family dwellings. By way of offering these services, the wineries could show their interest in attracting tourists, something that corresponds to the answers given by all the wineries, when they said they would like to develop their winery to the satisfaction of the tourists with the help of new wine services. The tourists have been asked about wine services which they usually seek for. The majority seeks wine tasting and restaurants followed by accommodation, lectures about wine in the region (and its history) and visiting a wine cellar. Management of wineries, as well as a side of tourists, mainly endeavors wine tasting. The development of wine tourism contributes to the positioning and recognition of a certain tourist region and thus creates a competitive advantage. As a tourist destination, Šumadija has a lot to offer in this field tourists (Đenadić & Rudež, 2018).

The surveyed wineries are also open to welcoming tourists at almost any time of the day. This alternative may be best described in the term "come-as-you-can" wine tourism (Kubát, 2019a). As noted by Byrd et al. (2016), the development of core, augmented, and ancillary services in a wine region are crucial for tourists as well as for wineries. For the development of wine tourism via a



winery, it is essential to have feedback from tourists as well as other participants in this type of tourism. Some wineries have a problem attracting tourists or visitors in general.

Furthermore, many wineries do not keep a database or any other basic overview of their tourists. The location of the wineries in terms of the promotion of their whereabouts is not at a sufficient level. The favorable location of winery facilities remains key to the role of marketing (Hall et al., 2000; Kubát, 2019a). Choosing a favorable place in relation to at least some promotion is crucial in connecting supply (the winery) with demand (tourists). The main form of communication with tourists at all wineries was primarily the Internet (email, Facebook), followed by the use of a personal phone (SMS, mobile phone). This finding also corroborates tourists which mainly seek information about wine services and events on the Internet.

The second source of information for tourists is so-called word-of-mouth – a recommendation from friends, family, people in the region – followed by information from wine fairs, wine tasting and conferences, when they are already at these events. Other mentioned sources were newspapers, brochures, and tourist information centers. Word-of-mouth is a good promoter of a wine destination, which could create a positive image for the destination and recommend a destination to friends and relatives (Yen & Wang, 2020). Pivac et al. (2020) confirm the use of Facebook as the main communication channel not just in Šumadija, but in the whole Serbia.

As Getz (2000) declares, it is important to consider in more detail other aspects of the location of/ for a winery, such as natural or infrastructural assets. Radovanović et al. (2017) recommend implementing tourist signage that shows the distance needed to travel from the nearest town to the winery. This signage is beneficial, both in the case of a planned visit or a random tourist passing by. Hudelson (2014a) contributes that most wineries throughout the Balkans are not surrounded by vineyards, rather they are located some distance from them. The same author also presented the first “in-the-vineyard” winery in Serbia, located in the Srem wine region. The research shows that the so-called “in-the-vineyard” wineries in the Šumadija wine region are well attended, as was stated by five surveyed wineries.

The above-mentioned factors are also linked to the location of the winery on the Internet. The wineries' presence online can help raise awareness of their business, and the likeliness that potential tourists will happen across them. The importance of this factor goes beyond the physical location of the winery itself, which also applies to the placement of online advertising and the use of online marketing. Four wineries do not have their websites, whereas three wineries do not carry out any activities on the Internet for potential tourists. These wineries are missing out on the opportunity of maintaining a lasting connection with tourists and showing them the possibilities of spending even more time at their business (cultural and sporting events, wine markets, open cellar events, etc.). Nowadays, these two aspects make for an indispensable connection between the winemaker and the tourist. Đenadić & Rudež (2018) point out that the greatest number of wineries in Serbia is visited by up to 1.000 tourists a year. More than a half of them sell less than 20% of their wine production directly to their visitors – tourists. Very few wine tourism subjects offer restaurant service aside from wine tasting, as points this research too.

Structure of respondents in Table 1 present basic characteristic which may be crucial for wine event organizers, winery managers and Destination Management Organization (DMO) in a way of introducing these visitors' characteristic for better aiming of services and products and satisfying the visitors. It formulates and presents a typical wine event visitor, especially peculiar for an Oplenac harvest wine event. The predominant gender is a female person from the Šumadija region in age limit 41-50 years with a university degree with a monthly wage of more than 45 000 dinars.

As mentioned by Pivac (2012) the tourists come to a certain wine area to encounter and experience its character, food, way of life, cultural attractions and relaxation. Based on tourist travel lays the motive to get to know that which is different and yet inexperienced, hence diversity as an imperative in tourism. Consequently, Byrd et al. (2016) describe primary motives are mainly related to entertainment, education in the wine, winery and wine-producing area, wine tasting, food, and wine, socializing with other people, visiting art galleries, museums, historic sites, parks, monasteries, etc.

Regarding an improvement from the side of tourists, they would primarily suggest realizing more events concerning wine. Another improvement they suggest is more accommodation facilities, cooperation of wine and sport (more cycling routes and walking routes connecting wineries) and further cooperation with other wine countries/regions. Lastly, they have been asked to give a satisfactory mark for wine tourism experience in the Šumadija wine region (scale from 1-totally bad to 10-perfect). An average point was 6.4. It has to be pointed that most of the respondents live in the Šumadija region so their perspective may be skewed or even captivated.

Wine tourism is generally enhanced by the proximity of non-wine tourist activities, locations, and attractions. A few examples include beaches, national parks, and historic sites (Hudelson, 2014a). In this respect, Šumadija can offer natural and historical sites, countless temples and monasteries, the presence of religious tourism, and other historical buildings. Šumadija region has significant natural and human resources for the development of rural tourism, which has not been adequately utilized (Mandarić et al., 2017).

Erdeji et al. (2013) show that the appeal for natural setting is the main reason to visit rural areas in Serbia generally. It should be noted that wine tourism does not have to be realized only (in connection) with wine, as it has much more to offer and the ability to support the whole tourist region of wine destinations (Zuegg, 2016). As was mentioned by one employee from REDASP: *“In Šumadija, wine is inseparably associated with gastronomy.”* The term wine tourism refers to a group of thematic tourism, in which contact with the wine is the focus, not the target itself (Hall et al., 2000).

## 5. FUTURE RESEARCH DIRECTIONS

Good practices can be taken from different parts of the world (Hall et al., 2000). For instance, the Winemakers' Federation of Australia develops a national wine tourism strategy with funding from the Federal Government's Office of National Tourism. These objectives may also be useful and applicable within the Serbian wine tourism sphere. The main objectives of the strategy are raising the awareness and understanding of tourism in the wine industry, establishing wine tourism industry standards, increasing the skill level of wine tourism practitioners and employees, and, lastly, fostering links between the wine, food, and lifestyles of the local people.

An important primary impulse for tourists interested in visiting a wine region is the local attractions and sights. Šumadija should make better use of its attractive locations, a move which is sure to result in more tourists. Furthermore, the services provided to tourists should be improved in terms of quality, just as the locations and possible sources for more information about the actual wineries should be specified.

By envisaging new services, the wineries have the potential to stand out and move ahead of other wine regions. The creation and offer of new wine services and products have no boundaries. Furthermore, mentioned word-of-mouth in research is a crucial tool how to improve the image and



increase the income of wine-producing areas, holding a wine cultural event is a good approach, which also is a growing trend (Yen & Wang, 2020).

Further research should also focus on the dimensions of the winescape and characteristics of the tourists by means of specifying the wine tourist profile in this region. Thus, for the future success of wine tourism, the attitude of the wine industry and local population toward tourism, entrepreneurship, and economic cooperation is most important. A field of wine tourism in a practical way is spreading in a territory of Serbia between wine-producing areas and research is on the rise likewise.

This study is also aware of its limits, which have limited the research and range of presented results and should be eliminated in further studies. As limitations have been considered the time of the research itself and collecting data. Since this study was conducted four years ago. A situation with COVID-19 influenced a state of wine tourism development in a way of stagnation due to canceled wine events and other restrictions avoiding other activities connected to wine and tourism. Another limitation in the research and suggestion for future research is to increase the sample size of tourist respondents and collect primary data also from tourists in Serbian wine regions through a season and not just at a particular wine event.

## 6. CONCLUSION

Despite its advantages, the Šumadija wine region is still in the initial stage of wine tourism development. Regardless of its relatively prosperous natural, social, and cultural predispositions, Šumadija has yet to turn its comparative advantage into a competitive one. In the future, wine production may represent a significant part of the developmental potential of Serbia, which means more attention should be paid to the industry. However, the wine industry in Serbia currently poses at a higher level than that of wine tourism. This type of tourism is not yet well established and strengthened here. Subsidies for wineries, production, and the processing of wine have influenced the increase in the number of small wineries in the Šumadija wine region over the last fifteen years. Domestic winemakers are interested in engaging in this form of tourism, as Sekulić et al. (2017, 2016) ascertained as well. Therefore, it is reliable to say the spread and (quality) improvement of wine services will continue in this region.

As a wine region, Šumadija can achieve recognition and marketing visibility in both the national and European wine markets. The way to accomplish this is by formulating an integrated tourism product that will offer sophisticated tourists, apart from enjoying quality wine, the option to stay in an untouched, natural environment, socialize with friends, escape from their everyday stress and chaotic urban lifestyles, visit cultural, historical, and religious monuments, and enjoy rural tourism products together with the hospitality of the locals. In closing, one of the winery owners summarized the atmosphere and wine tourism situation in Šumadija with this poetic synopsis: *“Wine, in the sense of a vineyard and a cellar, is neither a burden nor a trade for me. It is my privilege, my love, my satisfaction, and the lifestyle I live.”*

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## THE IMPORTANCE OF SOCIAL DIALOGUE AND COLLECTIVE BARGAINING IN THE PROCESS OF SHAPING WORKING CONDITIONS

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**Abstract:** *The article explores the influence and importance of social dialogue and collective bargaining on the formation of working conditions. Social dialogue and collective bargaining are among the basic ways to influence the conditions of work through employees' representatives and how to represent the weaker party from the point of view of labour law (the interests of the employee). The article points out the fundamental importance of social dialogue in creating an environment of decent work, both in the international environment (especially the competence of the International Labour Organization or the implementation of the European Pillar of Social Rights) and wages or addressing the impacts of COVID-19 pandemics in the national environment of the Czech Republic.*

**Keywords:** *Trade union; International labour law organization; European pillar of social rights; Minimum wage; Right to information and consultations; Labour law.*

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## 1. INTRODUCTION

Human. Work. Employee. Remuneration. Working hours. Reconciling family and work life. Health and safety protection at work. Accidents at work. Obstacles at work. Holidays and much more. All, but not only, are one of the basic elements of labour law. Labour law regulates relationships in the performance of dependent work. It can be said that labour law regulates a special category of legal relationships. The mentioned relationships can be described as a special category of legal relationships because their object is dependent work, which, however, can be performed only by a human being. In practice, and in fact, labour law aims to define the boundaries and rules of conduct, especially between the employee and the employer and thus serves to protect not only the property interests of the employer, but especially the mental, somatic, but also social aspects of a human being – the employee. And it is a human being, as a basic element of legal relations in the performance of dependent work that is one of the fundamental distinguishing features.

To confirm the importance and impact of social dialogue and collective bargaining on the world of labour law, we use the comparative method, as well as the method of analysis in revealing the basic starting points and subsequently we employ deduction and synthesis to suggest possible approaches. In any case, the demonstration of the importance of social dialogue to guarantee not only working conditions and the achievement of the goal of decent work can be seen as the result of the research.

Dependent work is paid work, i.e. for remuneration (Galvas, 2015). It cannot be performed for free. Natural persons work, from the point of view of labour law, primarily for the purpose of receiving remuneration (hereinafter referred to as „wages”), thanks to which they earn financial means for their lives, and secure their families and social integration into society. Natural persons enter the labour market with their labour supply, where their supply meets the demand from employers (of course, the opposite can be defined, i.e. the centre of the labour supply - vacancies - employers with the demand from employees).

Labour law is aware of the position of both subjects of basic employment relationships. The legislator was and is aware of the unequal position of the employee with the employer in terms of fact. Legally, both entities are equal. Neither can force the other to enter into an employment relationship. They are therefore equal - in terms of their legal status. Inequality appears on a factual level, which is given by various factors, such as psychological (employee or job seeker has a subjective feeling of superiority of the employer), economic (employee is economically dependent on the income), geographical (unemployment rate in the region or area, where the employee lives, and the difficulty of finding a new job), social and sociological (good earnings equals good social status, which means a good position in society) or generally personal (qualifications and employability in the labour market). The norms of labour law aim to eliminate the mentioned inequality and the factual superiority of the employer.

Labour law rules. Rules determining the performance of dependent work and working conditions. What is it and where does it come from? Maybe it is here that it is possible to search for answers to the question why the submitted article deals with the context of social dialogue and collective bargaining. One of the specifics of labour law, which lead to its differentiation from other branches of law, is the disruption of the normal private law relationship, where the rights and obligations of the parties can be entered into and interfered only by public authorities and not by another private entity. Labour law rules include not only general legislation (starting with international sources and ending with national by-laws), but also unilateral statements by a collective employer (e.g. internal regulations governing employees' wages rights or working time arrangements), and especially collective

agreements (results of collective bargaining and representing the interests of employees), which in fact constitute a binding rule determining the working conditions of employees. However, they are not created by the legislator, but by the employer (one contracting party) and by the employees' representative (typically a trade union) - never an individual employee. Thus, specific working conditions are not only created by legal regulations and individual agreements of the employee with the employer (e.g. an agreement on the amount of wages or shorter working hours), but also by a third party.

The world of labour law recognizes the importance of employees' representatives in creating working conditions and employment rules. Participatory rights are an important part of every employee's entitlement standard. When considering if participatory rights in labour law can be discussed at all, or to which extent or when, both international and national legal systems and approaches must necessarily be respected. When asked the question - whether social dialogue and collective bargaining, as elements of employee participation not only in the management of the company, but also in the protection of their social and cultural and economic rights, are important and whether they can be even recognized, answers can be found in specific legal systems and working conditions.

We use the international survey to clearly demonstrate the influence of social dialogue and collective bargaining on the formation of working conditions. However, the national environment must always be respected.

The presented paper points out various aspects of social dialogue in the environment of the Czech Republic. It takes into account international approaches and outlines their manifestations in the Czech legal environment, underlining the benefits and importance of transnational social dialogue and sources of law that are important at the national level for the promotion of employees' rights. In a timely manner, it demonstrates the importance of social dialogue and collective bargaining, for example, on the growth of the minimum wage for employees, as well as on the tendency to provide more space for reconciling family and working life as a consequence of reduced working hours.

## 2. FACTUAL MANIFESTATIONS OF SOCIAL DIALOGUE AND COLLECTIVE BARGAINING

Labour law (sources) is a set of labour law rules that relate to the performance of dependent work. As presented in the introduction, these are not only the legal regulations themselves (Labour Code), but also manifestations of the employer's power of disposition (Horecký, 2018), and at the same time the results of social dialogue and collective bargaining (collective agreements).

Systematically, labour law can be divided into three basic areas, the so-called pillars of labour law (figure 1).



**Figure 1.** Areas of Czech Labour Law  
Source: Authors



When thinking more deeply about the representation of the pillars of labour law, it is possible to make a conclusion about a coherence of its parts. It can be accepted that individual labour law (represented by an employment contract) can exist without collective labour law. At the same time, however, it is true that collective labour law can give higher quality to both individual labour law and the field of employment (e.g. in the labour market addressing the issue of employment in the region or sector in regional tripartite bodies). Collective rights are important and necessary for the protection of individual rights.

Social dialogue and collective bargaining are among the basic ways of adjusting working conditions. Representing and defending employees' rights, promoting social dialogue and freedom of association are fundamental rights of every employee. The guarantee of the right to associate and organize freely in order to protect one's employment interests, as well as the promotion of social dialogue, stems from a series of international documents, both European and global.

The contribution of social dialogue to the formation of modern society can be demonstrably recorded, for example, as a result of the founding of the International Labour Organization (hereinafter also "ILO") in 1919. Practically the highest tripartite body imaginable - the Conference of the International Labour Organization, as well as the entire International Labour Organization, aims to achieve decent working conditions and fundamental rights of employees (such as safe and healthy working conditions, standardization of working hours or a decent wage).

The International Labour Organization embodies a unique global project that participates in (and aims to) shape the world of work. It is an institution operating across all continents. The scope and results of the ILO's activities affect the widest range of employees, employers but also individuals in general. The basic principles of the ILO's existence include the principle of functional representation (Gregorová, 1988, p. 20). The principle of functional representation is reflected in the way the bodies are composed and it consists in the form of tripartite representation as the bodies are made up not only of government representatives, but also of representatives of employers and employees. The application of the principle of autonomy then allows and establishes the possibility to act in separate groups, as the national delegations (i.e. the government, the employees' and employers' representatives) do not have to act in agreement, but each within its functional coherence.

Communication between employers', governments' and employees' representatives illustrates that form of social dialogue. The tangible results of the social dialogue - ILO activities - are the Conventions and Recommendations. ILO rulemaking focuses on basic areas of the labour market and working conditions. As follows from the aims and justifications for the establishment of the ILO declared in the Peace Treaty between the Powers in 1919 (achieving a general peace based on social justice or eliminating unfair working conditions), a state of harmonious working (and at the same time social) environment is to be achieved with the support of tripartite negotiations. Binding documents are mainly the Conventions of the International Labour Organization. In addition to the contractually binding Conventions of the International Labour Organization, the Recommendation can be found. The Recommendation is not binding, but is to be seen rather as non-binding guidelines for the interpretation of certain terms used in the Conventions. Although the content of Conventions and Recommendations is written in very general terms (with regard to the different conditions in individual states), the basic objectives are common and clearly defined. The social dialogue carried out at the International Labour Organization has resulted, for example, in the creation of a Declaration of Fundamental Rights and Principles on Employment that are to be respected by the Member States, regardless of its ratification (Bakvis & McCoy, 2008).

The main principles are:

- The right to freedom of association and the effective recognition of the right to collective bargaining (Convention No 87 and Convention No 98),
- Elimination and prevention of all forms of forced labour (Convention No 29 and Convention No 105),
- Effective elimination of all forms of child labour (Convention 138 and Convention 182),
- Elimination of discrimination in employment and occupation (Convention No. 100 and Convention No. 111).

Specific manifestations of social dialogue at the supranational level can be demonstrated in the Czech environment, for example, in maintaining the concept of the position of the employees' representatives - trade unions in connection with the recodification of private law (2014).

The application of the first principle of the Declaration has contributed to maintaining the special status of the trade union as a *sui generis* legal entity (Horecký Jan, 2015, p. 23). Without an appeal to the existence of the Declaration, trade unions in the Czech Republic would be established on the principle of registration (i.e. after approval by the register court - legal authority). The reference to the Declaration and the Convention led to the preservation of the principle of record (creation following a simple notification, not subject to the approval process). The importance of the Declarations and Conventions is also evident in the support of trade union activity itself, the conduct of social dialogue and collective bargaining.

Convention No. 98 on the Right to Organize and Bargain Collectively provides protection against unequal treatment through the exercise of collective rights. At the same time, it provides increased protection for trade union officials against termination of employment (employees cannot be punished for the activities of an employee representative). The principles of the ILO introduce the prohibition of discrimination and unequal treatment or, in other words, increased protection for trade union officials and participants in collective bargaining (Horecký, 2010).

The social dialogue carried out by the International Labour Organization generally aims to ensure fair and decent working conditions. The concept of *decent work* determines current trends and the direction of ILO activities. Decent work and decent working conditions are expressed in the Decent Agenda and also fall under the global activities of the League of Nations. Social dialogue and tripartism are ways in which, in the context of decent work, political directions and decisions that reflect societal sentiment and demands can be reached. Overall, it is evident that the policies set out through social dialogue in society help people and larger communities to cope with the effects of climate change and at the same time set up the economy in a way that is compatible with sustainable development (economy). Decent work also has a positive effect on maintaining social peace. The positive perception of one's own working conditions and the overall satisfaction of employees, as well as the feeling of maintaining dignity, hope and intensification of the feeling of social justice resulting from the implementation of decent work, undoubtedly also work appropriately to create and maintain an environment in which we can talk about social peace (Ryder, 2019). The Decent Work Agenda leads to permanent and sustainable progress, peace and prosperity for both employers and employees and for society as a whole (ILO, 2019). The impact of social dialogue at ILO level can therefore be seen, demonstrably, as global.

Social dialogue at transnational level is not just an ILO activity. The European Union is moving in the same direction. The fundamental freedoms of the European market are together completed by the EU's driving force, which is the economic and social model. Social dialogue is also a central



point of the EU's economic-social model, as expressed not only in the Charter of Fundamental Rights of the European Union (Article 12 on freedom of association and Articles 27 and 28 on the right to information and negotiation and the right to collective bargaining), but also as it appears in the fundamental documents of the EU (Article 151 et seq. of the Treaty on the Functioning of the European Union).

Social dialogue is seen as a central tool in the area of regulating social conditions and harmonizing EU law. Consultation of the social partners on the adoption of harmonization measures is encouraged. The adoption of the European Pillar of Social Rights can be seen as a shining result of the social partners' activities (social dialogue). The European Pillar of Social Rights has been the most important document and agenda in recent years, linking to the Decent Work Agenda. The statement of the President of the European Commission Jean-Claude Juncker showed that the proclamation of the Pillar represents a turning point for Europe and that it comes to firmly anchor a strong social dimension in the future of the European Union (Juncker, 2017). Point 8 of the document defines social dialogue as one of the central pillars. It directly enshrines the obligation of governments to cooperate with the social partners.

The social partners must be consulted in the formulation and implementation of economic, employment and social policies in accordance with national practice. They must be encouraged to negotiate and conclude collective agreements in matters which concern them, while recognizing their autonomy and the right to take collective action. Where appropriate, contracts concluded between the social partners must be implemented at the level of the Union and its Member States. Lower-level social dialogue (i.e. sectoral and corporate) is also enshrined. Workers or their representatives shall have the right to be informed and consulted in good time on matters which concern them, in particular in the event of transfers, restructuring and mergers and collective redundancies. Increasing the capacity of the social partners to strengthen social dialogue must be encouraged.

In the conditions of the Czech Republic, at least from the formal point of view, the objectives of the Pillar are fulfilled. Specifically, the operation of transnational social dialogue (both the Agenda and the European Pillar of Social Rights) is reflected in the basic norm regulating the performance of dependent work. Section 320 of the Labour Code stipulates the obligation to discuss bills and draft other legal regulations concerning important interests of workers, especially economic, production, labour, wage, cultural and social conditions, with the relevant trade unions and employers' organizations. Central administrative authorities, which issue implementing labour law regulations, do so after discussing them with the relevant trade union and the relevant employers' organization. The relevant state authorities discuss with trade unions issues related to the working and living conditions of employees and provide trade unions with the necessary information. In practice, the aforesaid is done, to a greater or lesser extent, through the Tripartite platform - the Council of the Economic and Social Agreement. It is an institutionalized platform for conducting social dialogue between government, trade unions and employers. It is to be seen as a joint voluntary, negotiating and initiative body of the government, trade unions and employers for tripartite negotiations, based at the Office of the Government of the Czech Republic, with the aim of reaching agreement on fundamental issues of economic and social development. In the field of tripartism, the social partners routinely participate in the needs of changes in labour legislation (e.g. amendment of the Labour Code by Act No. 285/2020 Coll.), or also in addressing current social and economic issues (e.g. addressing the impact of the coronavirus pandemic COVID-19 and adoption of important regulations, Act No. 569/2020 Coll., on the distribution of medicinal products containing a vaccine for vaccination against COVID-19).

In effect all efforts, regardless of the general subjects, the level of social dialogue and the specific agenda, are directed towards the same goal - achieving *decent work conditions*.

The importance of social dialogue is growing and is evident in every crisis in the national economy and subsequently in the labour market. It is currently growing due to the effects of the COVID-19 pandemic. There is room for extensive cooperation between the social partners to address the negative effects of the crisis and with a view to the future. The European Commission directly highlights the communication of the social partners and points to the important role of social dialogue in addressing the complex challenges of the COVID-19 crisis (EC, 2020).

In the Czech Republic, employees' representatives and employers participate in resolving the effects of the pandemic on the national labour market. Through social dialogue and tripartite negotiations, a financial instrument has been created to cover the effects of the pandemic. The ANTIVIRUS programme aims to support the labour market (OECD, 2020). It offers employers the opportunity to cover the loss of income caused by government measures. It also aims to preserve jobs. Social dialogue has led, and continues to lead, debates on adapting support programmes to better meet current needs and, where appropriate, to cover a wider range of people with disabilities.

A common policy that combines the content of social dialogue at all levels is the goal of achieving decent work and decent working conditions. In the context of social dialogue and collective bargaining, it is a procedure of mutual consultation or informing about all possible conditions of work performance. In general, social dialogue can be defined as any negotiation between employees' representatives and the employer about the working (social) conditions of employees.

From the point of view of the importance and binding nature of the results of social dialogue, it is necessary to perceive different levels and forms of social dialogue. First of all, as can be seen from the previous text, social dialogue can be led at the supranational level (ILO), at the national level (Tripartite) and subsequently at the sectoral / regional or company level. The result can be both binding transnational conventions (e.g. ILO conventions or EU directives) and collective agreements themselves. Collective agreements are a specific result of the formalized process of conducting social dialogue - collective bargaining. Collective bargaining and social dialogue usually do not have their own definition. However, it is important to distinguish between them (e.g. in the Czech Republic). Social dialogue is a broader concept, it includes both ordinary participatory rights of employees and the right to collective bargaining. Collective bargaining is then perceived by Act No. 2/1991 Coll., only as a special formalized procedure for concluding a collective agreement (see the following figure).



**Figure 2.** The relationship between social dialogue and collective bargaining

Source: Authors

From the point of view of answering the question of the importance of social dialogue and collective bargaining in the formation of working conditions, it is not of importance which of these forms it is. Working conditions are affected by the activities of employees' representatives regardless of the result (collective agreement or current agreement or resolution of an individual employee's complaint or discussion of working time arrangements, etc.). However, if the binding nature of the result should be distinguished, then the division makes sense. Only a collective agreement can establish more favourable working conditions and rights for employees in a binding and enforceable manner.

A special, but regular and essential, agenda of social dialogue and collective bargaining is the negotiation of employees' wages. Decent work also entails the demand for decent wages. „*Decent work lets employees be humans*” (Horecký, 2019). The mentioned importance of social dialogue and collective bargaining can currently be traced in the European Commission's efforts to set the conditions for guaranteeing a decent wage.

European Commission President Ursula von der Leyen expressed her belief that workers should have access to an adequate minimum wages and a decent standard of living. (Commission, Advancing the EU social market economy: adequate minimum wages for workers across Member States, 2020). Decent working conditions are to be achieved through social dialogue. Social partners have a crucial role to play in negotiating wages nationally and locally. We support their freedom to negotiate wages autonomously, and where this is not possible, we give a framework to guide Member states in setting minimum wages. Collective bargaining should be the gold standard across all Member States. (Commission, Advancing the EU social market economy: adequate minimum wages for workers across Member States, 2020).

At the same time, the European Commission calls on all Member States to ensure the effective involvement of the social partners in setting minimum wage levels to ensure fair wages. Member States are to promote social dialogue and collective bargaining and, in accordance with ILO Conventions, ensure the conditions for conducting social dialogue and collective bargaining (Council, 2020). The Commission sees social dialogue and collective bargaining as a key tool for achieving a decent and decent level of minimum wages in the proposal for a directive on adequate minimum wages in the European Union (Commission, 2020/0310 (COD), 2020).

The impact of the European social dialogue will then be manifested in the individual Member States. In the Czech Republic, with the participation of the social partners, there has been a regular increase in the minimum wage in recent years. Conducting social dialogue in general also brings an advantage not only at the national level, but also for individual employers. In companies with a trade union and a collective agreement, employees have, on average, higher incomes and shorter working hours.

### 3. CONCLUSION

The presented article points to various aspects of social dialogue in the Czech Republic and it takes into account international approaches and outlines their manifestations in the Czech legal environment, underlining the benefits and importance of transnational social dialogue and sources of law that are important at the national level for the promotion of employees' rights. In many cases, it demonstrates the importance of social dialogue and collective bargaining, for example, on the increase in the minimum wage for employees, as well as on the tendency to provide more room for reconciling family and working life as a result of reduced working hours.

The subject of the research is the current form of participation of employees' representatives in solving issues of the world of work (e.g. the negative effects of the COVID-19 pandemic or the negotiation of decent minimum wages).

Social dialogue leads to more favourable working conditions, decent work and fair wages. It has been proven to have positive effects on the world of work.

Social dialogue is an important means of adjusting working conditions. It has a significant role to play in shaping the environment of the world of work and, after all, in shaping society as a whole. The statement on the global importance of social dialogue is also supported by the fact that compliance with ILO Convention No. 87 on Freedom of Association was one of the basic points (21 postulates) of the Solidarity movement. The requirement for recognition of the independence of trade unions from the Communist Party and employers (Meller, 2017, p. 319) was right in the first point and in the first place. It is known to what extent the efforts of the movement and the consequences of the application of social dialogue have led. Social dialogue can thus also be seen as an important element of democracy.

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