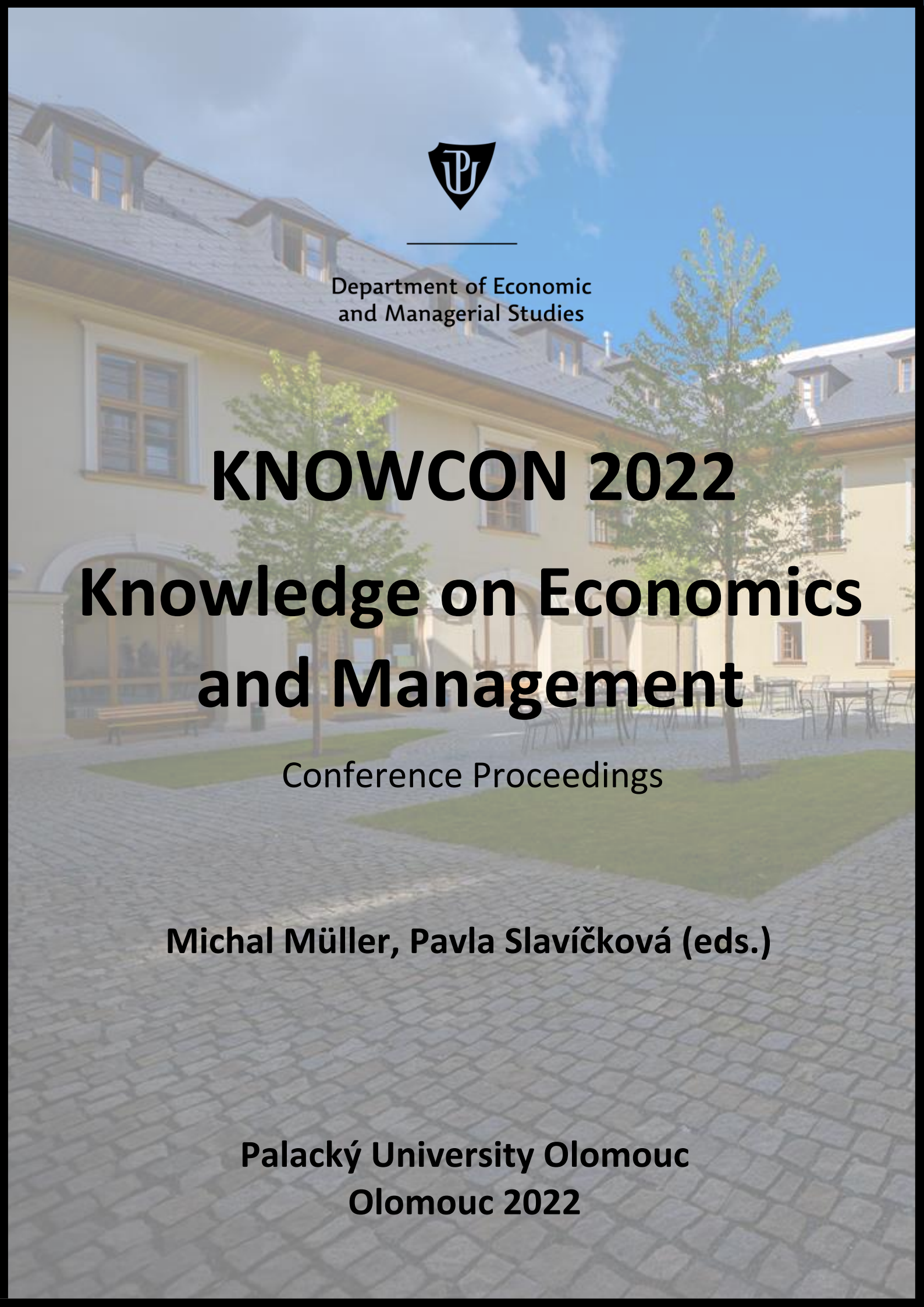

Department of Economic
and Managerial Studies

KNOWCON 2022

Knowledge on Economics and Management

Conference Proceedings

Michal Müller, Pavla Slavíčková (eds.)

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Contents

How Millennials Changed Buying Products During the Pandemic of Covid19

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Abstract: Millennials are a generation of people who will soon become the main purchasing power. These are people born approximately between 1980 and 2000. The aim of the article is to find out how the shopping of products has changed by millennials in connection with the COVID-19 pandemic. We were interested in whether the quantity of purchased products changed during the pandemic and whether the composition of the shopping cart of consumers aged from 22 to 42 years changed. The research was conducted using a questionnaire method. At the end of the article, based on the results of the research, we will propose recommendations for retailers aimed at millennials in case of possible future changes in consumer behaviour due to unexpected situations.

Keywords: Millennials, product, pandemic, COVID-19

JEL classification: D12, E21, M31

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1. Introduction

People buy different goods and services over the course of their lives. Trends in eating, dressing, furniture or recreation are often associated with age. According to the year of birth, we distinguish different generations: silent generation, "baby boomers", generation X, generation Y (Millennials), generation Z (Zoomers) and generation Alpha. These generations are not just cohorts bounded by a specific year of birth, but are groups of people who have experienced similar situations during their lifetime and have comparable lives, social and historical experiences (Howe and Strauss, 2003).

Young people have different needs and interests than older people or seniors. For young adults, appearance, body cult is important. The exterior and its attractiveness are a means to achieve social acceptance, social position and prestige. From the point of view of purchasing power, they also have no problem spending a higher amount of money on quality. Online shopping does not cause them problems and they can orient themselves in the evaluations of online retailers.

Millennials are already an important group of consumers today, and their consumption of goods and services is expected to account for the majority of all consumption soon (Küster et al., 2019). According to Carlson (Carlson et al., 2021), Millennials will account for the largest share of buyers in the market by 2030. In this regard, we have decided to focus our research on changes in product purchases during the Covid-19 pandemic of Millennials.

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2. Literature review

The group of adults aged 22-42 is also known as Generation Millennium, also Generation Y or Generation N (Generation Next or Generation Net), and refers to people born between 1980 and 2000 (Brosdahl and Carpenter, 2011) with slight deviations. This inexact definition of the age of millennials can cause age discrepancies in various studies. In a broader sense, this cohort is marked by a favourable attitude towards communications, media and digital technologies (Melović et al., 2021). They master the tools that previous generations have problems with, they are familiar with social media, which also influences their consumer behaviour, and they can adapt quickly to new processes.

It is a generation that is optimistic, maintains a work-life balance. Millennials are independent, adaptable, idealistic, competitive, loyal, seeking fulfilment in personal and professional life (Nadlifatin et al., 2022). The great advantage of the generation of miles is their technological intelligence in connection with the use of new technologies and their adaptation to them. Millennials grew up with evolving digital technology, so their behaviour is not only influenced by interpersonal relationships but also by information technology and social networks (Saratovsky and Feldmann, 2013).

From the point of view of purchasing power, millennials have no problem spending a higher amount of money on quality. Online shopping is no problem for them and they can orient themselves in the ratings of online retailers (Mangold and Smith, 2012). They focus on fashion, to which they spend a significant portion of their budget (Samala and Katkam, 2019; Johnstone and Lindh, 2022).

Millennials experienced three major eras that defined their lives (Cirilo et al., 2021): information, resp. the digital age (internet development), the era of globalization (free trade, work and personal mobility) and the era of crises and disasters (e. g. the twin attack in New York, the financial crisis in 2008 and now the Covid-19 crisis). From this point of view, it will be interesting to analyse the consumption behaviour of the millennials in Slovakia during the Covid-19 pandemic. Some changes in consumer behaviour tend to disappear after the crisis, but some persist and become new consumer habits and lead to new product or brand preferences (Arens and Hammilton, 2018).

Consumers react to the crisis in different ways. Some feel anxious, buy in panic, stock up on certain products. Others remain disinterested and continue their daily lives, regardless of expert and government recommendations. As part of the Covid-19 pandemic, Accenture researched five new types of consumers in its 2020 research, two of which relate to millennials (Accenture, 2020). According to this research, millennials may be referred to as The Rationalist or The Activist, in both cases, women predominate in this way.

The Rationalist is person with a “keep calm and carry on” mentality and has a high awareness of news — 82% are keeping more informed— sorting information into what is useful vs. what is not. Such consumer has increased the purchase of only advised products, such as personal hygiene, cleaning and staple products.

The Activist is supporting others in the community. This person is 59% more likely to be shopping more for people beyond their immediate household. Activists are highly active in new forms and formats of social engagement. However, Rationalists are among the millennials the majority.

3. Methodology

The aim of the paper was to find out how the shopping of products has changed by millennials in connection with the Corona 19 pandemic. We focused on whether the Slovak millennials changed the amount of products purchased, and if so, for what reason. The research of consumer behaviour in Slovakia was carried out using the questionnaire method. The questionnaire was distributed in 2021 and the set consisted of 347 respondents, of which 134 millennials aged from 26 to 46 years. Slight deviations in the definition of generation of millennials by various authors can cause age discrepancies in various studies. We decided to adjust age range of the respondents to stages of psychological development.

Table 1: Composition of sample file according to the gender

Age	Sample file	
	Female	**Male**
26 – 46	66	68
Total	134	
26 – 46	49.25%	50.75%
Total	100%	

Gender is one of the most important factors in consumer behaviour. Based on Accenture research, as many as 83% of millennials are behaving like The Rationalist in the crisis, especially women. Therefore, in our research, we were interested in whether gender affects changes in consumer behaviour during a pandemic. To verify this assumption, we set two hypotheses:

H1: There is a correlation between gender of the millennials and changes in quantity of purchases.

H2: There is a correlation between gender of the millennials and the reasons of item changes.

4. Results

According to the results of our research, half of the Slovak millennials did not change the amount of products purchased during the Covid-19 pandemic compared to the previous period. The majority (40%) of the remaining consumers shopped more, 10% shopped less.

After examining the changes in the number of purchased products in terms of gender, we can state that women behaved differently from men in this regard. While 64% of women did not change the amount of products purchased during a pandemic, 24% bought more products and 12% less. On the other hand, only 34% of men did not change their shopping behaviour in this respect; on the contrary, most of them bought more products than in the period before the pandemic. Only 7% bought less products. The following table shows the results of the examination of the change in the number of products purchased by millennials during the Covid-19 pandemic in general and in terms of gender.

Table 2 Change in the quantity of products purchased

Buying	more	less	no change
Female	16	8	42
	24%	12%	64%
Male	38	5	25
	56%	7%	37%
Total	54	13	67
	40%	10%	50%

We used the Pearson Chi square to analyse the correlation between gender of the millennials and changes in quantity of purchases and the reasons of item changes. The Pearson Chi square was complemented by Cramer´s V to identify the intensity of correlation. Null hypothesis (H_0) is that these two variables are statistically independent and the alternative hypothesis (H_1) is that they are dependent on each other. P-value is at 0.001 level that is lower than 0.05 (95% significance level) what means that we can reject the null hypothesis and the variables are dependent on each other. The gender of the millennials is significant factor that influences the amount of purchased items. The intensity of the correlation (Cramer´s V) is on 0.323 level and we can say it is moderate dependence.

In the second part of the research, we focused on the reasons why the millennials exchanged the purchased products during the pandemic for others (substitutes). In general, respondents cited product availability as the main reason for the change in shopping behaviour, up to 53%. This was followed by price and quality (both by 20%) as a reason to change the type of products. The remaining 17% did not exchange products for substitutes. In terms of gender, women again behaved differently from men in this case. While women on availability most often changed the types of products they bought because of their quality, men either did not change their behaviour or in terms of availability and price. The results are shown in Table 3.

Table 3 Change of types of purchased products

Reason for change	price	quality	availability	no change
Female	10	17	28	11
	15%	26%	42%	17%
Male	10	3	25	30
	15%	4%	37%	44%
Total	20	20	53	41
	15%	15%	40%	30%

Another identified correlation is between the gender of the millennials and the reasons they changed the purchased items. P-value is at 0.000 level that is lower than 0.05 (95% significance level) what means that we can reject the null hypothesis and the variables are dependent on each other. The value of Cramer´s V is on level 0.374 that means that there is moderate dependence between the gender of the millennials and the reasons they changed the purchased items.

5. Conclusion and discussion

The aim of the paper was to find out whether the millennials changed the number of purchased products, resp. types of products during the Covid-19 pandemic compared to the previous period, assuming there is a relationship between the sex of the consumer and changes in consumer behaviour.

According to the results of the research in terms of the amount of goods purchased, half of total respondents did not change their behaviour in this regard. In terms of gender, women were less likely to change the amount of products purchased than men, who bought more goods than before the pandemic.

Regarding the change in the type of product purchase for substitutes, most respondents changed their behaviour during the pandemic, especially in terms of product availability. However, in terms of gender, this time women more often changed their shopping behaviour, with almost half of the men saying that they did not buy substitute products during the pandemic. The reasons for the change were also different for both sexes: although in both cases the main reason was the availability of products, while men changed their behaviour more in terms of price, women more in terms of product quality. Although it is difficult to clearly identify which sex is more inclined to a healthy lifestyle (Mollborn et al., 2020), it is understandable that at a time when health is at risk, women will begin to prioritize quality and healthy products, not only for themselves but also for others. household members. In addition, the interest in a healthy lifestyle in Slovakia is growing (Gfk, 2017), it is therefore necessary for entrepreneurs to adapt flexibly to this trend in times of crisis, especially in connection with a certain disease, and to include types of products in their portfolio that will help people to protect their health.

The most common reason for changing the types of products purchased was their availability. According to research by KPMG, companies in Slovakia adapted quickly to this, and new e-shops were created during 2020 due to the expansion of sales channels, as the COVID-19 pandemic limited traders to sell their products and services in brick-and-mortar stores. This reason for doing business in the online space was mentioned by almost a fifth of respondents (Murcko, 2020). At the same time, up to a quarter of Slovak e-shops were created during the pandemic (KPMG, 2021). Research from abroad also shows that the relocation of online trading during a pandemic has been significant (Eriksson and Stenius, 2022; Shen et al., 2022; Tyrväinen and Karjaluotob, 2022). Businesses that find it difficult to set up a fully functional online store have the opportunity to create a website, or. adjust the current one so that customers can order their goods through it and then pick up and pay at the dispensing point in the area of the in-store shop in compliance with all applicable current anti-pandemic measures. In any case, the transition to online trading in some form is essential for businesses, as this change in consumer behaviour is proving to be long-lasting and is likely to persist into the future (Forbes, 2020; McKinsey, 2020).

According to our research, the millennials, who are expected to be a major consumer segment soon, changed their shopping behaviour during the pandemic. Women changed the amount of goods purchased to a lesser extent and the types of products they bought changed, in addition to accessibility, mainly due to quality. On the contrary, men bought more during the pandemic and changed the type of product in addition to availability, especially in terms of price. Based on the above, we can consider the goal of the contribution to be fulfilled.

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Foreign Direct Investment in Covid-19 Period and Challenges for Post-Covid period

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Abstract:

We have faced to pandemic situation for the last years. The pandemic has affected all economies, causing the stagnation of economies and along with the current situation, the growth of price level, growth of unemployment, and arising social and political tension. The Covid-19 pandemic has brought new issues, countries, households and firms have struggled with. The unstable business environment affected by launched lock-downs has resulted in the decrease of investments, including the foreign investments as well. Many investment projects were cancelled, moreover countries have faced disinvestments. This situation has even worsen the performance of countries and firms. On the other hand, such situation might be considered as the process of "cleaning the market" and companies that were not able to compete had to leave the market or went into bankruptcy. However, such process might be a challenge for other firms or to re-evaluation of their decisions about investment, reforms, capacity enlarging or spreading or shifting to other markets. Paper deals with the current situation of the flow of foreign direct investment. Goal of the paper is to assess the flow of foreign direct investment during the COVID-19 pandemic and launch the discussion about new challenges of foreign investors when deciding about the investment realization in a host country. The paper also deal with the issue of disinvestment and investment recovery in post-pandemic period.

Keywords: pandemic, foreign direct investment, disinvestment, post-pandemic recovery

JEL classification: O32, E22

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1. Introduction

The COVID-19 pandemic has affected all aspect of our lives. All economic subjects – households, firms as well as governments had to adapt to new, so far unexperienced situation. The pandemic has affected the flows of capital as well. Firms or investors hesitated to realize any investments due to the stagnation or even decrease in economic performance of countries with negative expectations and fear about the forthcoming economic development. Some of the economic sectors were affected strongly, some not, and even some sectors of the economy have increased their performance. Those were mainly services as delivery, online services sellers or technologically and digitally oriented firms and products or services. Relating to the foreign direct investment (FDI), the pandemic has affected its flows in all countries, however, the most developed countries has been the most affected, while the developing countries has not been affected in such range. Moreover, the conflict in Ukraine has also changed the behaviour of investors and some regions became unsuitable for investment allocation due to the high risk. In addition, many investors has left their investment in Russia, abandon this market and bilateral disinvestment of those companies, respectively countries has occurred. Fading pandemic, military conflict and related increase in the price of oil (respectively fuels), gas, wheat

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(respectively food), energy and other commodities are the current challenges, countries and firms has to face and struggle with.

We will analyse the FDI during the pandemic period and the period right before the pandemic has occurred. The latest available date for the FDI flows are until 2020, thus, we cannot claims comprehensive results and conclusions. But, we might still make some conclusion based on the available data and based on the observations during the worst phase of COVID-19 pandemic. The focus of the paper will be on the analysis of FDI inflows to the world regions.

2. Literature review

The literature or the analysis of the pandemic on the FDI flows is still quite limited. The main reason of the lack of empirical papers and the robust analysis with particular results is the data availability and the short time period of the recovery as the COVID-19 is still present in many countries. However, there is several reports describing the state of the art the current development of the FDI flows. Those are mainly United Nation Conference on Trade and Development (UNCTAD) reports known as World Investment Reports (UNCTAD, 2020; UNCTAD, 2021 and UNCTAD, 2022). Relating to this, the assumption of the dramatic drop n FDI in 2020 as initiated in report from 2020 has been confirmed, but the assumed drop in 2021 was not confirmed. However, we need to say that report claim about the uncertainty of the outlook for and beyond 2021 for the FDI flows due to the very common "U" shaped curved of the COVID-19 infected and related consequences of infection in particular countries (UNCTAD, 2020, p. 2). FDI flows were 1.58 trillion USD in 2021, meaning the increase in FDI flows by 64 % from the level beyond 1 trillion level in previous year of 2020 that was strongly affected by the pandemic and consequent lockdowns with decrease in production (UNCTAD, 2022, p. 2). In comparison to previous year of 2020 with the decline of global FDI flows about 35 % (UNCTAD, 2021, p. 2), the recovery of FDI flows is the positive effect coming from the retreating pandemic. However, economies are still in risk of local pandemic outbreaks as witnesses in some China cities with strict lockdowns. Such situation might depress new greenfield investment in global value chains intensive industries (UNCTAD, 2022, p. 2). Another risk is in the monetary policies of countries, which are struggling with the high inflation by the increasing interest rates. Such growth in interest rates might negatively affect investors to allocate investment in a host country and shift investment to other country.

The paper by Fang, Collins and Yao, 2021, deals with the effect of COVID-19 on the FDI. Authors use the regression analysis including 43 countries for period of 2009Q1 to 2020Q3. They included the COVID-19 variables as the new cases, cumulative cases, new deaths, cumulative deaths and active infected as variables affecting the FDI to GDP ratio. Surely, they used also other fundamental variables as unemployment, GDP per capita, industrial production index or exchange rate that are commonly used for the FDI analysis. Results indicate that the number of new confirmed cases, new deaths, and cumulative confirmed cases are found to have significant negative impacts on FDI, with an average elasticity around 0.7 % (Fang, Collins and Yao, 2021, p. 15). Authors also confirmed the known fact that pandemic has affected the FDI mainly in developed countries, this in North America and in Europe. On the other side, due to the early taken and strict measures, the FDI in China were not affected in such dimension. Fu, Alleyne and Mu (2021) has provided the Heckman two-stage bias selection approach to analyse the impact of COVID-19 on the margins FDI decision (Fu, Alleyne and Mu, 2021, p. 2796). Authors used panel monthly data for 96 countries in period from January 2019 until June 2020. The results show negative impact of the pandemic on FDI flows. Both, developed OCED countries as well

as emerging economies FDI were sensitive to the mortality rate in host countries. Among other results, important is the conclusion that pandemic hit economic sectors differently. The severely affected sector was the service industry, which includes education or tourism. On the other side, analysis by Doytch, Yonzan, Reddy, and De Beule (2021) concluded that many of the services industries in greenfield FDI flows have shown a certain resilience and flexibility to a switch to a remote work mode, while the manufacturing industries 'have contracted more significantly (Doytch, Yonzan, Reddy and De Beule, 2021, p. 472). Many of the papers related to the COVID-19 effects on the FDI are focused on individual economies or group of economies. The United Nations ECLAC report deals with the Latin America and the Caribbean (Economic Commission for Latin America and the Caribbean, 2021), the paper by Tang (Tang, 2021) is focused on Australia, report by the Bureau of Economic Analysis (BEA) deals with the United States FDI development during the pandemic (Bureau of Economic Analysis, U.S. Department of Commerce, 2021) or the paper dealing with the FDI in Ecuador (Camino-Mogro and Armijos, 2021).

3. Development of the FDI inflow in COVID-19 pandemic and post pandemic period

The drop in the FDI inflow was very dramatic, since many countries have announced lockdowns. Even lockdowns were strict or not, they have severely affect the economies, including investors' decision about investments. Investors were really cautious and assessing the accuracy of investment project was detailed. Furthermore, the uncertainty of the pandemic has played an important role. Even we have some reports from the post COVID-19 period (e.g. UNCTAD, 2022), the data for the FDI inflows for 2021 is still not available. However, we might see the recovery and increasing flows of FDI. The flows would be even higher if not struggling with the current situations, which are conflict in Ukraine, energy prices, oil and fuel prices, food prices, restrictions in monetary policies, increasing of interest rates, etc. Those aspects and current conditions would have negative impact on the FDI and this negative impact would probably continue even in greater extend in next years. UNCTAD foreseen that the growth momentum of 2021 cannot be sustainable and that global FDI flows in 2022 will likely move downward trajectory, at best remaining flat (UNCTAD, 2022, p. 5). The post pandemic year, if might the 2022 to be considered, will probably bring the FDI flows stagnation. As mentioned in the previous text, there is many risk und uncertainty in the global economic, social and political development that has negative impact on the FDI inflows. We might assume that FDI inflows will copy those situations and will behave differently in particular countries or regions - the FDI inflows will be very unbalanced.

The following part of the paper deals with the development of FDI in different regions. We have to note that data for the FDI inflows are available only until 2020, but we have predictions of FDI inflows growth in 2021.

Developed and developing economies

To start the assessment of the FDI inflows, two main groups of countries should be compared – developed and developing economies. From the Figure 1 is obvious that FDI inflows had decreased dramatically in 2020. However, we have to note that the declining trend started already in 2016 and the pre-pandemic level of FDI inflows were about the level of 2011 to 2015. The world trend of FDI inflows development is copied by the FDI in developed regions (countries) with the same increasing and decreasing trajectories. A different situation is when analysing developing regions (countries). Since 1995, an increasing trend is observed. The growth of the FDI inflows (or the slope of the trend) is moderate but there are not such high volatilities as in developed countries or in FDI inflows world development. The only exceptions are year 2009 and year 2020. Year 2009 fall in FDI inflows to

developing regions was caused by the global financial crisis and the fall – but rather weak in comparison to developed countries was due to the COVID-19 pandemic. We might conclude that the pandemic has mostly affected FDI inflows to developed countries than the FDI inflows to developing countries.

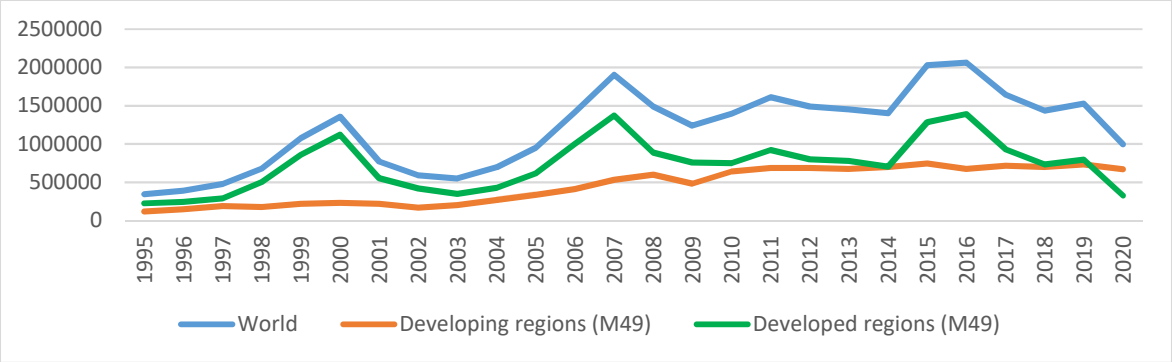

Figure 1: FDI inflow 1995-2020 – World, Developed economies, Developing economies (mil. USD, current prices, UNCTADSTAT)

We would assume that the moderate fall in FDI inflows to developing countries might be due to their smaller involvement in the global FDI inflows, but as illustrated in Figure 2, the share of FDI inflows to developing countries has the increasing trend and for the first time has exceed the share of FDI inflows to developed countries in 2020, this during the COVID-19 pandemic. It means that developing countries are still more and more involved in the FDI flows and FDI is not only a privilege of rich, developed countries, but also countries with very high pace of development that are (in term of production, output or GDP) converging to the developed economies. A very important knowledge we have learned is that FDI inflows are more volatile in developed countries, while the reaction of investors to the same situation in case of developing countries is not as intense. This would also means that crisis periods or periods with unstable economic, social and political environment in developed countries might be considered as the opportunity of investors to invest in developing countries and take advantage of unstable situation in developed countries or globally unstable situation, e.g. related to fuel and energy prices.

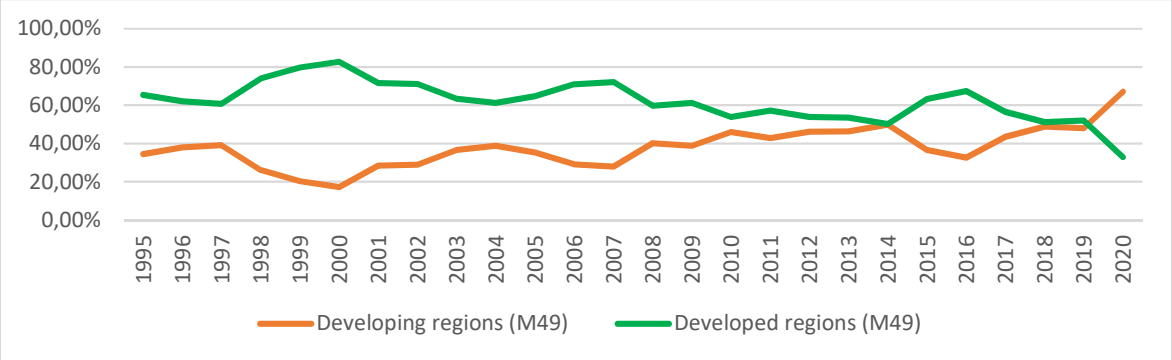

Figure 2: Share of FDI inflows in developing and developed regions (in %, UNCTADSTAT)

The next figure shows a yearly percentage change of the FDI inflows in global measure (world) as for developing and developed countries. It is clear that the growth as well as drop in FDI inflows is smaller in case of developing regions while the volatility is very high for developed regions. Developed regions are able to increased FDI inflows very rapidly, but consequently also to struggle with the enormous drops. The UNCTAD World Investment Report 2022 predicts that the growth rate of the FDI inflows

will be +64 % globally (world), + 134 % in developed countries and + 30% in developing countries (UNCTAD, 2022, p. 7). This just confirmed that FDI are more volatile in developed countries and developing countries have much smoother FDI inflows development.

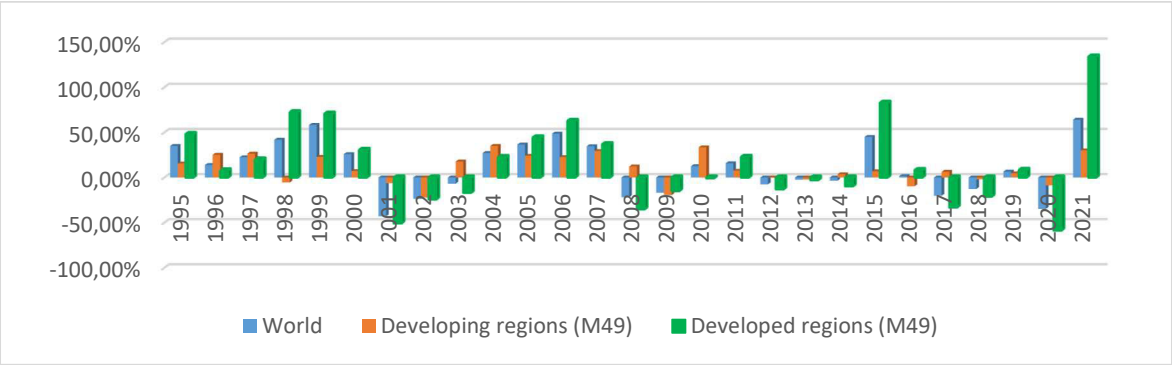

Figure 3: Year-to-year percentage change in FDI inflows (World, Developing regions, Developed regions; in %, UNCTADSTAT)

Note: Year 2021 is the prediction of the UNCTAD (UNCTAD, 2021, p. 7)

Europe, Northern America, Latin America and Caribbean, Africa, Asia

Following with the regional analysis, Europe and the Northern America is mostly considered to be developed economies. As seen the FDI inflows development by regions, the Europe´s FDI are very turbulent, following the world trend. The same would be stated for the Northern America. The only difference is that the overall value of FDI inflows in Europe is higher and that the Northern America has not such high peaks and followed drops in inflows. Relating to the Europe, fluctuations might be seen also in yearly percentage changes in FDI inflows as illustrated in Figure 5. The growth and declines are the highest among all regions. The foreseen estimation of UNCTAD is that in 2021 (in comparison to 2020), the FDI inflows to Europe will increase by 171 %. However, European Union (EU) countries will struggle with the decline of 34 % and the growth will be induced by increasing level of FDI inflows to other non-EU countries that has faced a large disinvestment in year 2020 (UNCTAD, 2022, p. 7-9). Situation in Northern America seems to be more positive than in Europe. It is expected that FDI inflows in this region will increase by 145 %. More importantly, the USA are considered to be the top host economy in 2021 with about 143 % increase in FDI inflows. Canada, with the growth rate of FDI inflows about 161 % is the fifth host economy in the world in 2021. To compare this situation with EU countries, the highest ranked EU country is Germany on eleventh position with growth of FDI inflows about 110 % in 2021 (UNCTAD, 2022, p. 9). Latin America and Caribbean is predicted to increase the FDI inflows in 2021 by 56 %. This region is the second from the bottom when considering the FDI inflows level, but, in comparison to Europe or Northern America, has not very volatile year-to-year changes. Among the sub regions in this region, South America is estimated to growth by 74 %, Central America by 30 % and the Caribbean by 39 % (UNCTAD, 2022, p. 15). Region of Asia is the region with initially relatively low level of FDI inflows in comparison to Europe or Northern America, but with very stable and almost smooth development. As seen in Figure 4, Asian FDI inflows were almost permanently increasing and the yearly change is the less volatile among all analysed regions. Such situation provides the Asia to have the highest FDI inflows since 2017, which were almost not affected by the COVID-19 pandemic and it is the only region with FDI inflows growth in 2020. Not surprisingly, the Asia is estimated to increase FDI inflows in 2021 only by 19 %, but we have to note that this due to the not decreased FDI inflows in previous period and the base for the growth calculations is thus very high. Among the region, the highest growth is estimated in West Asia (59 %), followed by South-East Asia (44 %), East Asia (16

%) and Central Asia (12 %). On the other side, the region of South Asia is estimated the FDI inflows to drop by 26 % (UNCTAD, 2022, p. 13). A very important part of Asian FDI inflows are China and Honk Kong, which are the second, respectively the third largest host economies in 2021. Moreover, Singapore is ranked at fourth place, India at seventh place, Russian Federation at ninth position, Israel at twelfth position, Japan at eighteenth position and United Arab Emirates at nineteenth position (UNCTAD, 2022, p. 9). As clear from this ranking, Asia dominates in the size of host economies. If speaking about the challenges and opportunities during, but mainly in post-COVID period, the expansion of FDI in Asia will be the driving shaft of the world FDI inflows. The regions is Asia is very stable and provide the suitable environment for investors with qualified labour force, low cost of production, modern technologies and research and development facilities. Nowadays, we might witness the importance of this region related to the production of microchips and other high-end technologies. The last analysed region is Africa. As seen in Figure 4, Africa has the lowest level of FDI inflows. Also, the recovery after the pandemic is estimated be slower than in other regions. The predicted growth rate of FDI inflows to Africa is 113 %. The recovery will however not be the same pace in all African regions. The North and Central Africa will probably continue with the FDI inflows decline and the growth of FDI inflows will be in West, East and Southern Africa. It is Southern Africa that is estimated to achieve the growth rate to 895 %. Such extreme growth is due to the very low level of FDI inflows in 2020 that is base for the growth calculation in 2021 (UNCTAD, 2022, p. 12).

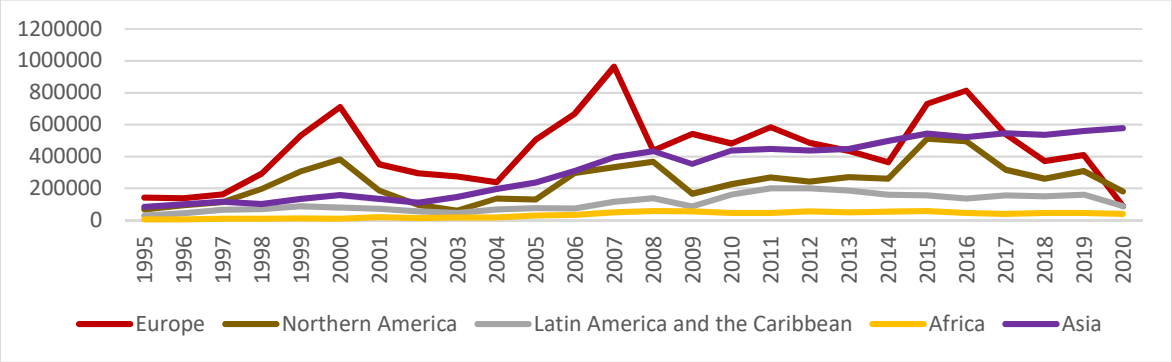

Figure 4: FDI inflow 1995-2020 – Europe, Northern America, Latin America and Caribbean, Africa, Asia (mil. USD, current prices, UNCTADSTAT)

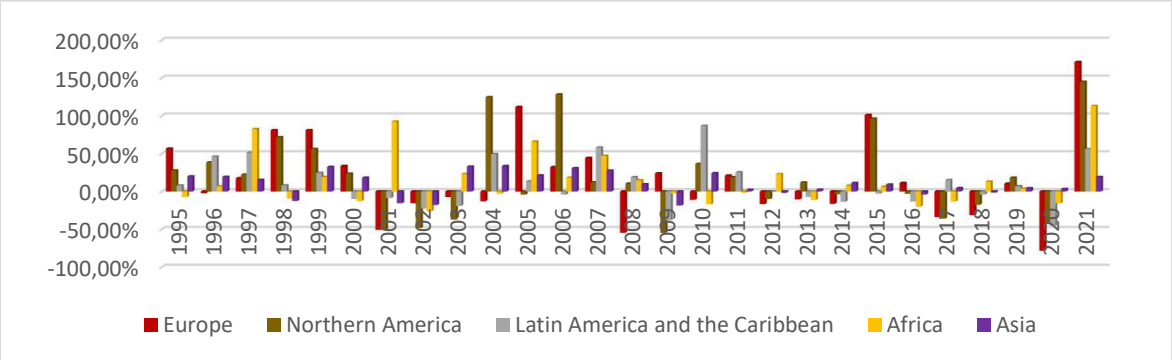

Figure 5: Year-to-year percentage change in FDI inflows (Europe, Northern America, Latin America and Caribbean, Africa, Asia; in %, UNCTADSTAT)

Note: Year 2021 is the prediction of the UNCTAD (UNCTAD, 2021, p. 7)

4. Conclusion

The COVID-19 pandemic has caused a dramatic drop in the FDI inflows almost in all world regions except for the Asia. The recovery in 2021 was high, but has differentiate among regions. The Europe and Northern America have achieved a large yearly increase, however the EU was still in trend of descend. Africa has also grown, but the growth was caused mainly due to the low previous FDI inflow level and even the relatively small increase in level of FDI means the relatively high growth rate. Latin America and Caribbean have increased the level of FDI inflows by the growth rate that is a bit lower than the average growth rate of the world FDI inflows. Asia again provided that this region is very stable and less volatile. The growth rate of FDI inflows to Asia is the lowest at the level of 19 %. However, this is due to the fact that Asia was the only region with the FDI inflows growth also during pandemic. Thus, the growth rate calculated from the high initial level of FDI inflows in 2020 is below the world average. To conclude, the Asian region is the most suitable for the foreign direct investment due to the avoiding of current global problems that Europe or Northern America is struggling with.

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How important are workplace technologies to Generation Z? Implications for personnel marketing

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Abstract: Generation Z is typically referred to as digital natives and is currently entering the labour market. Since technologies are a natural part of their lives, this paper aims to determine how essential workplace technologies are to these young people. Online questionnaires were created on selected technology trends at the workplace. Generation Z representatives were asked to rate how important the use of these technologies at the workplace is to them and whether how an employer presents itself in the context of technologies is critical to them. Based on these results, implications for personnel marketing were drawn.

Keywords: Generation Z, Technologies at the workplace

JEL classification: M3, M51, O3

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1. Introduction

Technologies influence the nature of the workplace more and more, and this trend has become even more significant during the COVID-19 pandemic. Moreover, young people from Generation Z have entered the labour market. This generation is known as digital natives, technologies are an inseparable part of their lives, so there is a question about how their technological preferences can influence their work expectations.

Employers should be aware of Generation Z's needs to hire this generation successfully. Since a lack of good quality workers leads to war for talent, there is high importance of personnel marketing aiming at the right target group with proper communication.

This paper aims to investigate how technology at the workplace affects employer attractiveness for Generation Z and to draw implications for personnel marketing. To fulfil this goal, firstly, there is essential theoretical background described. Secondly, online questionnaires were distributed among generation Z, and managerial implications were drawn.

2. Theoretical background

Many innovations are coming to the workplace. The following text describes those in this paper's centre of interest. One of these innovations is a rising trend in the use of social media. For example, there were 28 % of businesses use social media in the EU, and it was 51 % in 2019 (Eurostat, 2022). Most companies use social media to develop their image or image of their products. Other purposes of social media are obtaining or responding to customers' opinions or recruiting employees (Eurostat,

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2020). Relevant and authentic content motivates customers to interact with the brand; it helps them interact with customers in real time and encourages them to become brand ambassadors (Arya et al., 2022). Using social media for recruiting purposes can result in hiring employees at a lower cost and a faster rate than traditional recruiting methods. It is also possible to address passive candidates who do not seek new jobs actively (Villeda & McCamey, 2019).

Another trend is chat tools. Instant messaging is one of the preferred communication tools among executive managers. The necessity of acceptance of these new ways of communication is underlined by the entrance of new generation employees to the workplace since it is the preferred communication channel for young people (Starc et al., 2019). Anyway, instant messaging is one of the most preferred communication channels regardless of the generation, and it is the second most preferred written communication channel after emails(Bidian et al., 2021).

As COVID-19 sent many employees to the home office, online meetings became popular, or at least necessary, a tool for communication (Sirait & Zellatifanny, 2020). However, it undoubtedly makes virtual cooperation more accessible, and fewer people are demanded to travel to personnel meetings; it has its cons, such as short-term or long-term videoconference fatigue (Döring et al., 2022). Another trend related to communication is virtual reality; it can substitute traditional online meetings, which can cause a lack of ability to concentrate, whereas virtual reality provides a stimulating environment (Robertson, 2021; Guichet et al., 2022). Virtual reality also has great potential in marketing. For example, virtual reality in tourism allows seeing the destination before the trip. It can substitute for travel in some situations, leading to a lower economic and environmental burden (Peštek & Savan, 2020; Rauscher et al., 2020). In the future, retailers may develop VR shopping galleries where customers can view and purchase goods (Wedel et al., 2020).

In addition to online meetings, COVID-19 brought another trend: electronic signatures. COVID-19 disabled people to meet in person for a long time; despite these restrictions necessity of signing documents continued. Similarly to other technological progress accelerated by the pandemic, even the spread of electronic signatures appeared. Factors influencing the adoption of electronic signatures are the size of an organisation, adequate resources, vendor support or government policy (Chang et al., 2007). Convincing employees to adapt to electronic signatures (Fava, 2020).

Another trend in workplace modernisation is Industry 4.0, which brings transformation in many ways. It replaces employees in monotonous, boring jobs and allows them to focus on more exciting activities (Leesakul et al., 2022); these include, for example, automatization of bureaucracy (Veber, 2018) or automated evaluation of CV of job applicants (da Silva et al., 2022). Such mobile applications for internal software can be used to facilitate work. Companies use Customer relationship management software (CRM) to provide customers services at the demanded quality and time necessary to ensure customer loyalty (Geetha et al., 2017). Since there is a rising number of mobile knowledge workers, that means knowledge workers who work remotely or on terrain, mobile apps seem to be a promising tool to enable them to collaborate(Francisco & Klein, 2020).

This article addresses the perception of these technologies at the workplace from the perspective of Generation Z, talking about people who were born between 1995 and 2010 (Bencsik & Machova, 2016). Nevertheless, it is not the only characteristic of them, as Generation Z members can be called people who are digital natives(Prensky, 2001). It means people who have never experienced a situation that modern technologies could not solve (Nichols & Wright, 2018). It is natural for them to search for

information on social media or the internet, mostly with smartphones (Sriprom et al., 2019; Korombel & Lawińska, 2019).

This article asks what impact technology trends are having on personnel marketing. Personnel marketing combines human resources knowledge and products and services marketing (Andrejčák, 2013). As Wickham and O'Donohue (2009) claim, the job vacancy can be conceptualised like a product, so the sale and marketing mix can be applied to develop the status of the employer of choice. Good quality personnel marketing strategy is necessary to attract the right talents to fill a job vacancy and retain employees. As mentioned above, Generation z is considered a technological enthusiast. This paper concerns whether technologies at the workplace are a crucial part of the personnel marketing mix when recruiting these young job candidates.

3. Research results and discussion

Online questionnaires were distributed among people from Generation Z by social media. 105 respondents were willing to fill in the questionnaire, but three had to be excluded because of their age. There were 35 men and 67 women. As Table 1 shows, most of them were university educated.

Table 1: Your education (if you are still studying, please indicate the level of education after completing your current studies)

Level of education	Graduation	Bachelor	Master/Engineer	Doctoral	Other
Number of respondents	28	41	27	1	2

First, in an open-ended question, respondents were asked what technologies they believe are inherent in the modern workplace. As Figure 1 shows, participants did not mention any particular modern technologies; mostly, they answered PC, phones, printers, projectors or coffee. Figure 1 is made using the Voyant Tools generator, where the font size represents the frequency of occurrence of the keyword; the higher the frequency, the larger the font. Conjunctions and prepositions have been excluded from the generator.

Figure 1: What technologies do you think are inherent in the modern workplace?

The next question asked whether the usage of listed technologies raises an employer's attractivity or if these technologies are so standard, they have no impact on an attractivity. The tables contain the number of respondents' answers on a scale from 1 to 5, the graphs show the aggregate assessment of the importance of the technology, which is expressed by the coefficient number of answers * value on the scale. Table 2 and Figure 2 show that results are evenly distributed among all the options, both

types of technologies and evaluation of their importance. That suggests there are significant individual differences between Generation Z members. For personnel marketing, it can be concluded that the needs of Generation Z are individual in this respect, so further knowledge of the target group and their preferences is needed, not just their membership of a particular generation.

Table 2 Positive influence of technologies on employees' attractivity (1 = this technology is commonplace nowadays, its use will not increase the attractiveness of the employer, 5 = it is a big plus that the employer uses this technology, it dramatically increases its attractiveness)

Answers	Social media	Chat tools	Virtual reality	Industry 4.0	Electronic signatures	Online meetings	Mobile app
1	13	12	9	11	16	20	10
2	18	21	15	6	21	15	21
3	28	30	28	28	19	17	26
4	24	20	25	33	18	26	23
5	19	18	24	24	28	24	22

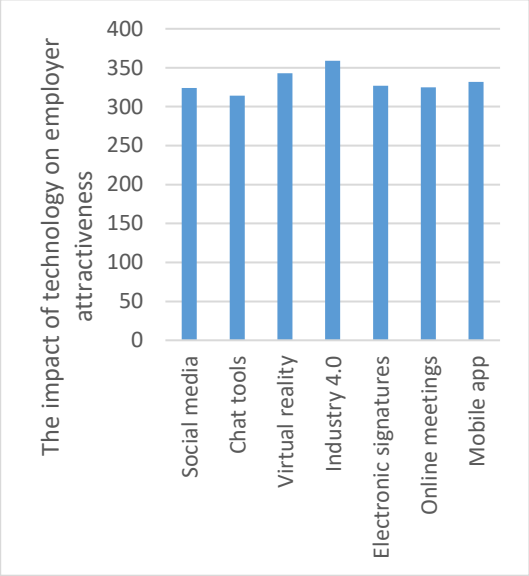

Figure 2 Aggregate impact of technology on employer attractiveness

Table 3 Negative influence of technologies on employers' attractivity (1 = It is perfectly acceptable for me to do the job without these technologies, 5 = It is perfectly unacceptable for me to do the job without these technologies)

Answers	Social media	Chat tools	Virtual reality	Industry 4.0	Electronic signatures	Online meetings	Mobile app
1	44	25	68	35	41	31	57
2	29	26	12	25	23	17	21
3	20	32	12	22	19	29	14
4	5	17	7	16	15	15	8
5	4	1	3	4	4	9	2

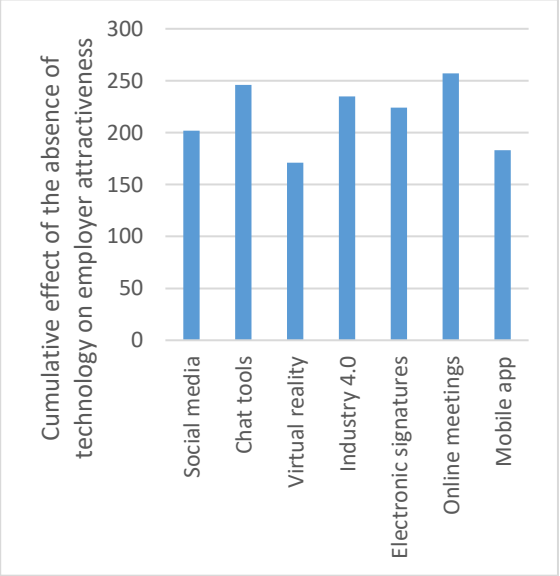

Figure 3 Cumulative effect of the absence of technology on employer attractiveness

On the other hand, based on the results presented in Table 3 and Figure 3, it can be suggested that the absence of certain technologies does not negatively affect an employer's image. Here, however, the differences between technologies were more significant, with the absence of chat tools and online meetings having a more significant negative impact. In contrast, the absence of virtual reality or mobile applications had the most negligible negative impact.

4. Managerial implications

Even though Generation Z is known for their enthusiasm for technologies, the research results did not confirm it is a critical criterion for them when evaluating the attractivity of an employer. There are no considerable differences in preferences of technologies at the workplace. This suggests that employers should adapt their personnel marketing strategy to their authentic corporate culture. If an employer is proud of his technological progress, it should be part of the personnel marketing of the company to attract job applicants who appreciate that. On the other hand, if the employer is not strong in adopting technologies, it is no shame to present it because the company would attract people for whom technologies are unnecessary; even more, they tend to avoid them. Finally, the absence of particular technologies is not a reason for the negative evaluation of employers.

5. Conclusion

This paper focuses on how technologies at the workplace are essential for Generation Z and offers managerial implications to personnel marketing. Research results showed that preferences of technologies are very diverse among Generation Z, so employers should adapt their personnel marketing strategy regarding the target group of their preferred job applicants. On the other hand, the negative influence of the absence of particular technologies was not proved. This research has several limitations. The most important ones are a limited sample of participants and researched technologies.

Further research should focus on a more extensive and diverse selection of participants and explore their opinion about technologies at the workplace in more detail. The research does not deal with the individuality of the respondents or the continuity with the respondents' field of study. Another limitation is that some respondents may not yet have had enough work experience to give a relevant answer. Last but not least, the research was conducted in the Czech Republic, so it is impossible to generalise it globally.

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The issue of social enterprise legislation in Hong Kong and Germany: Opinions of social entrepreneurs and experts in the field

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Abstract: The ambiguous concept of social entrepreneurship is reflected not only in the academic debate but also in legislative anchoring. This has implications for the everyday practice of social enterprises that straddle the line between the for-profit and non-profit sectors. This article aims to how do respondents from Hong Kong and Germany understand the concept of social entrepreneurship and what is their view on its legislative anchoring. For this purpose, qualitative research was conducted using semi-structured interviews with representatives of social enterprises, academics working on the issue, and representatives of organisations that support social enterprises in the countries under study. On this basis, the forms of social enterprise conceptions in these countries were identified, and recommendations were made for improving the situation so that social enterprises do not move in a legislative vacuum.

Keywords: Social entrepreneurship, entrepreneurial environment, legislative conditions

JEL classification: K0, K2,

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1. Introduction and Theoretical Background

There have been roots of social entrepreneurship in Germany since the nineteenth century. Since then, its concept has evolved to its present form, where groups of future-oriented enthusiasts start organisations to solve social problems (Zimmer & Obuch, 2017). The origins of social entrepreneurship in Hong Kong can be traced back to the 1990s and are associated with efforts to help disadvantaged people in the labour market (Chan et al., 2019). However, both countries have traditions in social enterprise, and an unambiguous concept of social enterprise has yet to be established in any of them.

There are various understandings of what social entrepreneurship is. As Defourny and Nyssens (2010) claim, *"Social entrepreneurship may be viewed as a wide spectrum of initiatives or practices, even though there might be strong controversies as to what kinds of organisations and practices might constitute the extreme points of such a spectrum."* But they also set criteria for how to determine social entrepreneurship. These criteria can be divided into three categories, as shown in Table 1.

Table 1 Criteria of social entrepreneurship by EMES (Defourny & Nyssens, 2012)

Economic and entrepreneurial	Social dimensions	Participatory governance
A continuous activity producing goods and/or selling services	An explicit aim to benefit the community	A high degree of autonomy

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A significant level of economic risk	An initiative launched by a group of citizens or civil society organisations	A decision-making power not based on capital ownership
A minimum amount of paid work	A limited profit distribution	A participatory nature, which involves various parties affected by the activity

Adderley (2019) understands social enterprise as a social construct. He sees social entrepreneurship as an opportunity that an entrepreneur takes to use his personal abilities. Nevertheless, social enterprise is a phenomenon based on achieving social goals through non-philanthropic activities. According to Bruder (2021) social enterprise is an organisation which considers aspects such as making a profit or fulfilling its mission, but the most important is to solve social challenges. The crucial characteristic also is that social enterprises can come up with innovative approaches to social problem solutions. To enable them to contribute to society effectively, several conditions need to be met: market freedom in the social sector, development of legal forms, the orientation of consumption behaviour towards sustainability and mechanisms which can strengthen local social-entrepreneurial initiatives (Engelke et al., 2016).

Despite the legislative and theoretical vacuum, there are efforts in both countries to name what social entrepreneurship is. In Hong Kong, the Hong Kong General Chamber of Social Enterprises has introduced social enterprise accreditation (Hong Kong General Chamber of Social Enterprises, 2021). This organisation defines a framework for social entrepreneurship, where the basic criterion is the social mission and limits for profit distributed to stakeholders or transferred to other companies, and then social enterprises are categorised according to their progress as incubating, intermediate or advanced. In these categories differ *the required years of operation and number of full-time staff differ. The 'Advanced' category requires that at least 50 per cent of revenue is generated from business operations, and no less than 65 per cent of profits are reinvested in the business for the social purpose* (British Council, 2020). Similarly, there is no official definition of social enterprise in Germany, but the SEND, a German social enterprise support organisation defines social enterprises as organisations whose primary objective is to address social challenges. This is achieved by continuously leveraging entrepreneurial resources and resulting in new and innovative solutions. Control and monitoring mechanisms ensure that social objectives are experienced internally and externally (SEND, 2021). The European Commission's definition (European Commission, 2022) can also be applied to Germany, it concepts social entrepreneurship as a business for which the common good is the reason for economic activity; it reinvests its profit to achieve goals beneficial to society, and its management uses democratic principles. European Commission accepts various legal forms of social enterprise, profit and non-profit included.

It seems that the unclear position of social enterprise between profit and non-profit sectors results in an ambiguous legal conceptualisation of social businesses. This paper aims to describe the opinions of social entrepreneurs and experts in this field on the current formal concept of social entrepreneurship in Hong Kong and Germany, to highlight the negative consequences that this entails, and to appeal for practices that should be developed to improve the conditions for social entrepreneurship, not only in these countries but also in countries that have adopted this concept of socially beneficial enterprises and that also do not have a clear definition of what a social enterprise is.

2. Methodology and Research Sample

To establish the conceptualisation of social enterprises in Germany and Hong Kong and to describe the opinions of respondents on social entrepreneurial environments and legal conditions in these two countries, semi-structured interviews were conducted with social entrepreneurs, representatives of organisations supporting social entrepreneurship and academicians who are experts on social enterprises in their countries. These interviews were taken online or in person, depending on the participant's situation and approximately took one hour. These interviews were part of wider research conducting more topics of discussion, and for the purpose of this paper, answers regarding the conceptualisation of social entrepreneurship were taken into account. Table 2 shows a list and description of respondents.

Table 2 List and description of respondents

Number of respondents	Field of business/position	Country
R1	Researcher	Germany
R2	Researcher	Germany
R3	Social entrepreneur (social services)	Germany
R4	The employee of an organisation supporting social enterprises	Germany
R5	Researcher	Germany
R6	The employee of an organisation supporting social enterprises	Hong Kong
R7	Social entrepreneur (circular economy)	Hong Kong
R8	Social entrepreneur (social services)	Hong Kong
R9	The employee of an organisation supporting social enterprises	Hong Kong
R10	Social entrepreneur (social services)	Hong Kong

Thematic analysis has been used to analyse the interviews (Braun & Clarke, 2006). All the interviews were recorded and then repeatedly listened to and coded to find out common claims - themes in participants' answers. Based on this analysis, the characteristics of social entrepreneurship in both countries were described. Identified themes were namely unclear theoretical background of social entrepreneurship, unappropriated choice of legal form, impacts on identity, and concerns over the formal definition and tax regulation.

3. Results and discussion

Based on the analysis of interviews, five themes were identified. The following text shows examples of the claims of respondents and offers their interpretation.

3.1. Unclear theoretical background

The ambiguity of grasping social entrepreneurship in the theoretical background appeared in the interviews. German researchers expressed different views on their understanding of the concept. And even they admitted that defining the concept is complicated, one academic, who had been a social entrepreneur before entering the academic field, claimed: *R1: "Definition of social enterprise is very tricky. I'll give you one example. One start-up is run by village women; they take honey from their farm, clean it and sell it. Is it a social enterprise? (…) Another example is a huge international corporation which produces medical devices. These devices help people. Is it a social enterprise? (…). The last example is Indian holding which owns many industrial corporations but uses their profit for charitable purposes. Is it a social enterprise?"* Finally, this participant claims that only profit legal forms include social enterprise because non-profit is not enterprise. Another researcher describes a different approach: *R2: "There is academic debate if social entrepreneurship is only commercial companies with a social mission. There are two schools of social entrepreneurship. The innovation school and the social enterprise school. Personally, I work more with the social innovation school perspective. Because there are problems in society. And yet Schumpeter said that entrepreneurs are those who initiate the change. And social enterprise is innovation with social problems. Because next to commercial companies with a social mission, I also work with non-profits, and they are innovative. They have the idea; they do it, they have a business model."*

These disagreements among experts, and thus the ambiguous societal consensus on what constitutes social entrepreneurship, are also reflected in the uncertainty of the social entrepreneurs themselves, who are then unsure of their identity. This uncertainty was evident in the way that some interviewees began the interview by asking whether they could be included in the research at all: *R3: "We do not take money for our services. We are a non-profit legal form, so I do not know if I can participate."*

3.2. Unappropriated choice of legal form

This uncertainty affects social entrepreneurs at the very beginning of their organisations. It was revealed that they are still determining which legal form should they choose. It is a strategic decision with a long-term impact. Most German respondents have expressed themselves in this context: *R4: "When people want to set up social entrepreneurship in Germany, they must first answer one important question. It is a legal form because, in Germany, we have only two forms: profit company and non-profit company. And social enterprises are somewhere between. Because they sell products, and of course, they make a profit. But they do something good, for example, the product is plastic free. But if they decide to do it as a profit company, they cannot apply for donations. If you do it as a non-profit, you have very strict regulations on what you do with your money. You cannot make a profit; you must reinvest everything."* One possible solution when choosing a legal form is an evolution from non-profit to profit legal status; as another participant, a German researcher, describes: *R5: "Social entrepreneurs are forced to start as non-profit organisations. They want to make a profit, but it is not always clear how the business model will work. So, in the beginning, they often depend on funds and donors. So, it depends on long-term perspective on how the social venture develops if it is sustainable and viable."*

Calls for better provision of a legal form for social enterprises were not as common among Hong Kong respondents, but they also emerged: *R6: „I think, that's what I mean that should have some, maybe not law, but some standard or some guidance for the social enterprise because nowadays there is nothing, maybe you can apply for being mister for social enterprise guide. but it's not a very official thing. So, I think it can create some regulation for social enterprise - can be a positive way."*

3.3. Impacts on identity

Some participants call for a better definition of social enterprise, as they perceive that the ambiguous definition of social entrepreneurship affects not only the determination of their identity but also their formal difficulties. This uncertainty also affects their long-term strategy. These concerns appeared mostly among respondents from Hong Kong, but it was also mentioned by German respondents: *R4: "There is no specific law for social enterprises in Germany. Probably, externally it is not a problem. Internally it is a problem, like 'what are we? Are we a socially driven organisation or an economically driven organisation? Should we focus on our social mission or on the economic results we should deliver? I think this is something that has to be solved."* Another participant from Hong Kong points out that lacking definition of social enterprise is not only an internal identity problem but also an external one: *R7: "Because there is no law to say who is a social enterprise, so it seems everyone can say they are a social enterprise. So that is another trouble. Because if everyone can say they are a social enterprise, they don't have any related policy to help you (…) and someone knows something called social enterprise. Still, when they go to find it, and there is not a clear definition of what is a social enterprise, and then people will say, some people ask me: 'Is that a fake term?'"* The complications lead some social entrepreneurs to call for a formal anchoring of the concept of social entrepreneurship: *R8: (Question: Do you think it will be good to create some laws on social enterprise?): „I think so! Or they have some kind of position … maybe legally they have someone to make it more structured. So nowadays, people need to say they are a social enterprise. But how to interpret it. If there are any criteria to be a social enterprise. What deliverable do they have to do?"*

3.4. Concerns over the formal definition

However, it cannot be generalised to say that all social entrepreneurs desire a formal definition of social entrepreneurship. Some are concerned that such a definition would tie their hands or bring additional complications. We have encountered this reaction, particularly among Hong Kong social entrepreneurs, which may be culturally driven but also due to negative experiences with policy constraints. Some respondents also pointed to the considerable diversity of social enterprises and the difficulty of defining social entrepreneurship. In their view, it is even more difficult to put a clear definition in the law that would suit all organisations that identify as social enterprises. *R9: "I agree with the direction, but it would be very complicated in the process because the social enterprise is very diverse because the term social enterprise includes a lot of different kinds of industries, different kinds of social enterprise, different structures, different industries there are in, so it's, it's quite hard to summarise everything to one or two single legislations like them. So even the government decide to progress with legislation, I believe it would be a very long process because it's quite complicated."*

Some respondents expressed uncertainty about whether and how social entrepreneurship should be formally regulated. This may stem precisely from a fragmented view of what social enterprise is, which is reflected in the considerable diversity of how different social enterprises are conceived. *R10: „Ooohh, difficult! I thought about it as well. I have mixed feelings. On the one hand, of course, it would be nice to have it as a category or as a well-defined legal status. On the other hand, there is a danger that once you have this very clear definition, it will become one or the other. It will just then essentially become a normal company or become a charity. So, it is not easy; I wouldn't know how to define it legally. Because people like me or other social entrepreneurs maybe disagree on how social that should be. Or how commercial that should be. It's a spectrum, and not everyone has the same understanding of it, right? So that's I'm not sure honestly. Maybe this ambiguity has its own benefits. But I wouldn't be completely opposed, I would say maybe some experts and some academics need to think of this, and I would be happy to participate in discussions on this. But I cannot give a solid answer right now."*

It is also possible that the fear of legal regulation of social entrepreneurship stems from the fact that social entrepreneurs feel that political representatives do not understand them, as noted by the German respondent: *R4: "Another challenge is lacking knowledge of policymakers. Because they say 'Yes, we support social enterprise', but they do not know what the social enterprise is and its challenges."*

3.5. Tax regulation

Last but not least, tax regulation is also related to legislation. These differ in the two countries studied: *R4: "There are no tax benefits when you set up a social enterprise in Germany. Even when social enterprises collect money from people, like crowdfunding, the money is double taxed. Because donators have to pay taxes from their income and social enterprise, have to pay taxes from this money again."* On the other hand, Hong Kong supports private donators by tax discount: *R7: "In Hong Kong, for donations, there is a tax deduction of up to thirty-five per cent so let's say you personally make a million Hong Kong dollars a year and you donate 350 thousand, and then that would be tax deductible. So, I think a lot of people in Hong Kong they rather donate the money because they can get tax deductions."*

4. Conclusion

Both in theory and practice, there is an ambiguous definition of social enterprise, which has its consequences. It is not generally agreed if and how should social enterprise be defined. This results in several problems which social enterprises must face. At first, it is unclear internal identity. Social entrepreneurs need to find out if it is legitimate to call themselves social entrepreneurs. Clear identification may help them to search for adequate help from supporting organisations, accelerators and funding programs. Moreover, knowing own identity is crucial for defining the mission and strategy of the organisation. Second, the unclear identity of social enterprises affects the external presentation of these organisations. It is complicated for them to present themselves when the wide public does not understand the term. Public discussion and education of the population about social entrepreneurship would help to solve this problem. Third, lacking a law definition of social enterprise forces social entrepreneurs to choose a legal form which does not fully suit them. Social entrepreneurship is in the middle between the non-profit and profit sector, and both forms have their pros and cons. A proper legal definition of social entrepreneurship would help these organisations to take advantage of both. Nevertheless, some social entrepreneurs are rightfully afraid of establishing a legal definition of social entrepreneurship. They are worried that it would bring restrictions and make their life even more complicated. These concerns are based on the feeling that policymakers do not understand them. These worries are understandable since social entrepreneurs see that even experts on this topic cannot agree with each other on the definition of social entrepreneurship. To solve this problem, deep discussion with representatives of all stakeholders should be realised. Last, the law about taxes and donations should be solved. Hong Kong is more open to helping social entrepreneurs in these terms since there are tax discounts for donators, compared to Germany.

This research has several limitations. Since it's a qualitative approach, results cannot be generalised because of a limited sample of participants. Another limitation is that research was conducted only in two countries, so it cannot be generalised globally. Further research should concern deeply about the definition of social enterprise so there can be a general agreement established and optimal law conditions implemented. Moreover, some countries have already agreed on such a legal system. Research should be concerned about the situation of social entrepreneurs in these countries and

explore whether this legal change has helped them. Or if the definition of social enterprises is just academic theory and the real impact of these organisations is more important.

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Battery industry in context of global green economy incentives: considering current and future challenges

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Abstract: Policies of countries around the world are nowadays oriented mainly to minimizing emissions. Transportation sector, which has massive negative impact on the environment, is therefore one of sectors, which are mostly influenced by current global changes. Significant shifts are linked to the automotive industry, where large part of investments is directed to electromobility or alternative fuels. Especially electromobility has gained traction in recent years, but its full potential is still to be utilized. Production of electric vehicles would not be possible without batteries, which basically allow the cars to move. Battery industry as a whole represents very important sector for future development of automotive industry and global economy. In this paper, we examine current specifics of battery industry from global standpoint, with objection to assessment of possible future trends within the industry. The aim of the paper is to analyze and compare development of the battery industry on different markets, with the use of relevant data provided by professional organizations or consulting companies. In the paper, we also address key aspects of the battery industry from a global perspective and identify key factors that may affect its direction in the upcoming years.

Keywords: green economy, green mobility, battery industry, electromobility, sustainability

JEL classification: L62, R40

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1. Introduction

Transportation sector is among the industries with severe negative impact on the environment. The process of decarbonization of this sector is closely linked with spread of alternative fuels. As the electromobility is gaining momentum and global electric vehicle fleet is growing, there is also pressure on the battery industry sector. To meet global environmental goals in upcoming decades, the level of batteries production must be adequate and the supply of raw materials has to be sufficient. Thus, global cooperation of multiple sectors should be strengthened in order to meet growing battery demand and avoid interruptions of supply chains. Considering the post-pandemic economic situation combined with military conflict between Russia and Ukraine, it is going to be very challenging and pre-defined climate goals can be met only with full focus of cooperating countries.

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2. Battery industry as the economy sector

As the green mobility incentives are rapidly growing worldwide, the interest for electric vehicles is also on the upward trajectory. As a result of higher demand for electric vehicles there is also need for adequate amount of batteries, which are the substantial part of EV. The battery is the energy resource and the most important part of electric vehicle. Battery industry is therefore sector, which goes hand in hand with electromobility development. There are following types of batteries currently used: Lead-acid batteries, Nickel-based batteries, Sodium-based batteries, Lithium-ion batteries, Metal-air batteries or Supercapacitors (Larminie, Lowry, 2012). For electric vehicles, the most relevant are Li-ion batteries. The production of batteries requires special metals or materials, but most of them are not available in Europe. These key raw materials are therefore imported from foreign countries (Congo, Russia, Australia, Chile, Argentina, China or South Africa) (Igogo et al., 2019).

The following table (Table 1) presents information about top global battery production companies. The rankings are based on the market share according to total revenues in 2021.

Table 1: Market share of the strongest global Li-ion battery manufacturers (according to Venditi, 2020)

Position	Company	Market share in 2021 (%)	Country
1	CATL	32,5	China
2	LG Energy Solution	21,5	South Korea
3	Panasonic	14,7	Japan
4	BYD	6,9	China
5	Samsung SDI	5,4	South Korea
6	SK Innovation	5,1	South Korea
7	CALB	2,7	China
8	AESC	2,0	Japan
9	Guoxuan	2,0	China
10	PEVE	1,3	Japan
-	Others	6,1	-

From the presented data, we can see three top manufacturers (CATL, LG and Panasonic) combine for almost 70% of the market. CATL, the Chinese company standing on the top spot, has become the biggest battery group in last decade. China also hosts BYD, the fourth biggest battery manufacturer. Another highly competitive companies are also from Asia, as LG and Panasonic have their headquarters in Korea and Japan, respectively. All in all, Asian companies are not strong only in the field of vehicle parts production, but they are becoming a potential centre for innovation in battery industry (Venditi, 2021). In this context, there is potential risk for American or European countries: to reduce the reliance on Asia-produced batteries, significant investments into battery production facilities are necessary.

3. Assessment of future battery industry challenges

For battery industry as a whole, significant investments into production facilities are essential. Another crucial aspect is support of the employment, what will require special knowledge and skills of potential workforce. The main complication for the battery industry, however, is uncertainty. This sector is still

in early phase of development, and the continuous turbulent changes make it very difficult to estimate future scenarios and directions. Modern technologies, fluctuations of raw materials demand or commodity price changes may cause substantial redesign of processes within the industry, and it is therefore very difficult for companies and factories to reliably predict what amount of resources should be invested.

Electric vehicles are becoming more popular among consumers. The electric vehicle fleet reached the level of 10 million units in 2020, what is 1% of total light duty vehicles number. If the ambitious climate targets to be met, electric vehicles together with renewable energy sources should become the dominant technology used in transportation. Raising adoption of electric vehicles may possibly bring several benefits, especially reduction of greenhouse gases released into the atmosphere. The future raise of electric vehicle market is, however, dependent on the battery industry capacity to cover the future increased demand for electric vehicles (Usai et al., 2020).

Nowadays, electric vehicles use mainly Li-ion batteries for energy storage, technology widely used in production of small electronics. The main difference between these two types of batteries is its size: battery is much larger in the electric vehicle than in the small electronic device. It means, that replacement of current light duty vehicles fleet with electric vehicles would require significant increase of production capacity of the battery industry, what translates into the more robust value chains in the sector of raw material mining and processing. Predictions of future raw material demand and characteristics of future challenges related to electric mobility transition have been a subject of numerous reports and studies. Currently, the capacity of Li-ion battery production is estimated to be in the interval from 250 to 640GWh/year. This wide range underlines above mentioned idea of high uncertainty in the sector, that is also caused by the lack of transparent and up-to-date data.

Sufficient supply of batteries is crucial factor for smooth transition from fossil-fueled vehicles to electric vehicles. It is therefore very important to quantify likely future Li-ion batteries demand in order to ensure the adequate supply of raw materials and batteries. Li-ion batteries evolve rapidly from technological and also economic standpoint, what can potentially create following challenges: (1) the need for capital investment into the manufacturing facilities, (2) potential rapid increase of demand for primary materials causing a mining activities ramp-up, (3) the need for higher number of recycling plants which can reduce the mining of primary materials, by processing the outflows of Li-ion batteries reaching their end of life (Usai et al., 2020).

3.1. Raw materials management to the future

The demand for materials for Li-ion batteries manufacturing (Al, Cu, Ni or Mn) is currently not creating concerns, as their production is sufficient. There are possible risks related to other materials, as graphite, Li and Co. In 2019, extraction amounts of these three were following: 1,1 Mton for graphite, 82 kton for Li and 144kton for Co (Shedd, 2021; Jaskula, 2020). According to production estimates, the supply of these materials may not be able to cover demand in the future years (2032 for graphite, 2033 for lithium and 2041 for cobalt). This would be the case for high level of electrification and high penetration on the electric vehicle market. On the other hand, insufficient future supply of materials may constitute potential limitations for Li-ion batteries manufacturing, what may inhibit the rate of electric vehicle market diffusion (Olson, 2020).

High electrification scenarios would therefore require increased capacity of mining facilities. A mentioned above, possible risks are related to extraction of graphite, lithium and cobalt. The risks,

however, are not stemming from the lack of resources in the ground (U.S. Geological Survey, 2018; Robinson et al., 2017). It is geographical concentration of these materials, mainly cobalt, which represent a complication for stability of supply chains (IEA, 2021). Graphite, as European commission states, is on the list of critical materials. It may be, however, produced synthetically, but the cost is twice as high as natural graphite (Olivetti et al, 2017). Moreover, graphite may be soon replaced with silicon, what would also help to overcome potential shortages of graphite.

Mining of lithium is currently operating approximately at 50% of full capacity. In the upcoming decade, its production may be twice as high, according to McKinsey report (Azevedo et al., 2018). By 2025, supply of lithium may not be sufficient to cover the demand, especially in case of high market penetration by electric vehicles. Lithium is crucial material in Li-ion batteries, but it has much wider use also in other sectors. Sudden demand shock for lithium would eventually translate into higher price of this commodity, Li-ion batteries and final products. Production of lithium also requires time: establishing new mines and installation of processing plants may take up to 3 years. One possible solution is to recycle lithium from batteries at their end of life, but this activity currently is not beneficial from economic standpoint.

Situation with cobalt is uncertain, too. Reports say that future cobalt capacity will come from expansion of mining capacity and resources coming from recycling (Azevedo et al., 2018). Cobalt, however, is most often mined together with nickel and cuprum. Thus, its production depends on these two materials, which can also influence market price and supply of nickel. Moreover, cobalt mining is quite concentrated as the huge majority is manufactured in Congo and most of the processing occurs in China (Slack et al., 2017). Due to the price surge or demand increase, there may be possible market shock leading to potential nickel shortage, mainly if battery producers would rush to secure sufficient amount of this material (Fu et al., 2020). As a result, another bottlenecks in supply chains would impact electric vehicles manufacturers in negative way.

Total availability of battery materials, actually, does not seem to be a constraint for future electric vehicles market diffusion. However, proper strategy has to be planned and implemented in order to establish appropriate mining capacity as future increase in the demand for key raw materials is more than probable. Building adequate mining infrastructure requires significant time. From exploration to the actual extraction and processing of the resources, it may take approximately more than 10 years (Fellows et al., 2015).

In addition to the supply of raw materials, there is a potential to apply principles of circular economy to the future. Part of the demand for Li-ion batteries materials may be covered by recycled batteries reaching their end of life. What is important, however, is recycling infrastructure, which should develop accordingly with the development of batteries on the market. Only then the highest possible recovery amounts will be reached with objection to ensure as much of the demand as possible is covered in this environmentally friendly way. Despite these opportunities, there is again a factor of uncertainty related to the rate of Li-ion batteries retirement. Reports estimate, that demand for recycling facilities will closely follow the demand curve for Li-ion batteries, considering some time lag (Velasquez-Martinez et al., 2019; Richa et al., 2017).

The pace of electric vehicle deployment may create various scenarios of raw material recycling. In the case of low electric vehicle market penetration, the demand should stay rather constant, what also would not put such a pressure on the supply side. In this scenario, more circular economy possibilities

could be applied. In high electric vehicle market penetration scenario, the full implementation of circular economy principles will be even more significant, as the demand for primary raw materials will be substantially higher than in low-penetration case. One of the possibilities within the principles of circular economy, is to avoid recycling of batteries after their first life cycle, and thus prolong their use (Richa et al., 2017). Another way is to allow the highest possible recovery rate of used materials and their further reuse in Li-ion batteries. The adoption of circular economy principles in the sector of battery manufacture could lead to reduction of vulnerability within the supply chains. Moreover, it would bring tangible environmental benefits to whole industry. All of these suggestions, however, may be successfully achieved only if adequate technologies are developed and optimal political and economic conditions are created by relevant institutions (Li et al., 2021).

3.2. Investments and workforce management

Challenges related to raw materials management are not the only to be considered. The transition to electric vehicles may require building of battery manufacturing facilities what eventually impacts the amount of capital expenditures. Human capital is not less important, as production facilities will be concerned by recruiting employees with appropriate skills. According to qualified estimates, capital expenditures in high-penetration scenario would generate cumulative investments of 150-300 billion USD by 2050. Low-penetration scenario would result in 40-80 billion USD invested. High-penetration scenarios thus mean higher manufacturing capacity that allows for future cost reductions stemming from increased know-how and economies of scale (Usai et al., 2020).

Capital expenditures are therefore expected to decrease over time, but operation expenses are way more uncertain. The materials used in the Li-ion battery make up to 20-50% of the total battery price, according to various calculations (Hsieh, 2019). The final price of the battery may fluctuate depending on the prices of cobalt, lithium etc. This price variability may potentially lead to market shocks, thus generating possible supply shortage and driving up the production costs. On the other hand, increased raw materials price would only support the incentives for their recycling (Wentker et al., 2019).

The construction of new manufacturing facilities, as mentioned above, will drive up the demand for a qualified workforce (Cai et al., 2014). More exactly, employees with specific skills from fields of electrochemistry, software development, mechanical engineering will become the most wanted persons on the job market. The transition to renewable energy sources will therefore influence the job market as a whole (Barros et al., 2015). According to following studies, deployment of renewable energy sources can have positive overall impact on the job market: under certain conditions, it will create net positive number of workplaces (Lambert, Silva, 2012). What is extremely important, however, these newly created workplaces will require completely different skills, what has to be coordinated in line with specific training programs (Lucas et al., 2018).

Production process associated to Li-ion batteries is very complex. It consists of multiple tasks, for example preparation of electrodes, pack assembly or testing. These activities represent new tasks specific to battery industry, and potential employees therefore has to be properly trained to work on those positions. Forecasts say, that battery manufacturers will compete each other to get and educate employees in order to gain advantage from production and efficiency perspective. Those producers, who will not be able to cover adequate quality and quantity of workforce may face serious problems, as the shortage of qualified employees may be a constraint to their production plans (Usai et al., 2020).

From the long-term point-of-view, establishment of battery production facilities will eventually generate direct employment in facility locations. Moreover, some indirect benefits are considerable. The growth of the battery industry may have some side-effects which can influence labour market in positive way, for example: (1) temporary employment as a result of construction works on manufacturing facilities, (2) employment generated in the neighbourhood of the facilities for services provision, (3) additional employment in recycling sector, which should grow simultaneously with battery production rate, (4) additional employment in the mining sector, due to increased demand for primary raw materials (Usai et al., 2020).

4. Conclusion

In the paper, we discussed the key factors of battery industry, in context of future electric vehicles market development. As mentioned above, the most substantial aspects appear to be the supply of raw materials, adequate investments for building of production and recycling facilities, and education of qualified workforce. In the light of global incentives to green transportation transition, electromobility is expected to grow further. Implementation of climate targets and sustainable resource strategies is underway and by 2035, vehicles powered by internal-combustion engine are expected to be banned. As a consequence, global coordination will be required in order to build sufficient production capacity, to ensure that batteries are properly recycled and mining sector is able to cover raw material demand. It is, however, difficult to estimate exact scenarios of development, as the combination of variables make it very challenging. Although there is not shortage of primary raw materials, the complexity of supply chains involved in battery industry and local concentration of key resources can be a future threat for fulfilment of ambitious targets defined by global authorities.

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Approaches of Czechoslovak governments to dealing with the consequences of the First World War and the Spanish flu pandemic in the years 1918 - 1921

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Abstract: The author analyzes the approaches of the Czechoslovak government to address the consequences of the First World War and the Spanish flu pandemic in the Czech lands. Based on historical data from the period 1918 - 1921, it deals with the political and economic situation and the measures of the first Czechoslovak governments for the renewal and development of the country. In the next part of the article, the author evaluates the approach of Czechoslovak governments and the measures taken to mitigate the effects of World War I and the Spanish flu pandemic. The author seeks an answer to the question to what extent the situation 100 years ago is similar to the present, when the Czech lands were affected by the COVID-19 pandemic and are subsequently exposed to the effects of the war in Ukraine and the related economic crisis. The author presents for discussion his conclusions to what extent this historical experience can be beneficial for the present.

Keywords: war, public finance, flu pandemic, mortality, government, budget, state debt, taxation, economical crises, recession, inflation

JEL classification: B22, H 20, N 440

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1. Introduction

The aim of this article is to evaluate the approach of the Czechoslovak governments in the years 1918 – 1921. It was the period of the end of the war, the establishment of the state, strikes, and hunger storms, the restoration of the economy, the economic crisis and the gradual development of the state. In the years 1918 - 1921, six governments with six ministry of finance governed Czechoslovakia. They were all economists, mostly with legal education. A. Rašín and K. Engliš belonged to the most outstanding personalities. The author focused in particular on A. Rašín's measures, that A. Rašín enforced, created the conditions for the restoration of the economy of the new state, but also for its later successful development. The author is looking for an answer to the question to what extent the situation more than 100 years ago is similar to the present and in what way it is inspiring for the future decisions of the government.

2. Situation of the Europe 1918 – 1921

2.1. World War I

The Austro-Hungarian Empire had of its more than 50 million inhabitants. Figure 1 shows the Austro-Hungarian in 1918 and its disintegration into new successor states (Austria, Hungary, Czechoslovakia, Yugoslavia, Poland and partly Romania and Italy). Compared to other European great powers like Britain, France or Germany, Austria-Hungary had limited economic resources. Some lands like Czech lands, the cities of Vienna and Budapest were industrialized. Their income level corresponded more or less to Germany or France. Others territories had just started industrial development, like Galicia and Austrian Littoral. Austria-Hungary's GDP per capita remained significantly lower than that of the other countries. Max-Stephan Schulze's (2009) estimated that, in 1913 the gross domestic product per capita was roughly half of that so in France and Germany.

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2.1.1. Impact of the World War 1 1914 - 1918

The States of the Allies overcame the States of the Central Powers. The total number of military and civilian casualties in World War I was around 40 million. There were 20 million deaths and 21 million wounded. The total number of deaths includes 10 million military personnel and about 10 million civilians. The Allies lost about 5.7 million soldiers while the Central Powers lost about 4 million. Multinational monarchies disappeared. (Austria-Hungary, Tsarists Russia, the German Empire and the Ottoman Empire disappeared.) New nation states created including a new state, Bolshevik Soviet Russia.

2.1.2. Spanish flu

At the end of the World War I, the so-called Spanish flu spread around the world. Virus of Spanish flu infected about 500 million people. The number of deaths to be at least 50 million worldwide.[1] Ansart (2009) analyzed monthly all-cause civilian mortality rates in the 14 countries, accounting for approximately three-quarters of the European population (250 million in 1918). A periodic regression model applied excess mortality from 1906 to 1922. Analyze suggests that 2.64 million excess deaths occurred in Europe during the period when Spanish flu was circulating. During the Spanish flu, the excess mortality was 1.1% of the European population. Murray gives Germany a mortality estimate of 0.79%, Ansart et al 0.69%, Eckart 0.49%. Mortality rates in Europe range from 0.39% in France to 0.92% in Italy and 0.97% in Portugal. The European average is for Murard, Zylberman (2009) about 0.48%. According to recent figures, the mortality rate in the USA is around 0.65%. Figure 1 shows total Austro-Hungarian War Deaths excluding prisoners of war (which cannot be divided by region) and direct civilian losses.

Figure 1: Estimated total Austro-Hungarian War Deaths excluding prisoners of war (which cannot be divided by region) and direct civilian losses

	Military Deaths* (rounded to full 1,000) excluding POW		Civilian Deaths until September 1918		Spanish flu (Extraordinary Deaths October to December 1918)		Total (including Spanish flu until December 1918)	
Territory	Absolute in 1000	Per 1000 of population 1910	Absolute in 1000	Per 1000 of population 1910	Absolute in 1000	Per 1000 of population 1910	Absolute in 1000	Per 1000 of population 1910
Austria	650	22.9	351	12.4	135	4.8	1136	40.1
Hungary	516	24.9	82	4,0	115	5.5	713	34.4
Bosnia-Herzegovina	34	17.9	32	16.9	10	5.3	76	40.1
Austria-Hungary	1200	23.5	465	9.1	260	5.1	1925	37.7

*Military Losses according to Winkler.
Source: https://encyclopedia.1914-1918-online.net/article/war_losses_austria-hungary

2.2. Situation of the Czech lands 1918 – 1921 in brief

At the beginning of the 20th century after the Germans and Hungarians, the Czechs were the third most numerous nations in Austria-Hungary. Czech lands before WW 1 accounted for about 45% of the national income of the Pre-Lithuanian region. According to Prokš (2020), in 1913 the share of the

[1]https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/1918-pandemic-history.htm

Habsburg Empire in the gross national product of Europe was 10%. Gross national product per capita was only 93% of the European average (eg France was 129% of the European average). In the 19th century, the Czech lands became the industrial powerhouse of the monarchy.

The Austrian government severely punished Czech political representatives, businessmen and dissatisfied Czech people. Some of them had to emigrate and joined the fight against Austria-Hungary. The state power of Austria-Hungary discriminated against Czech companies from the beginning of the war in public procurement and forced Czech banks to issue unfavorable loans. It was exacerbated by the war loans of the former Empire of Austria-Hungary. Austrian and Hungarian war loans amounted to 101.57 billion Austrian crowns. In the year 1918, in the territory of the new republic existed uncontrollably the currency of not only the former monarchy, but also of other European states. E.g. on July 23, 1918, the Joint Issuing Bank of the former Austria-Hungary announced a real circulation of 2.13 billion banknotes. On October 26, 1918, it was 30.68 billion banknotes. At the end of 1918, it was even 35.59 billion crowns. The economic and food situation in the monarchy reached a serious crisis in 1918. There was not enough food, necessities of life and the proximity of military defeat undermined the morale of the army and the loyalty of the population. Military uprisings and hungry workers' strikes multiplied.

2.2.1. Formation of Czechoslovakia

The formation of Czechoslovakia was the result of the defeat of Austria-Hungary in the First World War, the efforts of Czechs and Slovaks, Czech and some Slovak politicians to have an independent state. They received the support of allies, especially France and the USA. M. R. Štefánik was responsible for the formation the Czechoslovak Republic. He as a French general and diplomat in the service of France helped T. G. Masaryk and E. Beneš in contacts with representatives of the powers. The creation of the Czechoslovak legions became an important argument.

On October 27, the Austro-Hungarian government acceded to Wilson's 14 points with Andrássy's note. With the consent of the powers, the independence of Czechoslovakia Czech politician officially declared in Prague on October 28, 1918. Czechoslovak authorities and institutions built based on the law of the former Austro-Hungarian Empire. First government of Czechoslovakia had to fight for its board territory with Germany and Austrian (Sudeten), particularly with Poland. In particular, she had to face the aggression of the Communist Red Army of Hungary, which supported the establishment of the Slovak Republics (soviet and folk) under Hungarian power.

After the First World War, the economy of the territory of Czechoslovakia was exhausted. It was difficult to supply the population and businesses on the entire territory. Social and national tensions increased. The economic situation of the established republic was catastrophic. The government had to take measures to meet the needs of the population under considerable domestic political pressure, especially from the German, Hungarian and Polish minorities. Also from Austrian and Hungarian institutions and banks. It was extremely difficult to supply the population with the necessities of life, food and heat. Industrial enterprises did not have enough raw materials and energy. Politicians, many of whom were also important economists, have prepared measures to build a new state apparatus, stabilize and restore the country.

2.2.2. Spanish flu

Before the establishment of Czechoslovakia in the summer of 1918, the first wave of the so-called Spanish flu arrived in the territory of today's Czech Republic. A few months later, the flu became a dangerous, deadly disease. On November 11, 1918, WW I ended and Europe in particular was destroyed, disorganized, sick and hungry. The largest pandemic lasted until 1920. According to Salfellner (2020), 44,000 - 82,648 people died of the Spanish flu in the Czech lands.

2.2.3. Approaches Czech government

The approach to solving the political and economic decisions of the first Czechoslovak governments significantly influenced by, among others, the opinions of important lawyers, national economic experts, but also bankers and businesspersons. A number of them lectured and published their professional works at universities at home and abroad, e.g. A. Bráf, A. Rašín, K. Engliš, J. Macek, J. Drachovský, J. Preiss, T. Baťa.

2.2.4. Nostrification[2]

In banking, property transfers took place in favor of Czech and Slovak banks. A fundamental measure was the so-called nostrification of joint stock companies and repatriation of shares. The foreign headquarters of domestic joint-stock companies, limited liability companies, banks, insurance companies and pension institutions were transferred to the territory of the new state. This step was resolved by an agreement with Austria and later with Hungary. Investors from Czechoslovakia, but especially from France, Great Britain and the USA used this. The nostrification concerned enterprises of industrial, commercial, private railways, branches of banks, etc. An important step was the implementation of land reform and the abolition of the privileged position of the nobility and the church, and the support of Czech and Slovak agricultural workers and peasants. It was also a measure to supply the population with food and heat, against moneylenders and speculators, against expensive.

2.2.5. Rašin's financial plan

Example of the Bank of England how to solved WW1 financial consequences inspired A. Rašín[3] for preparing a financial plan. He prepared financial plan based on a deflationary policy and reducing public spending. His financial plan consisted in the following points: a) detachment from the Austro-Hungarian currency, b) reduction of the circulation of banknotes, c) determination of the permissible circulation of banknotes and the prevention of direct and indirect loans, d) withdrawal of domestic and foreign metal money currencies for foreign trade and metal treasure, e) registration of movable property and preparation for property tax, f) active budget with new taxes and increase of old ones, g) state bills were to be withdrawn with property tax. These were the conditions for the economic independence of Czechoslovakia, the fight against post-war hyperinflation and the black market.

2.2.6. Monetary and customs separation and reform

A new nominal bank and a new currency, the Czechoslovak koruna, were to be established. Rašín advocated a currency fully backed by banks in the koruna or other currency with forced circulation or according to the state of the market and economic level. Part of the monetary separation was the declaration of a separate customs territory. After three months of preparation, A. Rašín carried out the whole operation of stamping Austrian banknotes within seven days at the beginning of March 1919. Thanks to his firmness and exceptional organizational abilities, it was done promptly and without any problems. Concurrently an inventory of the property of the inhabitants was made so property taxes could be introduced. A month later, he secured the production of the first Czechoslovak banknotes. A month after that he presented the first state budget to the parliament. The government

[2] A number of large trading companies that operated on Czechoslovak territory had their headquarters in Vienna or Budapest. Nostrifications of these companies were in the interest of the Czechoslovak state, but also of the companies themselves, in order to achieve legal certainty for business. The Nostrification Act established the obligation for a company operating production or transport in the Czechoslovak territory and having its seat outside the territory of the Czechoslovak Republic to transfer its seat to the Czechoslovak territory. At the same time as the nostrification of companies, the repatriation of securities and land reform took place.

[3] Alois Rašín (1867 – 1923) was a Czech and Czechoslovakian politician, prominent lawyer and national economist. He was one of the convicts in the Omladine trial. He was participant in the first resistance during the First World War. He became the first Czechoslovak Minister of Finance and a functionary of the Czechoslovak National Democracy. He was mortally wounded in an assassination attempt in 1923.

launched a nationwide collection for the gold treasure of the Czechoslovak Republic. The government decided to create a so-called gold reserve. Purpose was to cover the domestic currency and to introduce a gold currency as the last stage of Rašín's monetary reform. The basis was 12.1 tons of gold transferred from the Austro-Hungarian Bank, further from voluntary donations, a four-year 4% loan in gold, silver and currencies, from unprocessed gold, silver, gold and silver coins and foreign paper money, from funds that came about as a result of the introduction of the obligation to offer currencies and foreign exchange, etc.

2.2.7. Savings measures

At the end of 1918 and during 1919, Rašín began austerity measures. These were a) reducing consumption and regulating the import of luxury goods, b) removing consumer subsidies, c) reducing unemployment support, d) accepting a long-term loan from the US for the import of essential foodstuffs in order to be able to export surplus sugar, alcohol, malt or firewood and buy raw materials for production and for heating.

2.2.8. Tax and budget reforms

An inventory of acquired property of natural persons during World War I was carried out. Measures were taken to tax it, to unify taxation throughout the territory and to solve the inequalities in the tax burden of individual countries of the republic. It was necessary to consider which taxes could be increased and which new ones could be introduced. Increasing direct taxes was not realistic. Businesses could no longer bear higher taxation. On the contrary, it was necessary to support corporate investment through depreciation. It was also not possible to increase rent, income, and land tax. Personal income tax was indeed increased for the richest taxpayers. Inheritance tax was raised in part because it could jeopardize the capital needed for business in the future. In addition, direct taxes of firms pass through prices, which can support the growth of inflation. Increasing indirect taxes by the state and municipalities and introducing indirect benefits seemed realistic. The most appropriate was an increase in taxes on consumption (sugar, alcohol, beer, meat, etc.). These taxes were refunded when exported. Domestic consumers paid this tax. New consumption taxes were also introduced (coal, hydropower and sales). In the case of the involvement of so-called energy taxes in production, these became production taxes. Goods and performances became more expensive. The so-called tax inflation reduces the purchasing power of the crown, which was not desirable. State supply and maximum prices were gradually abolished. Price regulation remained for coal, maintenance of lower rents, beer sugar and alcohol.

2.2.9. The importance of Rašin's politics

The approach of the Czechoslovak governments in the years 1918 - 1921 corresponded on ideas and theoretical base liberal economy consistency in the implementation of A. Rašín's measures. They are: a) clear definition of the vision of what we want to achieve, b) choice of tools and methods to fulfill this vision and plans. c) Be able to explain and enforce your plans even against the parliamentary opposition.

The author sees the personalities who will realize the vision as an important positive factor. In their professional knowledge (preferably legal and economic education) and moral values. Enforcing unpleasant measures, e.g. reducing benefits, saving budgets, requires limiting the comfort of those who propose and implement the reductions. Rašín's motto "Work and save" is inspiring for all politicians and officials, as well as citizens.

3. Approaches of the Czech governments in the years 2018 – 2022

In the years 2018 - 2021, there was a period of one government and one Minister of Finance, A. Šillerová with a legal education and many years of experience in financial administration.

3.1. The SARS-CoV-2 epidemic

The SARS-CoV-2 epidemic hit the territory of the Czech Republic in March 2020. From 5.10. 2020 to 11/04/2021, the second lockdown government announced and extended for 188 days. By the end of June 2022, there were 40,322 deaths from Covid-19. The government's preventive measures significantly crippled the economy. The government of the Czech Republic restricted free movement, entry into the Czech Republic issued measures in the field of retail trade and services, in the field of school attendance, in the social field, in the field of healthcare and the prison service. The Czech Republic experienced one of the highest infection and mortality rates in the OECD area. In the mentioned period, the first government forced to deal with the COVID-19 pandemic with increasing shortages of raw materials, energy and labor, increased demand for goods and gradually increasing inflation.

According to the IMF, for the period from January 2020 to March 2021, the government of the Czech Republic adopted fiscal measures against the covid 19 pandemic in the form of direct support, amounting to 5.4% of GDP. Only Slovakia spent (4.4% of GDP). Austria spent more than double the amount on direct support. Indirect measures mainly include guarantees and guarantee programs from the state, where the reserved amounts are drawn on an ongoing basis. The analysis of the real effects of indirect measures on the economy cannot be realized in the short term. Indirect measures accounted for 15.4% of GDP in the Czech Republic, which was 7 times more than in Austria. The Supreme Audit Office announced that during the years 2018-2021, there was a fundamental increase in public spending, which was often not used efficiently and economically. The government practiced highly expansionary policies without rigorous control over the economy of expenditure. It was due to a number of objective (pandemic, opposition pressures) and subjective (ignorance and inexperience of the pandemic, inconsistency and chaos in the adoption and implementation of measures, absence of vision and plans).

3.2. Inflation

The government adopted and implemented measures for all areas of life of residents and organizations through subsidies, taxes from the Czech and EU budgets. Several states of emergency with the so-called lockdown were introduced. In September 2021, the CNB launched an operation to reduce inflation by raising interest rates. According to the CNB, inflation is partly caused by domestic demand and partly by a lack of raw materials and energy. According to the CZSO, the inflation rate in May 2022 was 8.1% and the average annual inflation rate for 2021 was 3.8%. The rate of inflation expressed by the increase in the consumer price index as of May 2021 or May 2022 was 16.0%.

3.3. War in Ukraine, Immigration and energy crisis

The following year, 2022, after the elections, became a new Minister of Finance, Z. Stanjura, with a technical education. The new government in 2022 forced to deal with the end of the Covid-19 pandemic, a high state budget deficit. A fundamental change occurred after the invasion of Ukraine by the armed forces of Russia and the subsequent high immigration wave of Ukrainian residents. The new government has taken measures to support Ukraine in the fight against Russia and help families. The war in Ukraine helped drive up energy prices. On the one hand, the government has pledged to be fiscally responsible in the program statement. He does not want to raise taxes; he is trying to provide targeted help to families. On the other hand, it spends significant resources to help Ukraine, increases rewards.

4. Conclusions

External and internal conditions today are completely different from the situation 100 years ago. Even so, approaches to reducing price inflation, monetary policy, and pensions through timely and effective timing of the reduction of increasing public expenditures and tax reform can be inspiring even for today. 100 years ago, the Czechoslovak government did not perceive the Spanish flu pandemic as a determining factor threatening the functioning of the state. The number of victims of the Spanish flu for the period 1918 - 1921 was similar to the number of victims of the Covid-19 pandemic for the period 2020 - 2021. The Czechoslovak governments were solving acute problems that threatened the existence of the new state and its economy. According to Seidl (2009): "Rašín was dauntless and not afraid of any crisis; he looked into the future. In the Encyclopaedia of economics from 1933, is citation: Rašín's financial plans were above the horizon of current needs and interests and they prepared the economic future of the new state in time. The historical credits of Alois Rašín such as his unusual approaches towards more complex societal problems and his discussions with his opponents remain a rich and inspiring source of study. They also serve as a source of information and warnings for today."

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Green economy and green jobs: theoretical aspects

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Abstract: The main goal of the paper is to deal with the question whether a green economy will mean more or less jobs. Although it is a very common question, the green economy should be focused primarily on the quality of the work, not the quantity. The green economy is a pathway that leads to a sustainable future. However, there is no single internationally agreed definition of the green economy. Different organizations use different definitions of green jobs. Therefore, the paper puts an emphasis on the theoretical aspects of the green economy and green jobs.

Keywords: green economy, green jobs, sustainability

JEL classification: Q01, Q50

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1. Introduction

Do we really want to achieve a sustainable future? Well, if yes, the question is why we are not trying to solve our problems with the different thinking. The green economy approach could leads us to a brighter and sustainable future. Why green economy? The main reason is that the green economy is so different from the prevailing economic paradigm, which could be described as a market-driven globalisation. On the other side, green economy has been developing for the past forty years a very different policy. Green economy emphasises that it is important to use resources wisely and justly, and it recognises planetary limit (Cato, 2009). In 1989, a report commissioned by the UK government called *Blueprint for a Green Economy* was presented and subsequently published, and a new term green economy appeared (Pearce et al., 1989). Interestingly, there is no mention of the term green economy inside the report. The report is focused on the definition of the term sustainable development and its implications for the measurement of economic progress and the appraisal of policies and projects (Boromisa et al. 2016). Cato (2009) points out that the report took an explicitly numerical approach, proposed valuation and accounting methods.

In 2008, twenty years after publishing *Blueprint for a Green Economy*, the concept of the green economy re-emerged. The multiple global crises – economic, social, and environmental – have boosted support for greening the world economy. In 2008, UNEP launched the Green Economy Initiative aiming at providing analyses and policy support for investment in green sectors and greening environmentally unfriendly sectors. Subsequently, a report entitled Global Green New Deal was released in 2009 (Boromisa et al. 2016). The Global Green New Deal (UNEP, 2009) had three main and broad objectives:

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1. Economic recovery, including saving and creating jobs, and protecting vulnerable groups;

2. Clean and stable development, including the reduction of carbon emissions and ecosystem degradation;

3. Sustainable and inclusive growth, including ending extreme poverty by 2015.

Well, in 2015, the number of people living in extreme poverty was 0.74 billion globally. Consequently, the 2030 Agenda for Sustainable Development has its new goal to eradicate extreme for all people everywhere by 2030 (UN, 2015). It is not possible to talk about green economy on a global scale if there are so many people suffering from extreme poverty and poor working conditions. Nowadays, there is a massive support for a green vehicle revolution and decarbonisation of road transport, especially in the European Union. The dark side of the transition to the fully electric cars is the production of batteries, because mining the minerals needed for them is connected with precarious employment and paltry wages. For that reason, it is very important to know what the green economy is, and, what kind of jobs can be named as green jobs.

The main aim of the paper is to deal with the question whether a green economy will mean more or less jobs. Although it is a very common question, the green economy should be focused primarily on the quality of the work, not the quantity. The second chapter examines different definitions and discourses of the green economy. It also explains the relationship between the green economy, sustainable development and sustainability. The third chapter presents two main definitions of a green job and put an emphasis on the difference between the approach of the United Nations and the International Labour Organization (ILO). The fourth chapter focuses on the qualitative and quantitative aspects of the green economy and identifies the potential employment impacts of the transition to the green economy.

2. Green economy

Firstly, there is no single internationally agreed definition of the green economy. It is quite surprising because the concept of the green economy has received increased attention in recent years. On the daily basis, the politicians inform us about the best solutions for the transition into the green economy. However, what do they mean, if we do not have one green economy definition only? Every single definition has its contributions, but also major shortcomings. Moreover, there are also some tensions between competing discourses.

Interestingly, international organizations, politicians, etc. often use the terms green economy and green growth interchangeably. Ferguson (2014) clearly explained that if we want to get rid of current unsustainable patterns of consumption and production, green growth must be separated from green economy in the discussions. If we are talking about green economy as a transition strategy, we should not try to incorporate nature into capitalist market systems. In the green capitalism, we search for new ways how to generate profit and our intention is to find a way of protecting it from criticism of being environmentally destructive. A practical example: do we need to replace all internal combustion engine vehicles with electric vehicles to save our planet? Well, the question is wrong itself. What we really need in the green economy is less cars, less traffic, and less commuters. As states Brand (2012), it is very questionable if the green economy as a transition strategy developed by the UNEP, OECD, ILO, European Union and the other institutions and governments, will be able to change the neo-liberal model of production and development.

The most cited definition of green economy is that of the United Nations Environment Programme, the leading global environmental authority setting the global environmental agenda, from 2011 (UNEP, 2011). According to its definition, the green economy improves human well-being and social equity while significantly reducing environmental risks and ecological scarcities. It is also a low carbon, resource efficient, and socially inclusive. Obviously, the social pillar is in the definition visible and in reality critical too. In terms of the green economy the increase of income and employment should by driven by public and private investments that reduce carbon emissions and pollution, increase energy efficiency and resource efficiency, and prevent the loss of biodiversity and ecosystem disruption. Such investments are necessary to stimulate and encourage by targeted public expenditures, policy reforms and changes in regulatory areas. Another well-known definition of the green economy is that of the Green Economy Coalition (GEC, 2022). It says that the green economy is a resilient economy that provides a better quality of life for all (a strong social aspect) within the ecological limits of the planet. The green economy as defined by the Green Economy Coalition puts people and the environment first. It comes with five principles of the green economy:

1. The wellbeing principle
2. The justice principle
3. The planetary boundaries principle
4. The efficiency and sufficiency principle
5. The good governance principle

These five principles are important and may guide economic reforms for the decades to come because we need to cope not only with environmental, but also social challenges. However, the most important thing is to realise that there has to be a radical shift in governmental priorities worldwide.

European Parliament and the Council of the European Union (2013) define green economy in their Decision No 1386/2013/EU as an inclusive one that secures growth and development. It also has to safeguard human health and well-being, provide decent jobs, reduce inequalities and invest in, and preserve biodiversity, including the ecosystem services it provides (natural capital), for its intrinsic value and for its essential contribution to human well-being and economic prosperity. As explained in Cato (2009), the principle of holism lies at the heart of a green approach to the economy and society. However, the above-mentioned Decision No 1386/2013/EU uses a list approach and it says that for the transformation into an inclusive green economy is necessary to integrate the environment issues into other policies, namely agriculture, development, economy and industry, education and training, employment, energy, fisheries, foreign affairs, research and innovation, security, social, tourism, and trade.

Ferguson (2014) concludes that there are many tensions in green economy discourses and identifies three types of green economy discourses: weak, transformational, and strong. Georgeson et al. (2017) build on Ferguson's three typologies, analysed key international reports, important conceptualisations of the green economy and find:

a) Strong green economy only exists within academic literature;

b) The majority green economy concepts fall between weak and transformational.

Figure 1 shows the relationship between the green economy, sustainable development and sustainability. From the Figure 1 is also clear that all three pillars of the green economy – economic, environmental, and social are equally important for the green economy concept. Weick (2016) concludes that sustainability is a key long-term goal. Green economy is a pathway to sustainable development that is broadly explained in the 2030 Agenda for Sustainable Development (UN, 2015). For the people knowing about the green economy is not necessary to talk about an inclusive green economy. If the green economy is not inclusive, it has nothing to do with the concept of green economy. The reason is that inclusiveness is an extremely important element to secure sustainability in the long-term. However, it is very common nowadays to hear and read about so-called inclusive green economy. Barbier and Markandya (2013) point out that two decades after publishing *Blueprint for a Green Economy* the central theme is still crucial. As a main obstacle to attain sustainable development, they identify the erroneous view that the environment is peripheral, or irrelevant to economic development.

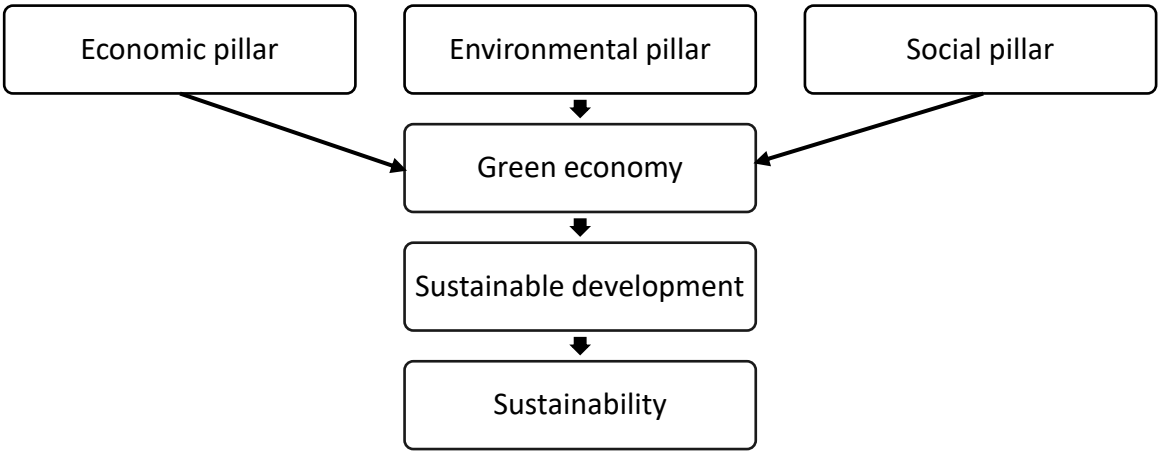

Figure 1: Relationship between the green economy, sustainable development and sustainability

3. Green jobs

The research of the Office for National Statistics (ONS, 2021) identifies two main definitions of green jobs available internationally.

The International Labour Organization (ILO, 2022) sets out the first definition of a green job, which is a decent job that contributes to preserve or restore the environment, either in traditional sectors, or in new, emerging green sectors. Green job helps to improve energy and raw materials efficiency and/or limit greenhouse gas emissions and/or minimize waste and pollution and/or protect and restore ecosystems and/or support adaptation to the effects of climate change.

Are all jobs decent? Definitely, they are not. ILO (2015) defines a decent job as a job that involves:

a) Opportunities for work that is productive and delivers a fair income;

b) Provides security in the workplace and social protection for workers and their families;

c) Offers better prospects for personal development and encourages social integration;

d) Gives people the freedom to express their concerns, to organize and to participate in decisions that affect their lives; and

e) Guarantees equal opportunities and equal treatment for all.

Therefore, green jobs all jobs in the dashed area as can be seen in Figure 2.

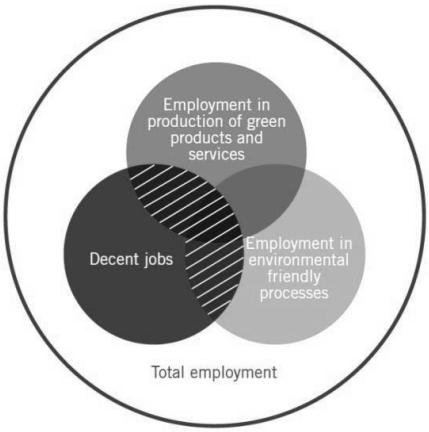

Figure 2: Green jobs. Source: ILO (2022).

According to the ILO, there is a difference between an environmental and a green job. The main reason is that the environmental job is not necessarily a decent one (Boromisa et al., 2016).

The United Nations System of Environmental Economic Accounting (ONS, 2021) provides another international definition of green jobs. A green job is a job engaged in producing goods and services for environmental protection purposes, and in conserving and maintaining natural resources. The most important is to realise that from the United Nations point of view a green job can also be a job that is not a decent one.

Obviously, the United Nations approach focuses on critical sectors that are very important in the transition to the green economy. UNEP in its report, *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* (2011) focuses on ten key economic sectors. These sectors should drive the defining trends of the transition to the green economy: agriculture, buildings, forestry, industry, renewable energy, tourism, transport, waste, and water. New green jobs should be created in above-mentioned sectors that are crucial for a successful transition and substantial change.

4. Will a green economy will mean more or less jobs?

When we already know, what the green economy is and what the green jobs are, we can move to the even more difficult question - will a green economy mean more or less jobs? Cato (2009) says that quantity of work is not something we should have as a priority in the green economy. The main goal should be to try to minimise the work needed, rather than creating work. Quality of work is the most important thing when talking about the jobs in the green economy.

There are some methodological issues regarding the definition of both the green economy and green jobs. Existing definitions seem to be vague. A worker who produces a tyre for a standard internal combustion engine vehicle is not a part of the green economy. His/her job is not a green job. Another day the same worker produces the tyre for the electric car and things change substantially. According to the definition, now he/she is a part of the green economy. His/her job is the green one. Due to the vagueness of the concepts of both green economy and green jobs, it is impossible to get exact information about the size of the green economy and the total number of green jobs. Boromisa et al. (2016) concludes that counting green jobs has proven tricky because there is a lack of comparable and reliable data about green jobs in different countries.

Pestel (2019) examines the employment effects of green energy policies and points out that both proponents and opponents of green energy transition focus on the potential employment effects. He concludes that both positive and negative employment effects of green energy policies are moderate with the limited overall net employment effect. Kalvas et al. (2020) investigate the potential employment effects in the transition towards an Industry 4.0 aiming at efficiency of industrial processes and minimising waste. They focus on medium and large engineering companies and conclude that the company management is more willing to adapt existing workers than hiring new employees. Therefore, the emphasis has to be put on the quality of the new green jobs. Recently, on May 8, 2022, the European Parliament approved ban on new internal combustion engine vehicles from 2035. In other words, it seems like there will be only green jobs in the European Union automotive industry from 2035.

5. Conclusion

Firstly, green economy is the economy for people and the planet, and we always have to consider both social and environmental pillar. In fact, in many occasions, when talking about the green economy, an emphasis is being put on the environmental issues, and not on people. In the green economy, quality must always prevail over quantity. When a total green transition employment effect is considered rather limited, we might push up the pace of the transition to the green economy.

The terms green economy and green job have become very common nowadays. However, without a single internationally agreed definition for both of them. Practically it is impossible to compare the size of the green economy and the number of green jobs between countries. On the other side, all estimates show that the number of green jobs has been increasing worldwide.

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Approaches to the classification of virtual teams

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Abstract: The ongoing pandemic Covid 19 has demonstrated the strengths and weaknesses of virtual communication. This forced boom of virtual teams has raised the attention to virtual work and understanding of the mechanisms influencing cooperation in the virtual environment. However, virtual teams are in their nature very heterogeneous entities. In order to be able to analyse heterogeneous phenomena, traditionally, classification systems of such phenomena are applied. This is a proven approach to better understand the given phenomena. However, despite the increasing importance of global virtual teams there is missing a clearly agreed approach to classification of virtual teams. Nevertheless, within this contribution, we have identified two main approaches to the classification and typology of virtual teams – the categorisation approach and the dimensional approach. The aim of this conceptual contribution is to introduce both of them and discuss their relevance.

Keywords: Virtual teams, Classification of virtual teams, Types of virtual teams

JEL classification: M1, Z1

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1. Introduction

Already now we can say that year 2020 was a historical milestone impacting the whole global society. Until the outbreak of the Covid-19 pandemic, virtual work had been an alternative but surely not a necessity. This has changed with the worldwide imposed anti-pandemic measures limiting the possibilities of traditional face-to-face communication. The second year with the pandemics taught us better virtual literacy and brought acknowledgement of the strengths and weaknesses of virtual communication. Also the attention of both professionals and the research community to virtual work and understanding of the mechanisms influencing the cooperation in the virtual environment.

However, virtual teams are in their nature very heterogeneous and complex entities. Individual virtual teams differ from each other in many ways. This is due to the fact that one of the fundamental features of global virtual teams is their heterogeneous nature (Peters, 2008). This heterogeneity stems from the very nature of global virtual team involvement, i.e. the use of a unique combination of human resources that are only available on a global scale so that the global virtual team represents a unique competitive advantage for the organization using this form of work. Each global virtual team is thus based on the specific background and needs of the organisation.

Nevertheless, some common elements or tendencies can be found in virtual teams. From these elements and tendencies, certain general assumptions which are valid to some extent can be drawn to understand the operating principles of specific virtual teams. Understanding the factors and forces

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at work in a particular global virtual team is then important for effectively leveraging the strengths of that team, becoming aware of weaknesses, and for successfully managing the virtual team.

The traditional way of understanding complex phenomena is to work with these phenomena from the perspective of individual aspects and then define the classification. This is a proven approach to better understand the given phenomena. However, despite the increasing importance of global virtual teams, which are such a complex phenomenon, there is missing a clearly agreed approach to classification of virtual teams. The reason of this can be the above mentioned homogeneity which bring many variables defining the nature of a virtual team.

The aim of this contribution is to provide an overview of current approaches to classification of global virtual teams. With this purpose, the contribution identifies two leading approaches to the classification of virtual teams. The first approach is based on categorization according to a certain key. In the categorization approach to global virtual team classification, types of global virtual teams are defined and are assigned relatively well-defined categories. The second way to approach the classification of global virtual teams is the dimensional approach. The dimensional approach to classification is based on defining the directions in which a feature qualitatively evolves along a continuum of boundary features.

In the following chapters, we describe both approaches and discuss their current value and applicability.

2. Categorisation approach to classification of virtual teams

The categorisation approach is based on defining specific features which then determine into which category is the virtual team placed. The categorization of virtual team types is comprehensively addressed by Duarte and Tennant Snyder (2006). The authors use the tasks that the virtual teams in question solve as the key to define the classification categories. In this way, the authors distinguish seven basic types of virtual teams:

Networked teams - a broader team structure based on individuals working together; team members do not need to know each other (no need for a clear membership base) and do not necessarily need to know the structure of the organisations involved. This type of team is not tightly bound formally. For example, this type of virtual team is used to provide some specific advice that may or may not be available within the organisation itself. The members join the network team according to the current need and leave the team once that need is met. Members usually come from diverse backgrounds, both in terms of culture and nationality, and in terms of the type of organisation they come from (think tanks, universities, private organisations, NGOs).

Parallel teams - these teams have a clear team membership. These are teams that have a special task that runs parallel to the normal running of the organisation. This is a short-term activity, e.g. to make a recommendation, and the team is disbanded when the task is completed. Parallel teams are created to do something that the organisation does not normally do or does not want to do itself within its internal structure. Members of a parallel team may come from a global environment and may have other activities in addition to the activities of the team.

Project teams/product development teams: these are typically development teams that carry out project-based, i.e. clearly time-bound activities for a user or customer, which result in a new product.

The product can also be information or a process. Project teams are primarily distinguished from parallel teams by their ability to make decisions, i.e. not to recommend. Also, the functioning of a project team is usually more long-term when compared to a parallel team.

Work/production teams: these teams deal with regular ongoing work. They usually have one specific function that they perform for the organisation. The membership of this type of team is quite clear and this team is distinguishable from other parts of the organisation. These types of teams may deal with a variety of areas that are integral to the functioning of the organisation (e.g. accounting, development, etc.).

Service virtual teams: These teams provide a specific service or support to the organization or customers. This support can be provided around the clock, with individual globally distributed team members taking turns to work depending on time zones. Examples of such teams include organisational technical support teams, customer service teams or call centres.

Management teams - these are teams that perform management on a global level. Members of such teams are in daily virtual contact, which is made possible by fully accessible communication tools. All available forms of virtual communication are commonly used in these teams.

Action teams – the teams assembled for an immediate response, e.g. to deal with emergencies. These can be teams where members are sent into the field and communicate virtually with the rest of the team. Duarte and Tennet Snyder (2006) provide the example of meteorological teams monitoring tornadoes or the way NASA works in space missions.

The classification of Duarte and Tennet Snyder (2006) is further extended by Zofi (2012) by adding offshore teams:

Offshore teams: are teams engaged by the client to deliver a specific part of the work. These teams operate virtually outside the location of the client. This model is often used in software development

3. Dimensional approach to classification of virtual teams

Dimensional models use defined dimensions to describe the nature of a phenomenon. The dimensions represent a continuum of a specific aspect, defined by the boundaries represented by the absolute qualitative value of this boundary aspect.

The classification of global virtual teams through a dimensional approach is discussed in detail by Bell and Kozlowski (2002). Compared to the dimensional approach, these authors consider the classical typological classification as too rigid and insufficiently expressing the individual properties of virtual teams. Bell and Kozlowski base their definition of dimensions on two situational extremes, which are the ideal virtual team and the conventional collocated team.

The ideal stereotypical virtual team is a team that is distributed over time, crosses functional, organizational, and cultural boundaries, is short-lived, and its members occupy different roles in different virtual teams. The opposite of the ideal virtual team is the stereotypical collocated team, which is constrained by time, space, clearly defined and permanent roles for its members, and a continuous life cycle. Based on this perspective, Bell and Kozlowski define four basic dimensions that characterize virtual teams: Temporal distribution; Boundary spanning; Life cycle; Roles of the team members

Another dimensional approach to describe virtual teams is presented by Gibson and Gibbs (2006). The authors draw their model based on assessing the capacity of virtual teams to a so-called virtual innovation. According to Gibson and Gibbs, virtual innovation is the ability of the virtual team "*to generate, share, interpret and apply knowledge*" (2006). With that assumption, their dimensional model consists of four dimensions: *geographic dispersion, electronic dependence, structural dynamism, national diversity*.

Table 1: The comparison of dimensional models of virtual teams classification

Model Bell, & Kozlowski (2002)	Model Gibson, & Gibbs (2006)
TEMPORAL DISTRIBUTION • Distribution across time • Asynchronous/synchronous • More temporally distributed teams - less complex tasks	GEOGRAPHIC DISPERSION • Geospatial distribution • Distribution across time zones
BOUNDARY SPANNING • Organizational boundaries (other divisions, units, external experts etc.) • Cultural boundaries (Language, traditions, values)	NATIONAL DIVERSITY • Global, nationally diverse teams vs • Nationally homogenous teams
LIFE CYCLE • Team dynamics • Lifespan • Team purpose	STRUCTURAL DYNAMICS • Permanent teams, defined membership, formal operating rules vs • Fluctuating membership, limited lifespan, informal rules
TEAM MEMBERS' ROLE • Demand for flexibility • Multiple roles of members	
	ELECTRONIC DEPENDENCE • Dependence on technological facilitation of communication • Fully collocated teams vs fully virtual teams

Source: Author based on Bell, & Kozlowski (2002) and Gibson, & Gibbs,(2006)

As we can see in Table 1 in both presented dimensional models there are some thematic overlaps which we emphasised by positioning the related dimensions of both models next to each other. In the next section, we discuss the applicability and advantages of the categorisation approach and both models of dimensional approach to classification of virtual teams.

4. Discussion

We have presented two different approaches to the typology and classification of virtual teams represented by specific models. Despite the fact that the presented models were published in the first decade of the new millennia, which may lead to questioning their relevance, these models are sufficiently complex and especially the categorisation approach is widely used in general business

consulting practice. Also, no other more up-to-date and sufficiently complex alternative to the presented models is available.

When assessing the classification models of global virtual teams, we must be aware that the categorisation approach, as well as the dimensional approach, has specific advantages and disadvantages.

The fundamental weakness of the categorisation approach, which is in this contribution represented by the widely accepted model of Duarte and Tennet Snyders (2006), is the fact that this approach does not sufficiently reflect the multiple factors influencing the nature of a specific virtual team. The model of Duarte and Tennet Snyders emphasise the purpose of a given virtual team and fails to consider other factors that are crucial in terms of virtual team management. On the other hand, however, the classification thus conceived is quite simple and is widely cited by other authors (e.g. Opdendenakker et al. 2019; Zofi 2012 and others) or by various consulting companies. Therefore, simplicity and clarity is the main advantage of the categorisation approach presented by Duarte and Tennet Snyder (2002) and extended by Zofi (2012).

The dimensional approach is in this contribution represented by two models. The model first introduced the model of Bell and Kozlowski (2002), is relatively unclear and the identified dimensions are often implied rather than clearly identified. The abstract definition of several dimensions makes the model less user friendly in the case of practical application. In the case of the dimension focusing on the life cycle of a virtual team, there has been also an evolutionary shift since the original introduction of this model, and it can no longer be unequivocally stated that the typical virtual team is assembled for short-term purposes and its membership is continually changing, as suggest Bell and Kozlowski.

Compared with the model of Bell and Kozlowski, the second dimensional model introduced by Gibson and Gibbs (2006) defines the dimensions in a more organised way. Although the original purpose of the model was not directly focused on the classification of virtual teams but rather on assessing the factors influencing the innovation in the virtual teams and thus their efficiency, the dimensions defined in such a way reflect the major contextual variables influencing the nature of virtual teams. The overall clarity and concrete definition of the end-points defining the dimensional boundaries are also suitable for the practical application of this model. Concerning the technical and societal development of virtual teams, we have been experiencing since the beginning of the second decade of the new millennium the model of Gibson and Gibbs also does not lose its validity.

5. Conclusion

As mentioned at the beginning of this contribution, virtual teams are by their nature very heterogeneous, which is reflected in the difficulty of a clear and strictly separate classification of virtual teams. This corresponds with the fact that not many authors have focused on the systematic classification of virtual teams. Nevertheless, we are convinced that it is desirable to be aware of the differences in the initial setting of different virtual teams.

Based on the analysis of both categorisation and dimensional approach, we can clearly state that the multiple contexts the virtual teams are facing can be better and more precisely captured using the dimensional approach. The categorisation approach still can serve as a certain shortcut to label a

specific virtual team in a certain way, but the substantial nature of the categories defined in Duarte and Tennet Snyder's model (2006) can be described using the dimensional approach.

Within the two presented dimensional models, the model of Gibson and Gibbs (2006) is better defined and clear. With respect to the development of the domain of virtual work, this model is also more universal and applicable. The application of this model can serve the virtual managers and leaders of virtual teams to be aware of the initial setting of their teams and adjust their actions to the specific conditions they are facing when leading and managing such a team.

Here we see the main importance of the classification of virtual teams. We are convinced that the main purpose does not lie in the specific definition of types of virtual teams but in understanding the principles that determine the team effectiveness and appropriateness of specific managerial and leadership interventions.

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Changes in consumer shopping behavior caused by the COVID-19 pandemic era

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Abstract: The global COVID-19 pandemic has been obviously affecting consumer behavior. The aim of the contribution is to identify the changes in the purchasing habits of consumers caused by the pandemic. We base this contribution on the primary data collected from 512 Czech consumers. The data were collected from March to May 2022, which means immediately after the recent main pandemic wave when the consumers were able to assess their shopping experience. The shopping behavior was analyzed using a questionnaire survey where the respondents expressed their level of agreement using the Likert scale. The results showed that the pandemic promoted an increase and persistence of consumer purchases in the online space. These findings can serve the companies to better adapt to the post-pandemic shopping behaviors of consumers.

Keywords: Consumer behavior changes, consumer behavior models, COVID-19, pandemics

JEL classification: M31

Grant affiliation: Challenges of economics and management in the 21st century, IGA_FF_2022_039

1. Introduction

More than two years since the outbreak of the COVID-19 pandemic, we are witnessing that the predicted changes in the behavioral habits of society have become a reality. One area that has been significantly affected by the pandemic is consumer behavior. This poses new challenges to companies that need to keep pace with these changes. To be able to do so, they must continuously and thoroughly analyze consumer behavior. Kotler & Keller (2016) have been consistently advocating that understanding consumer behavior has become a factor that has a direct impact on the overall performance of companies. Therefore, companies must strive to understand the changes in consumer buying habits. The ability to anticipate consumer behavior, especially in times of crisis, can bring a company a significant competitive advantage. The aim of this study is to identify those changes in consumer buying habits caused by the recent waves of the COVID-19 pandemic which influence consumer behavior in the times following these pandemic waves.

2. Theoretical background

2.1. Consumer behavior

Consumer behavior is defined by Blackwell et al. (2006) as the activities that people undertake when acquiring, consuming, and disposing of the products and services that they expect to satisfy their personal needs. The set of these activities includes the purchase and use of goods and services that result from the emotional and mental needs and behavioral responses of customers. The ways in which customers choose their products and services are extremely important for both manufacturers and

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service providers as they enable them to create a competitive advantage by setting more precise strategies and offers. Gabbot & Hogg (1998) state that the process of buying behavior can include different activities and stages. Blackwell et al. (2006) stress that consumer buying behavior itself is a complex, dynamic problem that cannot be easily and routinely defined. A range of approaches to defining consumer behavior confirms this assumption. A fundamental concept in purchase behavior theory is the idea that purchase behavior is generally and reliably repetitive and is prone to forming a buying routine. It is assumed that such a routine will save time and simplify the decision-making process. Consumer behavior is the result of the consumer's self-concept and lifestyle, which is influenced by external and internal factors. Ajzen (1991) used the psychological approach to develop the Theory of Planned Behavior (TPB, see Figure 1), which attempts to predict human behavior. TPB model is based on the assumption that the attitude towards behavior, subjective norms, and perceived behavioral control influence behavioral intentions. The TPB model highlights various factors that can influence behavior and states that intentions are the best predictors of behavior.

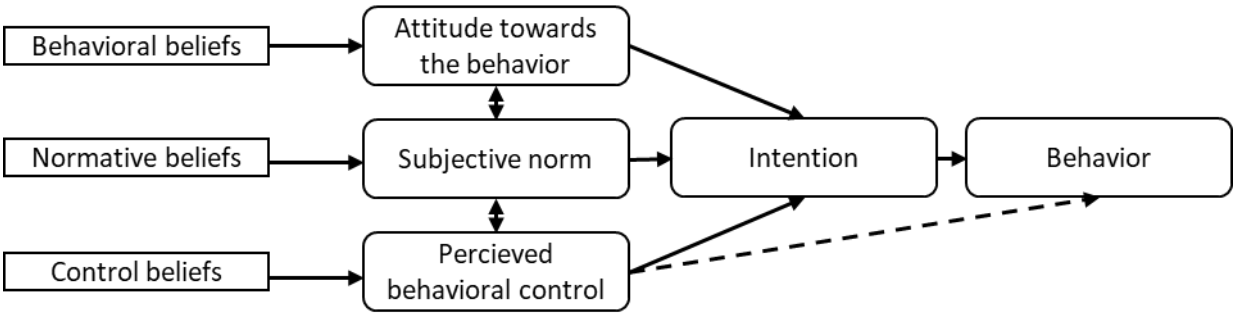

Figure 1: Theory of Planned Behaviour (Ajzen, 1991)

2.2. Consumer behavior models

According to Schiffman & Wisenblit (2014), the consumer buying decision is described by the consumer buying behavior model. This model is based on the principle that decision-making is an individual's action that directly involves acquiring and using the offered product. In 1969, Howard & Sheth (1969) introduced their buyer's model (see Figure 2). This integrated model assumes a problem-solving approach of the customer when buying. Howard (1977) evaluates the Howard-Sheth buying model as a sophisticated integration of various social, psychological and marketing influences on consumer choice and information processing. The model strives not only to explain consumer behavior in terms of cognitive functioning but to provide an empirically testable representation of such behavior and its outcomes. In this model, the inputs exist in the form of stimuli; the outputs start with attention to a given stimulus and end with a purchase. Between these inputs and outputs, there are variables that influence perception and learning. These variables are "hypothetical" because they cannot be directly measured at the time of occurrence.

The development of new technologies has forced businesses to adapt to related changes such as the change in motivators and behavioral patterns. There is a need to focus on a holistic picture of the changing consumer decision-making path. In this relation, Davis (1989) introduces the Technology Acceptance Model (TAM) which the author later optimized and proposed a theoretical study of this model.

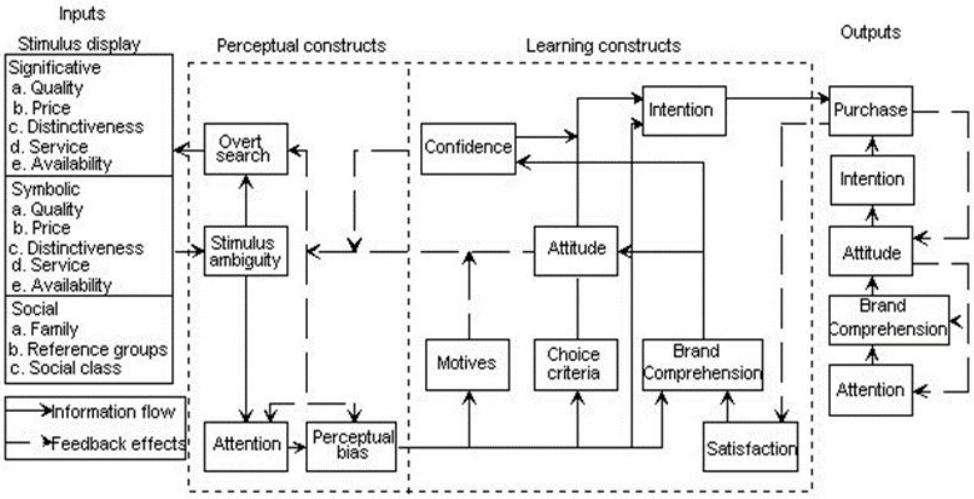

Figure 2: Model of The Theory of Buyer Behavior (Howard & Sheth, 1969)

2.3. The impact of the COVID-19 pandemic on consumer behavior

The COVID-19 pandemic is much more than just a health crisis. It has unpredictably changed lifestyles and has significantly impacted consumer behavior. Di Crosta, Ceccato, Marchetti et al. (2021) conducted a study revealing how the impact of the pandemic increased spending levels and the psychological need to purchase both necessary and unnecessary products. There is also evidence of pandemics-related changes in media consumption. (Bendau, 2020). Behavioral science shows that identifying new beliefs, habits, and moments that are important to consumers is essential for the change in consumer behavior. Consumer beliefs, habits, opportunities, and emotional needs change even faster as technology advances. Blackwell et al. (2006) describe the purchase process model as a set of sequences where the consumer needs to identify a problem, seek information, evaluate alternatives and finally make a purchase decision, followed by the consumer evaluation of the purchase. Purposeful buying is influenced by factors arising from an unforeseen situation. Ellison et al. (2021) highlight the dramatic reduction in consumption of goods and services in sectors such as entertainment, dining, travel and tourism. Akram et al. (2021) have produced an experimental study that captures the impact of COVID-19 and digital commerce on customer experience and well-being during a pandemic. In this study, they explored the synergy between technological developments and the effects of the COVID-19 pandemic on customer behavior using survey-collected data and the Technology Acceptance Model (TAM). The results show that for millennials, digital commerce seems to be the typical way of shopping and paying during the pandemic, and even the oldest generations have adopted the use of mobile devices for shopping and payments to a certain extent. Deng et al. (2020) analyzed the changes in consumer intention in different life scenarios such as living, working, studying and entertainment and they summarized the development trend of digital products in the post-epidemic era. Based on this analysis, they propose the main points of future digital product design. The output of the consumer behavior model is generated by the selection of products and places of purchase. During the pandemic, these two behaviors were central to consumers' strategies to ensure their own well-being. The imposed restrictions and social distancing (Anastasiadou et al.,

2020) led to increased purchase of food, beverages, toiletries and medicines and also to frequent stockpiling. This behavior occurred before and during the pandemic measures and has been widely confirmed worldwide (Antonides & van Leeuwen, 2020). Changes in consumer behavior were studied by Bentall, Lloyd, Bennett et al. (2021); their aim was to gain a comprehensive overview of people's economic attitudes and behavior during an emergency situation such as COVID-19. Savage (2019) explains how individuals and groups integrate themselves into a disaster setting and argues that human behavior observed during a crisis is far from being the evidence of a panicked disruption of the social order and is often adaptive. The changes in the macro-environment are often attributed to COVID-19, technological environment, and the political and legal environment. Various studies suggest how COVID-19 and the interconnection of available technologies have driven consumers to massively and rapidly adopt technologies and increase their consumption in highly digital business formats (Sheth, 2020). Digital technology has enabled social life to flourish in the midst of a pandemic, reflecting the increased use of social media platforms (Pillai et al., 2020).

3. Methodology

The aim of the study was to determine what changes in consumer purchasing behavior have occurred as a result of the COVID-19 pandemic and whether these changes have been reflected in new consumer purchasing habits. The primary data were collected through a questionnaire survey which has been chosen as the research method for this study. The data collection was conducted from March to May 2022 using questionnaires that were distributed via email and Google Docs. By this time, the recent main pandemic wave had already passed and strict restrictive measures were no longer in place and physical purchases in stores were allowed. We have collected responses from 512 respondents. We organized the respondent sample into 5 age categories (see Table 2). We also analyzed the level (see Table 3) and predominant field of education in the sample (see Table 4). Sample characteristics of respondents are provided in absolute numbers and relative frequencies. In addition to the identification questions, the questionnaire contained 7 specific questions: (1) whether consumers preferred to shop online after the pandemic; (2) whether consumers believed that the pandemic changed the choice of products they purchased and used; and (3) whether they discovered new products to use during the pandemic; (4) whether they continue to purchase and use the newly discovered products; (5) whether the pandemic period has influenced and changed their choice of products purchased and used; (6) whether they believe that when they shop online, they are still purchasing the same quality of goods; and (7) whether they have become accustomed to purchasing food online after the pandemic period. Respondents rated the questions on a 5-point Likert scale: strongly agree - agree - disagree - strongly disagree - neutral opinion (see Figure 3), where the relative frequencies are used to compare the respondents' opinions resulting from the questions.

4. Results and discussion

In the analyzed sample of surveyed consumers, there has been clear dominance of females who accounted for 75.8%; males accounted for 24.2% (see Table 1). The most represented (33.8%) were the respondents in the age category 40-54 years (see Table 2); in terms of education level the respondents with high school education were the largest group (38.3%) while consumers with elementary level of education were the least represented category (3.7%; see Table 3). The predominant education focus of the sample of respondents was humanities (27.9%, see Table 4), followed by economics (25.6%), and conversely, the least, 9.4%, was represented by respondents with education in science (see Table 4).

Table 1: Gender characteristics of the sample

Gender	Frequency	Relative frequency (%)	Cumulative (%)
Female	388	75.8	75.8
Male	124	24.2	100.0
Total	512	100.0	

Table 2: Age characteristics of the sample

Age category	Frequency	Relative frequency (%)	Cumulative (%)
18 - 25 years	128	25.0	25.0
26 – 39 years	132	25.8	50.8
40 – 54 years	192	37.5	88.3
55 – 64 years	48	9.4	97.7
65 years and more	12	2.3	100.0
Total	512	100.0	

Table 3: Education level of the sample

Education level	Frequency	Relative Frequency (%)	Cumulative (%)
Basic education	19	3.7	3.7
Vocational school	119	23.2	29.6
High school	196	38.3	67.9
University	178	34.8	100.0
Total	512	100.0	

Table 4: Predominant education focus

Predominant education focus	Frequency	Relative Frequency (%)	Cumulative (%)
Economics	131	25.6	25.6
Humanities	143	27.9	53.5
Science	48	9.4	62.9
Technical	109	21.3	84.2
Other	81	15.8	100.0
Total	512	100.0	

The changes in consumer behavior caused by the pandemics are expressed as shown in the graph in Figure 3. The identified changes in consumer behavior correspond to those of Bentall, Lloyd, Bennett et al. (2021). After the end of the main pandemic period, 304 respondents (59%) kept their preference for online shopping. 103 respondents (i.e. 20%) expressed a neutral attitude toward online shopping. We can deduce that overall 79% of the respondents are willing to continue online shopping. 335 (65%) respondents are convinced about the changes in the choice and use of products due to the pandemic. Considering the neutral statement of 82 respondents we can deduce that 81% of the respondents believe that the pandemic has affected their choice of purchased products. 277 (54%) respondents discovered completely new products and 139 (27%) respondents stated that they continue with the purchase of usual products. 306 (60%) respondents continued purchasing the discovered products after the main wave of the pandemic was over and to this number, we can also further add the respondent who expressed a neutral opinion (20%). A significant number of respondents (352, 69%) had changed their use of services, with shopping delivery services contributing significantly.

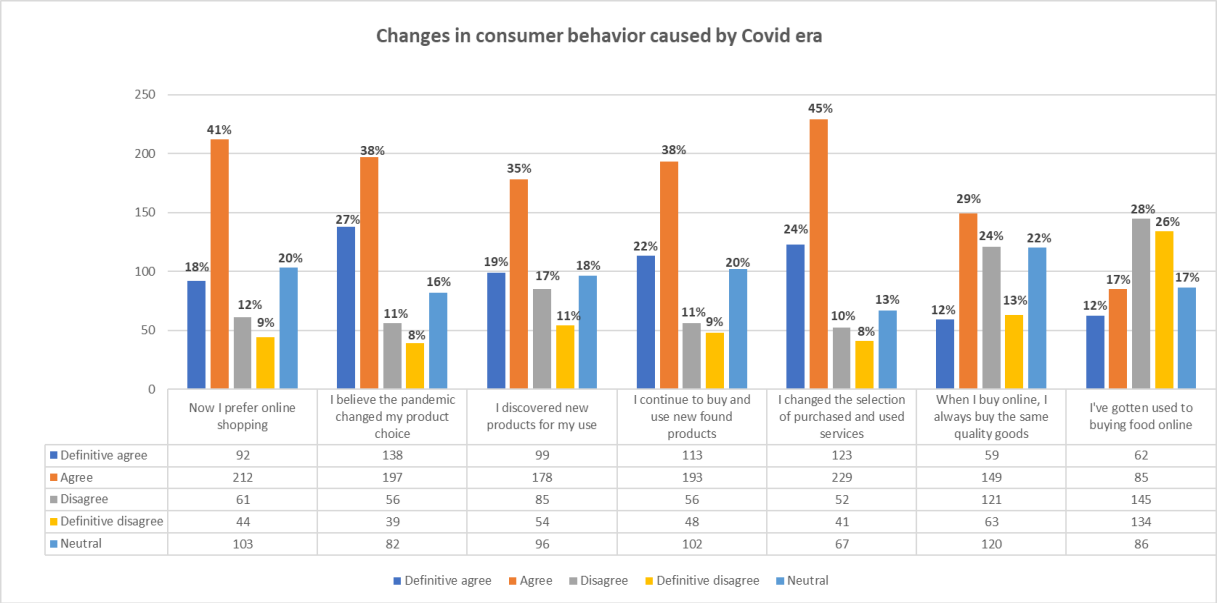

Figure 1: Theory of Planned Behaviour (Ajzen, 1991)

The respondents were asked whether they believed that when shopping online, they were still buying the same quality of goods. 184 (34%) respondents expressed doubts about the quality of goods sold online. When asked whether the respondents had become accustomed to buying groceries online after the pandemic period, 147 (28%) respondents stated their determination to continue buying food online. 279 (54%) respondents reported their return to buying food in physical stores. The pandemic confirmed the model where the product choice and purchase location generate the consumer behavior the limitation of physical purchase and social distancing (Anastasiadou et al., 2020) subsequently led to an increase in the purchase of food, beverages, sanitary products, and medicines, and led to frequent stockpiling. This behavior occurred before and during the anti-pandemic measures and has been widely confirmed worldwide (Antonides & van Leeuwen, 2020).

5. Conclusion

The COVID-19 crisis has forced many consumers to change their behavior. The aim of the study was to explore how consumer purchasing behavior changed as a result of the COVID-19 pandemic and whether these changes led to new consumer purchasing habits. The results confirmed that the COVID-19 pandemic has caused changes in consumer buying behavior and, in particular, expanded consumers' interest and willingness to make purchases in a digital environment. This leads us to a recommendation that companies prioritize digital marketing strategies in order to follow these changes and maintain their competitiveness in the post-pandemic markets.

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An Academic Map of Social Entrepreneurship in Taiwan

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Abstract: The purpose of the paper is to map academic publications on social entrepreneurship in Taiwan. Mapping review, a specific type of literature review, was conducted to gain this purpose. The texts of the abstracts of the reviewed publications were analyzed manually, and the full texts with the use of an online text analysis tool Sketch Engine in order to find the research topics in the field and their structure.

It was found that a significant research topic concerns social entrepreneurial intentions, but also several unique innovative research topics were identified. The findings are particularly useful for comparative research in other countries, including the Czech Republic, but also inspiring for social entrepreneurs. Research limitations are discussed in the paper and have to be taken into consideration in relation to the research outcomes.

Keywords: social entrepreneurship, Taiwan, text analysis

JEL classification: L31, R11

Grant affiliation: IGA_FF_2022_039 Challenges of economics and management in the 21st century

1. Introduction

Social entrepreneurship is a way of doing business via recognizing social problems and achieving social change by employing entrepreneurial principles, processes, and operations (United Nations, 2020). Even though social enterprises comprise a wide range of entities with diverse structures, social entrepreneurs share one common purpose – to invoke social change or create social value rather than to create wealth (Dees, 1998). As society's problems have been growing at present, so does the role of social entrepreneurship. Because approaches to social entrepreneurship are culturally influenced (Kubátová, 2021), it can be inspiring to learn about practices in different parts of the world. This paper aims to gain academic knowledge in social entrepreneurship in Taiwan.

To achieve this aim, mapping review was conducted. Mapping reviews are used to map out and categorize existing literature on a particular general topic (Grant, 2009). Academic databases Web of Science Core Collection and Scopus were used to search for thematic publications. The key search terms were *"social entrepreneur*" AND Taiwan*. The asterisk was used because the terms entrepreneurship, entrepreneurs, etc., are relevant for the thematic search. The search was conducted on April 22, 2022, and was limited to journal articles written in English.

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2. Search results

Eighteen matching articles were found in Web of Science and none in Scopus. Fifteen authors are from Taiwan, four from Mainland China, and one from Australia, Japan, and the U.S. (some articles are coauthored, thus the sum is higher than 18). The articles were published between 2014 and 2021.

The published pieces of research are classified into the areas of Business Economics (four), Public Administration (four), Communication (two), Educational Research (two), Social Sciences Other Topics (two), and Agriculture, Computer Science, Engineering, Environmental Sciences, Government Law, Psychology, Social Issues, Social Work (one in each).

3. Results analysis

Thematic analysis (Clarke & Braun, 2017) of the abstracts was conducted to create a thematic map of the published pieces of research as the first step of the results analysis. Deductive approach was applied as the themes were foreseeable and the step of coding in this case was consistent with generating themes. The thematic map is shown in Figure 1.

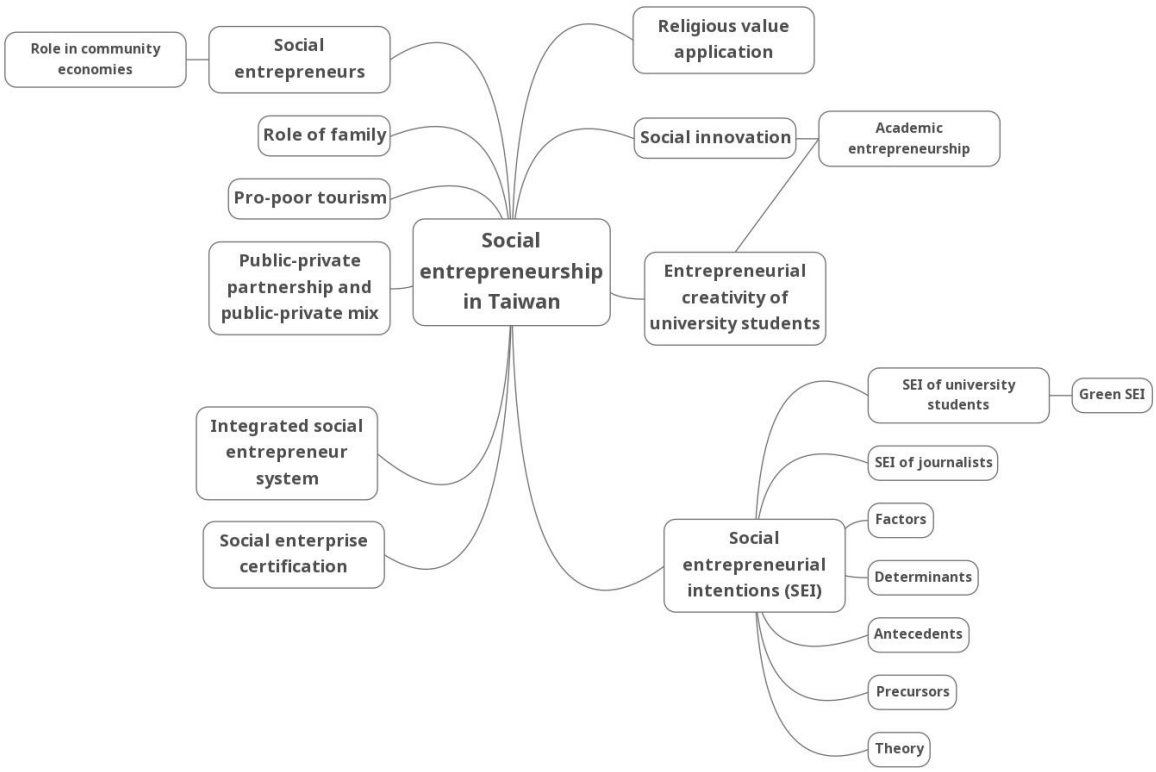

Figure 1: Map of research topics focused on social entrepreneurship in Taiwan

With the use of an online text analysis tool Sketch Engine the full texts of the articles were analyzed as the second step of the results analysis. For this mapping review the functionality of Keywords was applied to find the most often used multi-word terms in the articles. Multi-word terms were chosen because they are more indicative of the focus of the research than single-word terms. A corpus of the full text articles was created to perform this analysis. Repetitive and irrelevant parts of the article texts such as abstracts and references were removed from the corpus to avoid biasing the results. For the same reason average reduced frequency (ARF) was calculated. ARF is a variant on a frequency list that discounts multiple occurrences of a word that occur close to each other in the same document which is typical for some parts of research articles. Predictably, the most frequently used term was social enterprise (frequency 598) and social entrepreneurship (267). The next fifteen most frequent terms are listed in Table 1.

Table 1: The most frequent terms in the research on social entrepreneurship in Taiwan

Term	Frequency
Social capital	262
Entrepreneurial intention	208
Social entrepreneur	187
Prior experience	173
Social support	169
Entrepreneurial creativity	141
Social problem	133
Social responsibility	115
Moral obligation	110
Outcome expectation	108
Social entrepreneurial intention	103
Social enterprise certification	101
Perceived social support	96
Personality trait	94
Enterprise certification	89

With the use of another Sketch Engine functionality, Concordance, it is possible to find out in which articles particular terms are addressed including the whole (or at least part of) sentences in which they are used. For example, the term *social entrepreneurial intention*, which was proved to be one of the most examined, is used in nine out of the total 18 documents. And thanks to the Sketch Engine Concordance report it was easy to find that, for example, Liu et al. (2019) concluded that perceived social support was found to have the highest explanatory power on social entrepreneurial intentions (SEI), followed by social entrepreneurial self-efficacy, empathy, and prior experience with social problems. For comparison, Ip et al. (2018) identified prior experience with social problems, perceived social support, and originality as the three most influential factors affecting the SEI of university students.

Both the text analysis of the results and the full texts of the articles indicated that SEI were the most massively researched topic. Eight articles covered the SEI research. The research was focused on factors such as personality traits, creativity, prior experience with social problems, empathy, etc.,

influencing SEI (Yu & Wang, 2019; Liang et al., 2021; Liu et al., 2021; Liu & Liang, 2021). Two articles focused on the SEI of university students (Hsu & Wang, 2019; Liang et al., 2019) and two on the SEI of Taiwanese journalists (Liu et al., 2019; Liang, 2020).

The second most frequently researched topic was the organization and systemization of social entrepreneurship, specifically in rural areas (Peng Pearl, 2016), for the benefit of the poor and disadvantaged (Huang & Cox, 2016), with the use of an innovative public-private mix of sources (Chien, 2015), and social entrepreneurship certification practices in China's Mainland, Hong Kong, and Taiwan (Luo & Huang, 2019).

The remaining research was on a variety of topics. Zeng (2018) dealt with the role of social entrepreneurship and social enterprises in pro-poor tourism development. Tang and Yu (2014) demonstrated how community economies might be reactivated without the strong hand of the government thanks to social entrepreneurs. Kao and Huang (2015) highlighted the role of the family in social entrepreneurship. Yuniarto (2016) showed the positive effects of the relationship between business activities and religious value application. Ip et al. (2018) proposed a multiple mediation framework to examine the mediating role of entrepreneurial creativity for university students. Wong et al. (2019) aimed to extend the definition of social innovation within the context of academic entrepreneurship.

The authors of this paper have considered the research on academic social entrepreneurship and social innovation by Wong et al. (2019) particularly interesting and inspiring. According to Wong et al. (2019, p. 460-461) “policy makers and managerial decision makers should reconsider the potential role a university can play, while the nature of academic entrepreneurship should be guided and fostered in such a way that it leads the search for solutions to the world’s increasing social and economic problems.” From a mapping review creation point of view, it was also interesting to find out (with the use of the Sketch Engine Concordance report) that Wong at et al. (2019) aimed to extend the definition of social innovation within the context of academic entrepreneurship (p. 446). To find out whether such a definition was proposed, again the functionality Concordance was used. The search words were *social innovation*. In accordance with the results presented above, social innovation was found to be a strong topic connected to the social entrepreneurship in Taiwan addressed somehow in 11 out of the total 18 articles. Obviously only in one article (Wong at al., 2019) it was addressed in relation to academic entrepreneurship. Using the relevant Concordance report and the subsequent full-text search was found that no explicit new definition of social innovation was proposed. Nevertheless, Wong et al. (2017, p. 462) conclude that academic entrepreneurs can contribute to the context of social innovation in order to encourage behavioral change for people in need and society as a whole and that the social innovations analyzed in the article were derived from a passion to pursue solutions to identified societal problems, while also utilizing ICT skills and entrepreneurial capabilities to mobilize both human and capital resources.

4. Conclusion

The developed academic map of social entrepreneurship in Taiwan is quite diverse with SEI as the most dominant research object. Social innovation is a term that is frequently mentioned in the analyzed research articles. In academic terms it means that the diversity of the research topic relating to social entrepreneurship in Taiwan is broad, nevertheless SEI apparently represent the main research topic

and social innovation is often taken into consideration. The research on social entrepreneurship in Taiwan is relatively young as the first published article is from 2014.

For this mapping review, the online text analysis tool Sketch Engine was employed. The full texts of the articles were analyzed using several functionalities of this tool. In this case, the small amount of the analyzed articles represents an advantage because it was still possible to check the objectivity of the results and assess the applicability of Sketch Engine for similar purposes and it was found to be promising.

It should be emphasized that in this mapping review only 18 articles were analyzed. The search for the articles was limited to journal articles indexed in Web of Science or Scopus and written in English, whereas for example the number of search results in Google Scholar is considerably higher and probably would be even higher if also results in Chinese were included. In this context, the results of this mapping review have to be approached. But even with these limitations, the results can be used for comparative research in other areas of the world. Linking academic and social entrepreneurship using social innovation is particularly inspiring as is the way social entrepreneurship is certified in Taiwan. Also potential and current social entrepreneurs can be inspired by the practice of social entrepreneurship in Taiwan.

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Sustainability of companies in a turbulent business environment

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Abstract: The era of sustainable enterprises has changed the business environment, which is marked by the pandemic or war conflict in Ukraine. Entrepreneurs are designing innovative business models, effective strategies that have to gradually respond to the triad of sustainability, turbulence and uncertainty, in which a business idea becomes a product. A well-chosen business strategy is a prerequisite for their sustainability, but it must be workable and continuously evolving. The pandemic has hit all businesses. It represents a major challenge for business in all its aspects. The turbulence of the business environment greatly affects their sustainability, which depends on a well-chosen business strategy, with competitive advantage at its core. Developing an approach based on diverse assumptions leads to finding the right way to exploit and develop new opportunities in order to ensure sustainability and eliminate risk.

Keywords: sustainability, business strategy, turbulence

JEL classification: M10, M13, M19

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1. Introduction

Business sustainability is becoming increasingly important for all businesses and is contributing to businesses not primarily taking short-term decisions, but thinking long-term and considering multiple factors. A sustainable business development strategy is the overarching, core strategy of a business. This strategy is based on the principles of the concept of sustainable development. The corporate social responsibility strategy should be seen as an integral part of the company's strategy, i.e. the sustainable development strategy.

2. The concept of corporate sustainability according to renowned authors

"Sustainable business unit strategies and, in turn, sustainable functional strategies are linked to the sustainable development strategy."(Hrdinová et al., 2011, p. 1) „A key feature of strategy is the provision of value over and above business as usual"(Zimmermann, 2011, p. 6) and "dealing with the problem of how a business will compete in its business or in one of its market segments. The purpose of business strategy is to gain a competitive advantage over rivals."(Slávik, 2013, p. 213) Current studies identify the sustainability of competitiveness advantage as a major possibility for the growth and viability of businesses. However, sustainability requires a drastic rethinking and renewal of existing activities, competencies, corporate culture and stakeholder relationships.(Bertassini et al., 2021; Gandolfo & Lupi, 2021; Hofmann & Jaeger-Erben, 2020; Kaipainen, Aarikka-Stenroos & Ranta, 2020)

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Becoming sustainable involves a continuous process of organizational innovation and cross-cutting development(Fowler & Hope, 2007) that are aligned with the economic, environmental and social needs of current and future generations. The prerequisites for corporate sustainability and the journey from idea through overcoming vulnerabilities to success depend on the right business strategy. The concept of strategy often emphasizes „how an entrepreneur seeks to achieve a goal and therefore uses a process approach to strategy (Austin & Vancouver, 1996; Dess, Lumpkin & Covin, 1997; Hart, 1992; Olson & Bokor, 1995; Rajagopolan et al., 1993).“(Von Gelderen, Frese & Thurik, 2000) The fact is that strategic development for sustainability is a complex process and fundamentally alters the way established businesses do business.(Engert, Rauter & Baumgartner, 2016; Gandolfo & Lupi, 2021; Keijzers, 2002) This strategic development is called “strategic renewal“(Agarwal & Helfat, 2009). Sustainability and circularity change the business logic of established enterprises and require them to reshape existing business models (BMs).(Frishammar & Parida, 2019; Gandolfo & Lupi, 2021; Ranta, Keränen & Aarikka-Stenroos, 2020; Rovanto & Bask, 2020) The trend is for enterprises to become among the elite at record speed and to build a strong CM, but even “a temporarily created organization, a cluster, used to find a repeatable and scalable BM“(Bryan, 2015) is a prerequisite for a viable and sustainable enterprise. It is clear from many research studies that sustainability strategy development is a key practice in successfully updating established BMs.(Santa-Maria et al., 2021) Many research studies have not considered how established enterprises should refresh their business strategies to support sustainability. This was about refreshing business strategies to support sustainability in line with their changing BMs. A viable and sustainable BM is understood as how a company creates, delivers and captures value, as “businesses are people-made institutions designed to create a new product or service under extremely uncertain conditions,“(Ries, 2015) which must now also respond to a global environment marked by a pandemic situation or war conflict in Ukraine. Therefore, “businesses will have to develop new strategy concepts“(Hart, 1995) and ensure their sustainability. Strategic sustainability has gained importance and has become a key issue in business strategies.(Engert, Rauter & Baumgartner, 2016; Martin & Rice, 2010) It is therefore important to examine the process of strategic renewal of established businesses aimed at achieving strategic sustainability. Many businesses achieve this strategic sustainability through “key success factors“(Saura, Palos-Sanchez & Grilo, 2019; Ceaușu et al., 2017), which are prerequisites for a sustainable enterprise(Ghezzi, 2020; Shepherd & Gruber, 2020; Bortolini et al., 2018; Schwaninger & Scheef, 2016), “being viable and sustainable in the long term.“(Etim, 2020) If businesses want to reap success and be strategically sustainable they need to have a good BM and an appropriately chosen business strategy. The CSR strategy should be seen as an integral part of the corporate strategy, i.e. the sustainable development strategy, which is followed by sustainable business unit strategies and then by sustainable functional strategies. “The process of integrating sustainability into business strategy varies from company to company, and is particularly challenging in established companies that are trying to renew their BMs in order to achieve sustainability and circularity“(Frishammar & Parida, 2019; Rovanto & Bask, 2020; Kaipainen, Aarikka-Stenroos & Ranta, 2020). Renewal for sustainability has been found to require incumbents to redesign their BM and value creation(Hofmann & Jaeger-Erben, 2020; Ranta, Keränen & Aarikka-Stenroos, 2020), business and core operations(Albino, Balice & Dangelico, 2009; Shrivastava, P., & Scott, 1992), as well as stakeholder relationships, networks and entrepreneurial ecosystems(Aarikka-Stenroos, Ritala & Thomas, 2021; Kaipainen, Aarikka-Stenroos & Ranta, 2020). However, due to the difficulty and gradual implementation of strategic renewal, established businesses are often criticized for acting slowly or for deliberately hindering the diffusion of sustainable innovations in order to maintain their strategic position (Smink, Hekkert &

Negro, 2015). It is precisely this issue on corporate strategic sustainability that represents a research gap that we would like to address in more detail in the present paper.

3. Aim, methods and research sample

The main objective of this thesis is to find a sustainable business model that is closely aligned with business strategy. At its core is competitive advantage. We propose the most effective assumptions related to the sustainability of Slovak enterprises from a strategic perspective.

A sample of 147 start-ups was obtained through questionnaire research and guided interviews with start-up entrepreneurs in Slovak enterprises in 2020. The questionnaires were processed and evaluated through mathematical and statistical methods in Excel. Making assumptions and also identifying the factors acting on the sustainability of the studied enterprises, for the most appropriate and effective approach to their survival and growth are beneficial for practice.

4. Research results and discussion

With regard to the strategic sustainability of enterprises, when we examined the opportunities, conditions, obstacles or challenges of scaling enterprises and their growth, we found that no more than 45 (30.6%) of enterprises have an upward trend in collaborating with other enterprises. They are continuously looking for collaboration, as it is also associated with opening up new opportunities to penetrate a market that they have not yet occupied with their product/service.

A major problem for 27 (18.4%) startups out of the total number is lack of finance, which is a barrier to entrepreneurship and we cannot point to a growing trend. The problem of funding has been captured in Healthcip startup where product development is dependent on finance. It is personal health documentation “in the cloud” that can be translated into any language. Interestingsamples, which is developing a platform to bring researchers and volunteers together to conduct clinical trials, has taken a keen interest in funding.

The survey points to the fact that the inflow of investment in production increases production capacity, which we illustrate with the enterprise Ekologické stavebníctvo (Ecological Construction). New entries into foreign markets are a possibility, but new techniques are a prerequisite and investment intensity is a major obstacle. These are the so-called social entrepreneurship and green infrastructure. The lack of funding is felt by brand Abraka of the startup South, which produces clothing for women from recyclable PET material.

Seventeen (11.6%) of the surveyed startups say that their sustainability is also influenced by marketing. The claim is captured in effective marketing communication when making new contacts. In the business environment, the startup Tripartita (LiiK-ekoriadiki), which produces disposable eco-friendly and packaging-free consumer items for public catering, is taking advantage of this opportunity. The key is an honest approach, building an existing brand, using the right marketing strategy and listening to customer needs.

For product development, skilled personnel is one of the options for business sustainability. The fact that it is the professional skills, abilities, proficiency, and experience of the staff that leads enterprises to profitability was claimed by 14 (9.5%) of the surveyed enterprises. An illustrative example is the startup Hilbi Health, where qualified staff works with decentralized artificial intelligence.

Twelve (8.2%) did not indicate opportunities to scale the growth of the business as these startups were in the product testing phase or did not want to comment on this issue.

Seven (4.8%) startups see strong existing competition as a major obstacle to growth. They are struggling to survive as well as in the strong competition. An interesting condition appears to be the fact regarding space for only two (1.4%) startups with a specific type of business that directly requires space to do business.

Most companies streamline their business strategy by cooperating with other companies or by opening up opportunities for new market penetration, increasing production capacity and investment in production, as well as by effective marketing communication and qualified personnel. A major obstacle is strong competition, sometimes even the fear of defeating rivals. The problem arises when enterprises find themselves in a situation of helplessness, when they feel a lack of financial resources. Some businesses cannot yet assess their sustainability because they are in the product/service testing phase. One interesting result is the single condition relating to premises, which is an essential part of business activity. Based on the above, we stress that finance, investment, cooperation, marketing and, of course, human resources with tacit skills are important for their sustainability. Only a well-chosen strategy can avoid major obstacles. Many times the problems are faced by strong competition, which companies are forced to avoid and find new and successful strategies in terms of their sustainability.

When looking for positives, some startups mentioned one choice and some mentioned multiple choices that affect the business strategy or business model. This is because many experiences followed the right choices. The most positive experience was the professional and personal approach to the customer (64; 43.5%). Without a human approach to the customer, they would not have achieved this competitive advantage. The second positive in the sample is the excellent communication, especially on social networks, which was confirmed by 59 (40.1%) of the startups. An illustrative example is the startup ELEARN.AERO, where this communication is particularly important as it offers online training courses for airline staff.

For 56 (38.1%) startups, cutting-edge technology is needed to produce a product or provide a service without which they could not operate. We illustrate the successes achieved with cutting-edge technology by Studio line, which focuses its activity on 3D printing of products, also prototypes, and Specter Sports, which with its revolutionary hockey tape technology is one of the most promising Slovak startups. This claim is supported by the fact that this technology is used by eleven players in the best hockey league in the world. Media interest and investment from many investors should also be considered a success, which shows their sustainability in a turbulent business environment.

47 (32%) of businesses have experience of getting excellent contacts. When finding new strategic partners, their mutual cooperation comes to the fore, not only in the present but also in the future. Positive experiences of making the right decisions with an interesting idea and a green mind-set were reported by 47 (27.9%) enterprises. Startups are convinced that the implemented business ideas have become successful because they highlight the area of protection and creation of the environment (greening) and the products/services are eco and organic. Only one startup (0.7%) did not want to talk about positive experiences, claiming that this is sensitive information that they do not want to disclose.

5. Conclusion

Businesses offering highly sophisticated products/services are constantly mapping and reassessing the opportunities, conditions, obstacles and challenges of scaling a business to rapid to exponential growth on one hand, which are integral to successful business and long-term sustainability. On the other hand, positive experiences, strengths, successes or good decisions identify manifestations of competitive advantages of startups that were first subject to being found in interesting ideas. Competitive advantages resulting from clusters of positives are also sustainable in the long term as evidenced by the success of the enterprises studied. There is no doubt that the complexity of the current entrepreneurial environment has been and is affected by the corona crisis, as evidenced by the positive experience of communicating on social media. Virtual sales have come to the fore and the internet has become a place of competition. The success of start-ups is often influenced by the acquisition of excellent contacts in the field, which are necessary for management and strategic sustainability. Getting strategic partners or having them collaborate with each other for a longer period of time is a great advantage for their success. In conclusion, the long-term sustainability of businesses in a turbulent business environment is influenced by a number of key factors that affect the business strategies and business models of companies. These factors need to be constantly reassessed from the perspective of the strategic sustainability of businesses.

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Spirituality in Learning Organisation

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Abstract: The paper explains the relationship between spirituality and learning organisation. Organisations are called learning organisations because they learn when addressing the increasing entropy of their environment. Spirituality represents feelings or beliefs that there is something that cannot be captured by senses, some greater whole, more significant than self. Organisational spirituality refers to the individual search for existential meaning at work and results in specific behaviour, business and managerial practices and systems of values. Examples from practice show that learning organisations create an environment fulfilling the spiritual needs of their employees. The paper discusses the relationship between spirituality and learning organisation. We aim to show principles on which learning organisations develop organisational spirituality and fulfil the spiritual needs of their employees for a greater sense and belonging.

Keywords: knowledge, spirituality, learning organisation

JEL classification: M150

Grant affiliation: None

1. Introduction

The bureaucratic and scientific management models of organisation recommended specialisation, which in turn led to a sense of isolation and alienation of workers (Bolman & Deal, 1995; Wheatley, 1992, as cited in Ashmos & Duchon, 2000, p. 136). The changes in the business environment and in society in the last 50 years called for, as Fry (2003) states, an urgent need for a radical organisational transformation to a learning organisational paradigm. Learning organisations are based on the learning of individuals and their knowledge sharing. This process happens only in a friendly cooperative environment "where employees are not treated as simply another input to the production process" (Gotsis & Kortezi, 2008, p. 585).

Otherwise, employees understand their knowledge as a competitive advantage and do not share it with their colleagues. This inhibits the creation of new knowledge and, as such, the learning of the whole organisation. The concept of learning organisation brings new conditions to the organisational life and influences the organisational relationship to spirituality.

"We are refocusing on the deep longings we have for the community, meaning, dignity and love in our organisational lives. We are beginning to look at the strong emotions that are part of being human, rather than segmenting ourselves (love is for home, discipline is for work) or believing that we can confine workers into narrow roles, as though they were in cogs in the machinery of production" (Wheatley, 1992, p. 12). "Recognition of spirituality in the workplace means seeing the workplace populated with people who have both and spirit and believing that development of the spirit is as

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important as the development of mind" (Ashmos & Duchon, 2000, p. 136). Learning organisations depend on the knowledge and learning of their employees. As such, they provide an environment where employees can fulfil their spiritual needs. The paper discusses the relationship between learning organisation and spirituality.

2. Learning Organisation

"A learning organisation is an organisation skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" (Garvin, 1993). A learning organisation is “an organisation that fosters continuous learning and persistently adapts to the transforming environment” (Malik & Garg, p. 1075). As such, learning organisations create and apply knowledge. The concept is the result of the knowledge-based view of the firm (Grant, 1996; Spender, 1996), and it is an evocative anthropomorphic metaphor (Friedman et al., 2005). There are no clear criteria when an organisation becomes a learning one. It is perceived that organisation learning can be explained from the perspective of three learning theories: behaviourist, cognitive constructivist, and social constructivist. Behaviourist theories see knowledge as responses to changing environments; cognitive constructivist theories as actively constructed by learners based on pre-existing cognitive structures; social constructivist theories see knowledge as constructed within social contexts through interactions with a knowledge community (Berkley, 2022; Friedman et al., 2005). Learning organisations learn and develop knowledge in all three ways and create “roles, functions, and procedures that enable organisational members to collect systematically, analyse, store, disseminate, and use information relevant to their own and other members’ performance” (Friedman et al., 2005, p. 23).

Reviewing different definitions of learning organisation, Bunea et al. (2016) highlight three pillars that support the learning organisation: the individual, the group and the organisation. Örtenblad (2018, p. 151, 152) writes that term “learning organisation” has three meanings “the organisation being a facilitator, supporter and/or arranger of the learning going on in the organisation, performed by individuals ("organisation as facilitator"); the organisation being an additional, actual learning unit ("organisation as learning unit”); and the organisation being the end process (in contrast to end product) that is dependent on learning and rests upon continuous learning to exist ("organisation as end process”). We believe that the real learning organisation combines all these meanings.

In organisations, learning happens through their members. When learning, an organisation works with three groups of knowledge; personal knowledge of employees, knowledge of groups and knowledge embedded in artefacts. Personal knowledge, both tacit and explicit, represents employee expertise. The organisation's role is to help develop it and use it to create new knowledge necessary for the organisation. Personal knowledge of employees is usually limited, and organisations can achieve their results only when combining personal knowledge with group and organisational knowledge via the organisation of knowledge flow and knowledge sharing among individuals and groups. Then, it is necessary to interrelate personal and group knowledge with knowledge embedded in organisational artefacts and procedures (Sloman & Fernbach, 2017).

3. Spirituality

“Spirituality involves the recognition of a feeling or sense or belief that there is something greater than myself, something more to being human than sensory experience, and that the greater whole of which

we are part is cosmic or divine in nature" (Spencer, 2012, p. 1). It is "a dimension of human experience – which includes certain values, attitudes, perspectives, beliefs, emotions, and so on; it is a human phenomenon and exists, at least potentially, in all persons. Spirituality is not the same as religiosity. Different religions provide different spiritual concepts, traditions and directions. Western people, many of whom perceive religion as old, rigid, conservative and formal (Říčan, 2007; Kučera, 2015) replace religion and religious spirituality with non-religious spirituality. It is perceived as an open, postmodern, positive, animating technocratic society and unifying different cultures and religious concepts (Říčan, 2006; Kučera, 2015) and allows spiritual feelings and behaviour regardless of the concrete religious background.

Therefore, a person can be 'spiritual' even though not affiliated with traditional religion" (Elkins et al., 1988, p. 8). Girgensohn and Gruehn (1930, as cited in Kučera, 2015, p. 69) write that spirituality is specific with an open mind, trust and uplift, leading to loss of self. Generally, spirituality concerns values and sense.

Elkins et al. (1988) highlight that spirituality is a multidimensional construct composed of several significant factors. Kučera (2015) also sees that a spiritual perspective is holistic. Milliman et al. (2003, p.428) state that "spirituality is a complex and multi-faceted construct; the concept is highly personal and abstract". It relates what and why with sense and meaning (Kučera, 2015). Kučera (2015) defines two levels of general spirituality; the vertical axis of supernatural, superhuman, mysterious, absolute, and last, the highest and vertical level represented by the whole and broadest interrelations and expressed by the activities of the manager or entrepreneur. Both levels are materialised in symbols and symbolic acts.

Modern people can feel and experience spirituality in different parts of their lives, including in their work organisations. When talking about organisational or workplace spirituality (we do not differentiate these terms in this paper), we refer "to an employee's inner life, community, and their sense of meaningful work" (Neng-tang & Hui-lin, 2019, p. 144) or "recognition that employees have an inner life which nourishes and is nourished by meaningful work taking place in the context of a community" (Ashmos & Duchon, 2000, p. 137). Spirituality at work is about experiencing purpose and meaning in work and people experiencing a sense of connectedness to one another and their workplace community (Ashmos & Duchon, 2000). It is about understanding that people have inner and outer life and nourishing inner life at the workplace leads to a more productive and meaningful outer life (Fox, 1994). It is also understanding "that people want to be involved in work that gives meanings to their lives" (Ashmos & Duchon, 2000, p. 136).

Ashmos and Duchon (2000) recognise three elements of spirituality at the workplace, inner life, meaningful work and community. Giacalone and Jurkiewicz (2003) mention the link of workplace spirituality to organisational values and corporate culture "a framework of organisational values evidenced in the culture that promotes employees' experience of transcendence through the work process, facilitating their sense of being connected to others in a way that provides feelings of completeness and joy". Pawar (2017, p. 988) highlights that "In contrast to individual spirituality as an individual's characteristic, organisational spirituality is an organisation's possession of certain features such as spiritual values and practices".

If we want to research the term organisational/workplace spirituality, it is necessary to conceptualise it and specify its dimensions. Badrinarayanan and Madhavaram (2008) propose three dimensions of

workplace spirituality – an employee's inner life, a desire to have meaningful work and a sense of connectedness and community resulting in commitment, sharing and mutual obligation. Kurth (2003) recapitulates the principal dimensions of workplace spirituality in the four-fold model of spirituality. "First, the transcendental dimension involves the conscious awareness of one's connection to the divine at work. Second, the personal dimension consists of being committed to one's spiritual growth and living with integrity at work. Third, the relational dimension integrates and sustains caring relationships with others at work. Finally, the communal dimension involves community building, harmony and sharing within organisational contexts" (Gotsis & Kortezi, 2008, p. 578).

4. Spirituality and Learning Organisation

By Senge (1995), a learning organisation is based on five elements; personal mastery (individual learning), shared vision (common objectives), teamwork (team learning, cooperation and knowledge sharing), work with mental models (overcoming old concepts and viewpoints) and system thinking (understanding the world in a systemic way). "Learning organisations are skilled at five main activities: systematic problem solving, experimentation with new approaches, learning from their own experience and history, learning from the experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organisation. Each is accompanied by a distinctive mindset, tool kit, and pattern of behaviour" (Garvin, 1993).

An organisation becomes a learning one only when it develops a specific environment supportive of knowledge sharing. Santa (2015) notes that building a learning organisation means creating a distinct culture built on openness, participation, experimentation and dialogue. Such culture is essential because it supports the involvement of people and the trust necessary for knowledge sharing.

Learning organisations use two mechanisms that support trust and involvement; shared goals and values (Senge, 1995) called it a shared vision) and community. Shared goals and values create a common identity. Common identity enables employees to identify with the group or organisation. Common identity (explained by the common identity theory) fosters interdependence through a joint task, a common purpose, common fate, or joint rewards (Ren et al., 2007). In learning organisations, the common identity is represented by organisational objectives, values and roles. The second mechanism is represented by the relationship of employees to one another that creates a community. It is based on the common bond theory, which explains why people are attached to other people (Ren et al., 2007). Common bonds are strengthened by social interaction with others, personal knowledge of them, and interpersonal attraction toward them, often through similarity (Ren et al., 2007). In learning organisations, common bonds are essential to knowledge sharing and learning from others.

The exact mechanisms that help develop learning organisations also support spirituality in the workplace. Meaningful work (Badrinarayanan & Madhavaram, 2008; Ashmos & Duchon, 2000; Neng-tang & Hui-lin, 2019; Pfeffer, 2003) related and based on organisational objectives (visions), values and roles develop the common identity and represent the vertical axis as defined by Kučera (2015). It enables employees to feel like a part of a bigger whole (Spencer, 2012) and experience transcendence (Giacalone & Jurkiewicz, 2003). Good relationships, interactions, and personal knowledge of colleagues lead to common bonds (Ren et al., 2007) and community development (Neng-tang & Hui-lin, 2019; Ashmos & Duchon, 2000; Badrinarayanan & Madhavaram, 2008; Kurth, 2003).

Both common identity (Turner, 2010) and common bonds (Ren et al., 2007) make people more interchangeable (e.g. share knowledge) because they develop trust. On the other way, the trust supports the development of both common identity and common bonds and helps to fulfil the spiritual needs of employees. Therefore, we argue that learning organisation and spirituality are concepts that work in consonant conversation, e.g. one supports the other. Learning organisation supports fundamental aspects of workplace spirituality noted by Pfeffer (2003, p. 31) as "meaningful work that provides a feeling of purpose, a sense of connection and positive social relations with co-workers, and ability to live an integrated life in which the work role does not conflict with the essential nature of a person as a human being". Learning organisations provide an environment that meets Hicks (2003) belief that spirituality is integral to human identity. As such, it has its place in organisational life, culture and activities. On the other hand, spiritual values are expected to exert a positive effect on intrinsic employee motivation, commitment and adaptability (Gotsis & Kortezi,2008,p. 591), and as such, they support knowledge sharing.

It contrasts with “egoistic individual work climates that make organisational members less likely to develop the main aspects of spirituality: the sense of community, the ability to share and belong, meaning at work, and the emphasis on the inner life. Egoistic-individual climates, seem unlikely to promote hopefulness and awareness of personal values'' (Parboteeah & Cullen,2010, p. 140). “In this respect, norms of maximising selfish interest seem inimical to establishing spirit at work” (Gotsis & Kortezi,2008, p. 587). . 578).

5. Conclusion

Rego and Cunha (2008, p. 70) write: “If human beings are, among other things, spiritual beings searching for a meaningful life and work, performed in a community context, then organisations that discourage the realisation of these needs may be adversely affected. Therefore, we need to include spirituality in the management and research agendas. Spirituality is a deeply personal experience. People live it in very different ways, and nourish it from different sources. But, no charges of heresy can be made if we argue that most human beings like to perform meaningful work in the context of a community, hope that others respect their inner life, have a desire to work in an organisation whose values are congruent with their own, and want to experience joy at work. If organisations allow them to get these “spiritual resources” and satisfy their “spiritual needs” it is likely that they bring their entire self (physical, mental, emotional and spiritual) to the organisation, assume work as a mission more than a “job”, feel that they are developing their full potential and become more affectively and normatively attached to their organisations. This will presumably result in individual and organisational benefits”.

Learning organisations and spirituality concepts are both based on common identity and common bonds. As such, learning organisations have the potential to meet the spiritual needs of employees.

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The Role of Education in Raising Public Awareness of Social Entrepreneurship: The Case of Hong Kong

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Abstract: Social entrepreneurship is an important concept because, in addition to being purely profit-driven, enterprises also focus on the integration of disadvantaged people into the labour market or on social contribution to the community in which they operate. Although social entrepreneurship is growing and public policies are beginning to recognise the ability of social enterprises to create value for society, public awareness of the concept of social entrepreneurship varies. This study presents the results of qualitative research among entrepreneurs in Hong Kong to assess the importance entrepreneurs attach to the education system in raising awareness of social entrepreneurship. The results show that, in addition to education, promoting volunteering also plays an important role in raising peoples' awareness. When promoting the concept of social entrepreneurship, emphasis should be placed on the economic principle of social enterprises to avoid merging social entrepreneurship with the activities of purely non-profit organisations. The research findings are useful for shaping strategies leading to increased awareness of the activities and importance of social entrepreneurship.

Keywords: education, Hong Kong, non-profit organisations, social entrepreneurship, social impact

JEL classification: I24, M14, M21

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1. Introduction

As Dieter (2020) shows, although Hong Kong appears to be an affluent city with a high standard of living, as indicated by several indicators such as gross national income, the presence of global brands, high life expectancy, and an excellent public transport system, resident satisfaction is much lower than in comparable economies. One of the main reasons for civic discontent is the high level of inequality, which is, among other things, a consequence of the colonial-era tax system. This system is favourable to business, but is fundamentally problematic for income redistribution. Another major problem is housing, as Hong Kong is one of the most expensive property markets, and the average living space per person is 15 square metres.

For the reasons outlined above, Hong Kong faces many social problems, such as income inequality and high percentage of people living in poverty (Yip et al., 2020), inequality in access to education (O'Sullivan & Tsang, 2015) or health inequality (Siu, 2021). The prevalence of these profound socio-economic problems is a challenge that social entrepreneurs are trying to address (Chui et al., 2021; Ng et al., 2018).

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The aim of this study is to contribute to the understanding of the importance of education in raising awareness of social entrepreneurship, which can have practical implications for shaping strategies leading to the development of the concept of social entrepreneurship. The paper answers the research question of how social entrepreneurs perceive the development of social entrepreneurship education and what role they attribute to the education system in raising awareness of social entrepreneurship in Hong Kong.

Research on entrepreneurs' perceptions of the role of education for social enterprise development is important for several reasons: 1) It helps to understand the importance of education for social entrepreneurship development and how increasing education develops social entrepreneurship. This may include, for example, students' intention to engage in social entrepreneurship, public interest in volunteering, and investor interest in supporting social innovation. As shown by Naveed et al. (2021) social entrepreneurship education act as a moderating variable on the relationship between individual social entrepreneurship orientation and social entrepreneurial intentions. 2) It helps to determine whether entrepreneurs appreciate the role of the education system. For example, the involvement of entrepreneurs in teaching is important. If entrepreneurs are not aware of the importance of education, they will not participate in university events.

2. Higher Education in Hong Kong and Social Entrepreneurship

Social entrepreneurship is of interest to several Hong Kong universities. In recent years, degree programmes have emerged that focus directly on social entrepreneurship. Higher education provides significant support for young social entrepreneurs and, in addition to educational activities, universities are involved in organising competitions providing financial support for social innovation projects (British Council, 2020, p. 35).

Several universities offer the opportunity to earn a degree in social entrepreneurship. The Education University of Hong Kong offers the degree programme *"Bachelor of Social Sciences in Social Entrepreneurship and Development Studies"*. Courses such as *"Managing and Organising Social Enterprises"*, *"Leadership in Social Innovation and Development"*, *"Tool Kits for Social Entrepreneurship"* (EDUHK, 2022) can be taken as part of the degree. The *"Bachelor of Social Entrepreneurship"* programme is also offered by the City University Hong Kong. As part of the curriculum, students have the opportunity to take specialised courses such as *"Social Innovation and Public Policy"*, *"The World in Crisis: Meeting Environmental Challenges"*, *"Social Capital and Sustainable Development"*, *"Meeting Social Needs through Business Approaches"*, *"Business and the Environment"*, *"Customer Service in a Diverse Society"*, *"Ethics and Practice"*, *"Management Ethics"*, *"Environmental Policy and Ethics"* (CUHK, 2015). As Wong and Chandra (2015, p. 51) show, the City University of Hong Kong is a pioneer in the development of service leadership education, which places it in the context of social innovation and social entrepreneurship. University leaders recognise the need for a paradigm shift in Hong Kong universities that will lead to enhancing creative potential and preparedness for a rapidly changing world. Another university that offers a *"Bachelor of Arts in Social Policy and Social Entrepreneurship"*, is the Hong Kong Polytechnic University. This programme also offers a wide range of courses on social entrepreneurship, such as *"Social Entrepreneurship and Enterprises"*, *"Justice and the Modern Social Context"*, or *"Creating Innovation in Social Entrepreneurship"* (PolyU, 2022). The *"Master of Arts in Social Entrepreneurship and Innovation Management"* is available at Lingnan University Hong Kong (LNHK, 2022).

Significant educational and research activities on social entrepreneurship are also carried out by The University of Hong Kong. Interested students can enrol in the *"Management for Social Enterprises"* module, which offers a range of topics in the field of social entrepreneurship. Courses such as *"Social Entrepreneurship for Social Impact"* are part of study programmes (HKU, 2022). The Centre for Entrepreneurship of The Chinese University of Hong Kong conducts research in social entrepreneurship. One of the outputs was the *"Research Study on the Social Enterprise Sector in Hong Kong"* (Au et al., 2014). The Centre has been organising the teaching course *"Nurturing Social Minds – Social Entrepreneurship and Impact Investment"* (CHUHK, 2019), and regularly since 2007, the social venture start-up competition *"Hong Kong Social Enterprise Challenge"* (HKSEC, 2022). Other universities such as Hong Kong Baptist University and Hong Kong University of Science and Technology also run courses on social entrepreneurship and social innovation (NSM, 2019). Since 2009, HKUST Business School has also offered a *"Social Enterprise Internship Programme"*, which gives interested students an insight into the practice of social entrepreneurship (HKUST, 2022).

3. Methods

The findings presented in this study are one of the themes identified in a large-scale qualitative research study in Hong Kong conducted in 2022. The research took the form of semi-structured in-depth interviews lasting an average of 45–120 minutes. The interviews were transcribed. Each participant took part in the research voluntarily, was briefed on the research project and consented to audio-recording. The names of the participants and their enterprises were anonymised. Eight representatives of social enterprises were included in this study and their characteristics are presented in Table 1.

Table 1: Characteristics of participants

Resp.	Sex	Field of business	Social mission
E1	Female	Counselling and education services	Broaden the discussion of life and death in Hong Kong society
E2	Male	Creating games and innovations for people with special needs	Improve cognitive functioning, productivity, health and leisure of people with special needs
E3	Male	Organizing sports activities and events	Donate food to people suffering from hunger
E4	Male	Educational activities and discussions about global issues	Improve education also among socially disadvantaged groups
E5	Male	Educational activities	Provide education for the underprivileged
E6	Female	Transportation services	Provide leisure activities and wheelchair accessible transport
E7	Male	Providing walking sticks and other health aids for seniors	Improve the quality of life of the elderly
E8	Male	Elderly services	Build empathy for the elderly

The interviews were analysed based on the principles of thematic analysis (Braun & Clarke, 2006). After an initial line-by-line coding phase, key themes were identified, namely: a) entrepreneurs' assessment of the importance of education in raising awareness of social entrepreneurship, b) the role of volunteering in raising awareness of social entrepreneurship, c) the importance of profit and economic goals in the concept of social entrepreneurship.

4. Findings

4.1. Entrepreneurs' assessment of the importance of education in raising awareness of social entrepreneurship

Social entrepreneurs are aware that there has been a significant development in social entrepreneurship education over the last ten years, which has had an impact on public awareness - especially among younger generations. This significant change in education has been commented on particularly by entrepreneurs who went through the school system many years ago. One entrepreneur referred to his childhood as follows: *"When I was small, they didn't talk anything about social entrepreneurship, they keep just telling maybe paying some money to the charity organisation is enough"* (E7). Another entrepreneur adds that *"10 years ago, all we knew was charity and profit-making companies"* (E3). This timing of the beginning of greater interest in social entrepreneurship in Hong Kong is echoed by other respondents: *"Back in, it is about ten years ago, ten years ago in Hong Kong, social enterprise is quite, is still quite null"* (E8). One female entrepreneur who graduated from university in 1993 mentions that the concept of social entrepreneurship was not discussed in the 1990s: *"We just start about 10 years ago"* (E6).

Universities are interested in the topic of social entrepreneurship, but as one social entrepreneur points out, it is not the main topic. *"I think just some of the department, maybe the social studies, they will include one or two units or credits for the social entrepreneurship. But, however, I notice that in some universities in HK they do have a set up for social enterprise, but they are not a major stream of the faculties"* (E1). It seems that the school system *"will teach more about social entrepreneurship for students now"* (E7) and *"promote the concept of social entrepreneurship"* (E5).

Universities have also encouraged some graduates to become social entrepreneurs. One respondent is an example: *"I joined social enterprise competition at my university. And then I won it, and then they gave me some money. That enabled me to found this social enterprise"* (E8). One entrepreneur recognises that teaching social entrepreneurship is not just about universities, but that students at *"secondary schools, even primary schools, they are taught more in social enterprise and what is social innovation and sustainability etc."* (E3).

As far as public awareness of social entrepreneurship is concerned, there has also been an increase in recent years. According to one entrepreneur, it has been ten years since information about social entrepreneurship started to appear in the media. *"It was only back in around 2012, 2013 – social enterprise starting to come up to the news and to the internet in Hong Kong"* (E3). Another businesswoman believes social enterprise *"is not a common and popular topic in HK, but people are growing to be more aware of this, because there are more people working in social enterprise recently"* (E1). There is more awareness among the *"younger generation"* who is familiar with social entrepreneurship because of their university education (E5). Moreover, *"the awareness of social entrepreneurship in schools is keep increasing"* (E7).

4.2. The role of volunteering in raising awareness of social entrepreneurship

Education about social entrepreneurship is not only in universities and schools, but also during volunteering. *"I do a lot of social services. And when was team of other volunteers, they told me that, what is social enterprise, and I'm really interested. Why, what is it about. And they tell me, oh, it is kind of a balance of missions – the social mission as well as the enterprise missions, which I think is, really, very amazing"* (E1).

One social enterprise manager described that volunteering is an important activity during their studies in Hong Kong – it is a *"time-option"* that young people are encouraged to *"do more volunteering and then they can tray of to have a chance to meet like business leader, social enterprise leader, to have a mentorship, or to join one hour program"* (E5). Thus, some social enterprises are interested in students who can get an internship with them. *"Every summer, there are like 6 to 10 students from school. They will have a one-month internship in our company. So, they can experience how social entrepreneurship works, what is the social issue nowadays"* (E7). Volunteering and internships thus figure as one of the links between the school system and practice.

4.3. The importance of profit and economic goals in the concept of social entrepreneurship

When educating about social entrepreneurship, it is important to start from an appropriate definition of the concept of social entrepreneurship. However, there may be confusion about this. One social entrepreneur believes that people *"in Hong Kong are still confused about the concept of social entrepreneurship"* and that there are *"people even running social entrepreneurship in Hong Kong"* (E2). The basic misunderstanding relates to funding, with some people believing that *"social entrepreneurship is definitely for non-profit"*, and the pursuit of profit tends to be viewed critically. However, the entrepreneur realises that business missions and profit are very important for the sustainability of social entrepreneurship.

Another entrepreneur points out that in education *"there should be more focus on entrepreneurship first and then social entrepreneurship second"*, whereby it happens that neither level is given enough attention as the entrepreneur needs knowledge from a wide range of disciplines. When educating, there is a need to *"not separating too much"* between entrepreneurship and social entrepreneurship, as there is a risk of getting into a situation *"that we have two worlds again"* (E4). The entrepreneur stresses that *"generating impact in a way you cannot separate from the commercial activities"*, and believes that *"best is done by promoting entrepreneurship and then maybe adding the social layout on top of it"* (E4).

5. Discussion

As shown through the narratives of Hong Kong social entrepreneurs, education, according to the entrepreneurs, have an impact on raising public awareness of social entrepreneurship, and also leads to interest in the field among students who may choose to become entrepreneurs themselves or contribute to the concept of social entrepreneurship by working or volunteering in the enterprises.

However, it is important to underline the fact that social entrepreneurs themselves have an irreplaceable role in the whole educational process. The whole process of SE education is illustrated in Figure 1 and is very well described by one of the social entrepreneurs: *"We have the projects that are very different from the previous social service projects that come in front of the eyes of the Hong Kong people. So, all this, this we never seen before! So that's why they start to learn about the social enterprise. And then with the cases like these, mine, our case, or my story start to spread out in the academic field"* (E6). Business schools were thus introduced to the first cases of successful social entrepreneurship, which prompted further research and collaboration between social entrepreneurs and academics.

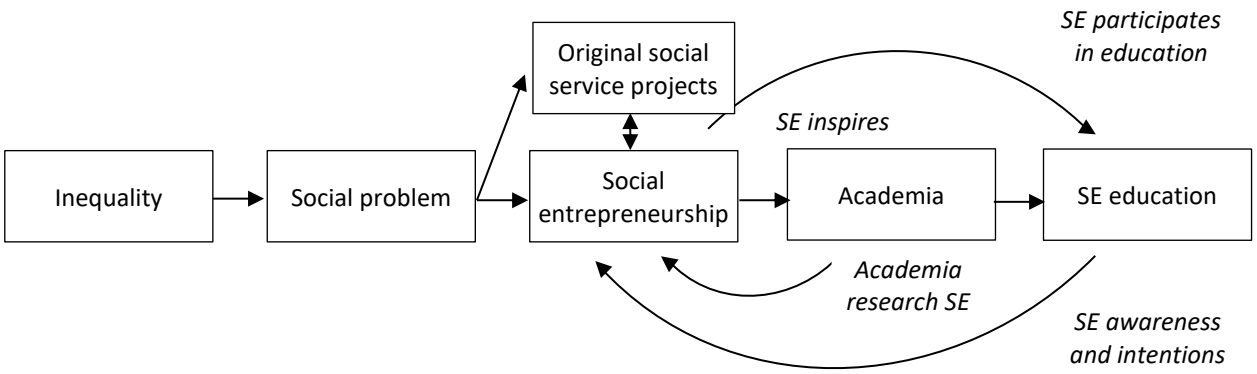

Figure 1: Development of SE education in Hong Kong

A strategy to promote the concept of social entrepreneurship should therefore be based on the recognition that there is a need for collaboration between social entrepreneurs and the education system. This cooperation can be based on the participation of entrepreneurs in teaching as well as on research in the field of social entrepreneurship, the results of which will be presented to the public.

6. Conclusion

This paper has shown that there has been a significant increase in public awareness of social entrepreneurship in Hong Kong over the past decade, as a result of both the development of social entrepreneurship and academics' interest in social innovation-based projects. This has led to collaboration between universities and social enterprises, resulting in specialised courses and degree programmes focused on social entrepreneurship.

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Financial literacy in Slovakia: A Questionnaire survey versus HFCS

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Abstract: With the term financial literacy resp. financial illiteracy, whose low financial literacy of Slovaks we can meet more and more often. The issue of financial literacy also plays an important role in connection with household indebtedness. If households are unable to assess their financial situation or estimate whether it is appropriate for them to seek foreign resources, they can easily become over-indebted without being able to repay debts. The aim of the article is to evaluate the links between the lower level of financial literacy and the growing indebtedness of Slovak households by comparing the results of the personal questionnaire survey and the results of the HFCS household financial behaviour survey. The results suggest the existence of a positive correlation between financial literacy and the level of completed education. Individuals without any form of debt are more financially literate. If individuals are unable to spend their money efficiently and spend it recklessly, it can lead to their debt.

Keywords: Financial literacy, financial illiteracy, survey, indebtedness, households' behaviour

JEL classification: D19, G51, G53

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1. Introduction

Whether an individual is a financially literate will be reflected in everyday life situations requiring financial decision-making. However, not all of us can be described as financially literate, which is mainly due to ignorance of finance, the tendency to save less and spend more, which can eventually lead to indebtedness. Financially literate people can independently manage their personal finances and plan their effective use in the future. Financial literacy is one of the indicators that determines how individuals can make decisions in the management of their own resources and whether they are able to predict the phenomena and possible consequences of their decisions. "The more we understand the issue, the more sensible financial decisions we should make." (Prokopec, M., 2019). Undoubtedly, financial planning also belongs to this issue. In publication, Kovalčíková, Z., Smoroň, L., Strenk, R., (2011) defined financial planning as "a combination of all income and expenditure so as to optimally meet the needs of the individual / family in the present and in the future." In terms of time, the main indicator is age. Based on this, it can be argued that with increasing age, the needs of individuals change, which affects financial planning. In terms of priorities, financial planning must consider the goal, and thus the needs to be met, whether it is the need to provide income, housing or various goals or dreams.

Indebtedness, as one of the possible consequences of lower financial literacy, is not an unusual phenomenon in society. Banks or non-banking institutions come to the financial market with a

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relatively wide range of financial products, while declaring advantageous conditions for their provision. However, these may not be suitable for everyone, and it is therefore essential that potential clients be able to identify their financial situation and consider the appropriateness of such conditions. These situations are also one of those where a certain level of financial literacy is required, as its absence could lead to an unfavourable development of the individual's financial situation, such as over-indebtedness.

A study under the auspices of the OECD, known as PISA (Program for International Student Assessment), also looked at research on student literacy. The testing has so far taken place in three cycles (2012, 2015, 2018), with Slovakia voluntarily participating in all three. The study focused on the students' ability to apply their knowledge in practice. Issues in finance concerned money and financial transactions, financial planning and manipulation, the financial environment, and possible risks (NÚCEM, 2020). The result of financial literacy of Slovak pupils in 2018, climbed to the level of 481 points, based on which it was concluded that they have a low level of financial literacy and is directly below average in comparison with other OECD countries (OECD INFE). The average value of the participating countries reached the level of 505 points. During the three phases, we can perceive a fluctuating tendency of the results. Between the phases carried out in 2012 and 2015, not only the level of literacy of Slovak pupils decreased by 25 points, but also the overall average of the participating countries decreased by 11 points. On the contrary, the results for 2018 showed an increase in the average performance of our students by 36 points and at the same time the average performance of all participating countries also increased. However, it should be noted that Slovakia is still below the average level of OECD countries. (NÚCEM, 2020). The National bank of Slovakia also assessed the level of financial literacy of households through 4 questions from the financial area, contained in a survey called HFCS (Household's finance and consumption survey). This research was carried out in Slovakia in three waves, namely in 2010, 2014 and 2017. As we have already announced, the results were not satisfactory. Based on the latest survey, it was concluded that the financial literacy of Slovak households is declining. While in 2014 10.6% of households were able to answer all questions correctly, in the last survey only 9.6% knew. The striking fact is that the questions were answered by those who have the best overview of finances within the household. According to NBS analysts, it is likely that other members of the household have even lower financial knowledge (TASR, 2019).

2. Data and methodology

The aim of the article is to evaluate the links between the lower level of financial literacy and the growing indebtedness of Slovak households by comparing the results of the personal questionnaire survey and the results of the HFCS - household financial behaviour survey.

Using the selected methodology, we collected data through an anonymous questionnaire survey, which was the basis of our further analysis. We divided the questions into two basic areas. In the first 8 questions, we found out the basic data about the respondents in connection with what we examined the state of their indebtedness and the way in which they handle their finances. In the last 5 questions, we paid attention to the financial literacy of the respondents, and thus examined their ability to answer questions related to common phenomena in the financial market. These questions were already part of the HFCS survey conducted under the auspices of the NBS. We collected data from 165 respondents. Based on the obtained data, we analysed the current state of indebtedness of households in Slovakia and at the same time we examined their ability to answer basic questions in the field of finance, which

would help us to deduce the level of their financial literacy. We used Pearson´s chi square test to determine the existence of a link between gender and indebtedness. In a conclusion, it was necessary to determine null and alternative hypothesis - research assumptions. Subsequently, we determined the range of actual data obtained from the questionnaire. Based on them, we calculated the data that we would expect if there were no differences between the variables. Using Excel, we calculated the value of the chi square from the data range. Based on whether its value was higher or lower than the so-called critical point, we rejected or accepted the null hypothesis. Using a comparison, we compared the results regarding financial literacy with data obtained through a survey by the National Bank of Slovakia (HFCS 2014, 2017) and we can assess whether individuals become financially more literate over the years or not (Gertler, P., Jurašeková-Kuscerová, J., Strachotová, A., 2019).

3. Results

In connection with the aim of the paper, we tried to find out whether there is a certain relationship between gender and indebtedness. For these purposes, we used Pearson's chi-square, resp. independence test. First, it is necessary to establish a null and then an alternative hypothesis:

- H0 - There is no significant link between gender and indebtedness.
- H1 - There is a characteristic link between gender and indebtedness.

Subsequently, it was necessary to summarize all the obtained real data on the indebtedness of men and women, which we implied in the table (see below). We presented these data individually for both sexes. Of the total number of women, 34 are in debt and of all men live in debt 21. Thus, there are a total of 55 indebted respondents.

Table 1: Real data of indebtedness

Real data	women	men	Together	Proportion to the total number
indebted	34	21	55	0,33333
not indebted	77	33	110	0,66667
Together	111	51	165	

Source: own calculations based on results from survey.

After processing the real data, it was necessary to find out what the expected values would be. In this case, we would assume that there is no difference between the sexes. This means that, based on the data in the table, we would expect 33% of women and 33% of men to be in debt and, conversely, 67% of women as well as men to be in debt. According to the stated percentage, we would therefore expect 37 women and 18 men in debt and 74 women and 36 men in debt.

Table 2: Real data of indebtedness

Expected data	women	men
indebted	37	18
not indebted	74	36

Source: own calculations based on results from survey.

After finding out the actual and expected data, we can proceed to the calculation of the chi-square. We performed the whole procedure using Excel, which allows us to determine the value of the chi-square, which in our case is 0.29, using the "chi-test" function. What is important is the fact whether the value of 0.05 was exceeded, which we call the so-called "Critical point". In general, if the value is higher than the critical point, we do not have sufficient evidence to reject our null hypothesis. Although we perceive some differences between women's and men's responses, there are not enough of them to be able to speak clearly about the interrelationship between the two variables. We can therefore argue that there is no significant link between gender and indebtedness.

Finally, we compared the results regarding financial literacy with data obtained through a survey by the National Bank of Slovakia (HFCS) and we can assess whether individuals become financially more literate over the years or not. Despite the difference in the number of respondents to our questionnaire and the HFCS survey (1089 respondents), which was conducted on a significantly larger sample of the population, we compared the percentage expressions of the results of both surveys.

Table 3: Compared results

Questions	Questionnaire	HFCS survey
In your opinion, which of the following types of mortgages will allow you to determine the amount and number of repayments needed to repay the loan from the beginning?		
Mortgage with a variable interest rate	10,3%	12%
Mortgage with a fixed interest rate	68,5%	49,2%
Do not know	21,2%	38,8%
Imagine that you leave € 1,000 in a current account that has 1% interest and this bank does not charge any fees, also imagine that prices have increased by 2%. Do you think that if you withdraw your money in a year, you will be able to buy the same amount of goods as if you had spent € 1,000 today?		
Yes	3%	3,2%
No, I can buy less	78,8%	67,4%
No, I can buy more	3,6%	5,2%
Do not know	14,5%	24,3%
In your opinion, which of these investment strategies carries a higher risk of losing money?		
Invest all savings in securities issued by one company	69,7%	43,8%
Invest all your savings in securities issued by a wide range of independent companies	20,6%	16,8%
Do not know	9,7%	39,4%
The company can obtain financing either by issuing shares or bonds. Which financial instrument, in your opinion, carries a higher risk of losing money?		
Shares	49,1%	18,0%
Bonds	15,8%	6,2%
It's just as risky	14,5%	26,4%

I don't know the difference between bonds and shares	12,1%	18,4%
Do not know	8,5%	31,0%
What do you mean by "investment risk"?		
Someone will betray my money	0%	18,6%
Due to developments in world markets, I will lose all my investments	15,8%	16,5%
The value of my investment will fall below the amount invested	62,4%	30,1%
I will lose some of my income during the investment	19,4%	17,4%
Do not know	2,4%	17,4%

Source: own calculations based on results from questionnaire and HFCS survey.

In terms of overall success in terms of financial literacy questions, 33 respondents were able to answer all of them correctly, representing 20%. In terms of gender, 22% of all men and 19% of women responded successfully. In the 2014 HFCS survey, only 4.5% of all respondents answered all five questions correctly. As only the first four questions were included in the survey for 2017, it is necessary to compare the success in this range of questions as well. In the mentioned survey, it was 9.6% of respondents who answered all four correctly. Therefore, even in the case of the results of our questionnaire, we will notice certain changes in success. 47 respondents were able to answer these questions, and thus 8% more than was the case with the scope of the five questions.

If we looked at the results from the opposite point of view, (from the point of view of incorrect answers) within the scale of all five questions, only 5 of our respondents answered, which represents 3%. According to the results of the second wave of HFCS in 2014, this is a relatively higher percentage of incorrect answers, namely 12.7%. Between the first four questions in the field of financial literacy, which were part of the third wave of HFCS, all four 18.5% answered incorrectly. After the deliberate exclusion of the last question in our questionnaire, the number of incorrect answers doubled, and thus 6% of respondents did not mark a single correct answer. If we proceeded to the analysis of the answers in terms of whether more indebted respondents than indebted were able to answer correctly, within the range of five questions, most respondents without debt answered correctly. These are specifically 25 respondents, and thus the remaining 8 are in debt. Of the 47 respondents who answered questions 9-12 correctly, 11 are indebted and 36 are indebted. Of the total number of respondents living on debt, this represents 20% and 33% of the non-indebted respondents. Based on these results, we could assume that respondents who have been successful in all issues while not having any debts are more than those in debt.

However, the HFCS survey 2017 has shown the opposite (Jurašeková-Kucserová, J., Strachotová, A., 2019). According to him, there are a percentage more of those respondents who have a housing loan or other consumer credit or loan and who at the same time answered all the questions correctly than those who are not so indebted. Therefore, if we consider the results of both surveys, we cannot clearly assess how financial literacy affects debt. The differences between the conclusions of the two surveys can be justified on the one hand by the time lag of their implementation, but at the same time by the size and difference of the research sample. It can be assumed that since our questionnaire survey was conducted on a significantly smaller sample than in the case of HFCS, the differences between the results will be significantly larger than the differences between the results of the individual waves of the mentioned national survey.

From the point of view of the highest completed education, 11 respondents with a secondary education and 22 with a university education answered all the questions correctly. If we asked only the first four questions, as was the case in the third wave of HFCS, 17 respondents with completed secondary education answered correctly and all of them were 30. Following the findings, which assumes the level of education as one of the incentives for lower financial literacy, we could argue that to some extent this statement is true. Our questionnaire showed that respondents with a university degree have a higher level of knowledge about functioning in the financial sector than respondents with the highest secondary education. This assumption was also demonstrated in the HFCS survey, which also showed some correlation between the level of education and the correct answers. It has been shown that the higher the education of the respondents, the more correct the answers.

4. Conclusion

Based on the results we obtained through the questionnaire, we can conclude that most respondents can effectively manage their finances. As can be seen from the above graphs, most of them make savings and consider the creation of a reserve in case of unexpected events having an impact on the budget. At the same time, we found that the number of reserves of most respondents reaches the value of at least six-monthly incomes, which is generally considered to be optimal. We can also consider these steps as a procedure of a financially literate individual who is able to think strategically in the future.

The results also point to a relatively low level of indebtedness of respondents, as exactly one third of them are indebted. However, we could justify this by the large representation of the age group 18 - 25, as the highest level of indebtedness was shown in respondents over 25 years. Of these respondents, 47% are in debt. At the same time, it was confirmed that the most common form of debt is a mortgage loan, as we stated in the theoretical part of the work.

Regarding the financial literacy of the respondents, in terms of individual questions, the correct answers were most often marked. However, if we consider the correct answers cumulatively, only one fifth of all respondents were successful. However, compared to the results of the HFCS survey for 2014 and 2017, our respondents are more successful in percentage terms.

As was the case with the HFCS survey, our questionnaire showed a positive relationship between financial literacy and the level of completed education. The highest success was demonstrated by respondents with a university degree.

According to the conclusions of our questionnaire, we could also prove the relationship between indebtedness and the level of financial literacy. The data obtained show that individuals without any form of debt proved to be more financially literate. However, the opposite was the case with the HFCS survey, where indebted respondents were more successful in their correct answers. We justified these differences by the size of the research samples of both surveys and at the same time by the time lag between them.

However, the questions used in the questionnaire are just one of several ways in which financial literacy can be ascertained. How an individual is financially literate results from his daily actions. Whether it's the way money is spent, financial decisions made, consumption and savings, or financial planning, these are all aspects of the ability to manage money efficiently. If individuals are unable to spend their money efficiently and spend it recklessly, it can lead to their indebtedness.

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A simulation tool for mobile network data

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Abstract: The incorporation of new data sources into the production of official statistics is still facing the problem of access to real data mainly due to concerns about the privacy and confidentiality of the data sets. Without access to data, new statistical methodologies are difficult to develop and test. One of the most promising data sources for official statistics is the mobile network data which can be used in multiple domains such as population statistics, tourism statistics, or mobility statistics but mobile network operators are still reluctant to share the data with statistical offices due to concerns about data confidentiality. In order to overcome this issue, we have developed a simulation tool to generate mobile network synthetic data. The simulator uses an agent-based approach and places a number of agents on a map, allowing them to move according to some mobility patterns, and records network events generated by the interaction between their mobile devices and the network. Using this simulation tool, we have been able to generate different data sets corresponding to different network configurations, mobility patterns, and population characteristics. One of the advantages of using a simulation tool in this area is that it produces not only the network events data sets but also the so-called "ground truth" which is never available in real life.

Keywords: mobile network data, simulation, agent-based models, C++

JEL classification: C15, C63, C55

1. Introduction

During the last decade the production of official statistics is facing a double challenge, namely the modernization and industrialization of the production process and the incorporation of new digital data sources. In this paper we focus on the use of mobile network data as a novel promising data source to produce official statistics. This data source is facing a shortage of data access for Official Statistics due to different reasons related to data confidentiality, thus the use of synthetic data allows statisticians to move forward in the development of statistical methodologies needed to produce statistical indicators in fields such as population statistics, transport statistics or tourism statistics.

The work is organized as follows. Firstly, we describe the complex data ecosystem of mobile telecommunication networks for the production of statistics. Next, we describe the simulation tool that we developed: the requirements and features of the simulation tool, the overall architecture, some implementation details, the input and output files. We conclude with a brief summary and discussion.

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2. Mobile network data for statistical production

Mobile telecommunication networks are highly complex systems providing communication between moving agents through electromagnetic interactions (Miao et al., 2016). These networks produce a huge amount of digital data to make this communication feasible and to allow engineers monitor the situation to provide an increasingly higher-quality communication service. It is widely known and perceived that this kind of communication involves personal data to some extent and, thus, its use for producing official statistics often raises some concerns. Thus, it is mandatory to explain as clear as possible what data are to be used to produce what statistics.

Firstly, data to be used for statistical purposes are generated in the network systems, not in the mobile devices. Hence, the more appropriate expression *mobile network data* instead of *mobile phone data*. Secondly, two main usage of mobile network data are considered: geolocation of mobile devices and Internet usage. We are interested mainly in the first type of usage, i.e., variables that allow us to estimate the position of mobile devices through some statistical model. Thirdly, the question whether individual data or aggregated data are to be used should be clarified. At a careful inspection this question should be rephrased as: are official statistics to be based on some form of raw digital data or on some form of preprocessed data? This question is far from having a definitive answer and touches the main role of Official Statistics in society.

In this work we concentrate on the proposal of executing in-situ production processes hopefully designed jointly by statistical officers and telecommunication experts (Salgado et al., 2021). Thus, our simulation tool will generate individual data: we shall work with network event data, i.e., data generated due to the interaction between a mobile device and the network: the timestamp, the cell ID of the network event, the timing advance variable. Complementarily, we shall also make use of telecommunication variables about the configuration of the network such as the position of each antenna, their emission power, their path loss exponent (Salgado et al., 2021).

3. A tool to generated synthetic mobile network data

Our simulation tool is a discrete event system. Discrete event systems focus on problems where the state of a system changes in a discrete sequence of events, changes activated by the state of the system or sub-systems, the time advance function and the state trajectory function. In order to model a system, we need to define the atomic components which can be, in a very broad description, reduced to:

- entities or agents - the real world counterpart of physical objects;
- attributes - a set of intrinsic properties pertaining to entities;
- activities - a set of predefined activities performed by entities;
- events - endogenous and/or exogenous triggers for activities;
- states - a set of variables needed to describe the system or sub-systems at any given time.

Thus, we propose the development of a framework to run mobile network data micro-simulations following a discrete event system approach. These micro-simulations will provide us with synthetic

data, that will allow us not only to immediately proceed with the development of the general framework of producing official statics based on mobile network data but also to test the models included in this framework (Oancea et al., 2002). Checking the real performance of a model is simply not possible in real life, because there is no way we can know the real positions of the people at different time instants. Of course, some basic quality checks can be made, but if we must choose between two models, chances are that those tests give us no clue about which one performs better.

While a simulation is always different from real data, there is really no reason to expect that a model would perform worse for synthetic data than for real data. On the contrary, dealing with real data would be expected to be even more problematic, so a good performance for simulated data should be demanded anyway.

First, we started by defining the main features of the synthetic data generator tool:

- it should support loading different maps (geographical areas) as a basis for the simulation.
- it should have support to define a reference grid overlapped on the map as a basis for computing location probabilities and population densities.
- it should support multiple mobile network operators to be involved in a simulation.
- it should support defining the configuration of the mobile network(s): antennas locations, antennas parameters.
- it should support a flexible modelling of the interaction between mobile devices and antennas.
- it should support a flexible modelling of how people move around the map.
- it should support defining some basic characteristics of the population involved in a simulation.
- it should produce output files with enough information to be able to compute at least:
    - an estimate of the location probability of each mobile device.
    - the movement pattern of the population.
    - the true location of each individual involved in a simulation, either carrying a mobile device or not.
    - the number of devices in a well delimited area.
    - the true population in a well delimited area.
- It should be fast enough to run simulations with large populations.

Before starting to develop an entirely new tool for synthetic data generation we've made an inventory of the existing tools in this area, checking if there is one that can be used for our purposes. The *cdr-gen* project (Bordin, 2017) is a very simple Call Detail Record (CDR) generator written in Java that allows the user to configure up to a certain extent the parameters of the calls (duration distribution, type of call, etc.) but has no support for defining the geographical coordinates of the mobile devices, the movement of the people carrying mobile devices or the parameters of the network. Another CDR generator (Real Impact Analysis, 2017) written in Scala allows users to generate CDRs with different models or with a mix of models. A simulation implies several steps: generate the cells, the mobile operator, the users, the social network of users and eventually generate the interaction between users. However, the capabilities to run complex simulations lacks, the cells of the mobile network are generated randomly with a fixed shape. There is no support to define our own maps and the (at least some) technical parameters of the antennas. NetSim (Tetcos, 2019) is a software that enables users to simulate a network comprising of devices and links and study the behavior of this network. While this is a complex software that includes a user-friendly GUI and capabilities to simulate several real mobile

network communications protocols, it is a commercial product with a limited version for academic institutions. Another network simulation software that we've tested is OPNET Network Simulator (Zheng & Hongji, 2012). Besides being a commercial software, it is also oriented on producing data needed for mobile network optimization and it does not output the information that we need to produce population estimates. The traffic simulation packages SUMO (Krajzewicz et al., 2012) and MATSim (Horni et al., 2016) are more similar to our needs of modeling the population mobility but unfortunately, they don't have any support for mobile devices and networks.

Considering the minimal set of features that we defined for our synthetic data simulator we couldn't find any pre-existing software to entirely fulfil our needs, and we proceeded to develop our own simulation software using an agent-based simulation model. Thinking in terms of algorithmic representation of agents and their interactions we found that object-oriented programming paradigm is the natural choice for micro-simulations, and therefore an object-oriented language should be used for this purpose. We considered several OO languages: Java, Scala, C++, and even R and decided to implement our simulation tool in C++.

From a logical point of view, our simulator is based on the following important modules:

- a GIS module.
- an agent-based simulation module.
- a computational module responsible for simulating the interactions between mobile devices and network.

The simulation software was implemented in a modular approach, following a layered architecture where each layer provides specific functionalities to the other layers above it. The overall architecture of the simulation tool is depicted in figure 1. There are 6 layers composing this software tool:

- Basic libraries and utilities Layer:
    - The standard C++ runtime libraries.
    - STL - the Standard Template Library used throughout the entire software.
    - XML Parser - provides methods to parse XML files.
    - CSVParser - provides methods to read and write .csv files.
    - A RandomNumberGenerator.
- A GIS layer built around the GEOS C++ library and responsible for implementing all the geometric operations and to offer support for working with maps.
- A Data Encapsulation Layer provides encapsulation for the main objects of our simulation software:
    - Antennas (BTS), individuals, mobile network operators, mobile devices - they act as agents, and they are created based on some input configuration files. The logic of the handover mechanism and the mobility patterns are also encapsulated in these objects.
- A Simulation Layer which is responsible with running the actual simulation:
    - Each individual with or without a mobile device move inside the map according to a mobility pattern.
    - At each time step of the simulation the interaction between mobile devices and antennas will generate network events that are saved for later processing.

- A Computation Layer which implements a simple method to compute the location probabilities of each mobile device during the simulation.

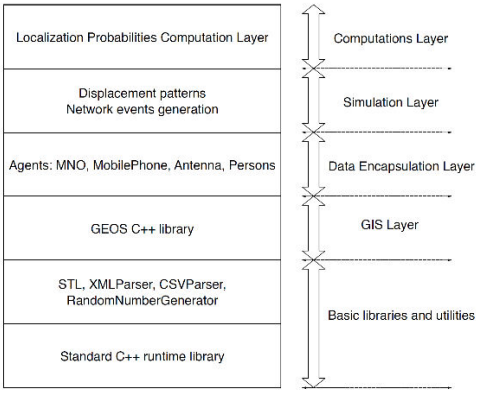

Figure 1: The architecture of the simulation tool

The simulation starts with a synthetically generated population of individuals. For now, only closed populations are allowed. The number of the individuals is provided by the user together with other personal characteristics: gender, age. There are two types of mobility of individuals: with a slow speed (simulates walking) and with a high speed (simulates cars/other transportation means). Each individual can carry 0, 1, or 2 mobile devices and moves according to a mobility pattern configured by the user. The mobility patterns supported so far are: random walk, random walk with drift, Levy flights, Manhattan mobility, home - work (with anchor points), and home – work (with anchor points) using Manhattan mobility. All the parameters of each mobility pattern are given in input files. We show 3 examples of mobility patterns for an individual in figure 2. From left to right we have: Levy flights (which are considered to be very close to real human mobility pattern), Manhattan move and home-work with anchor points, which means that an individual stays in a location (home), than go to another location (work) where it stays for a period of time, and on the way back home he/she stops in another location (anchor point – a shopping mall for example).

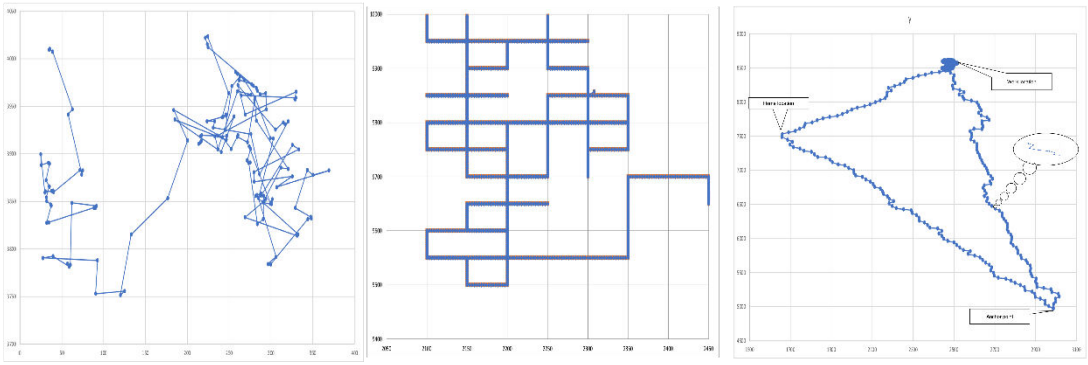

Figure 2. Three examples of mobility patterns: from left to right – Levy flights, Manhattan move, home-work with anchor points

We modelled the interaction between mobile devices and the antennas composing the network using the signal strength and the signal dominance (Tennekes & Gootzen, 2021) and considered 2 types of antennas:

- Omnidirectional: the signal propagates isotropic, having the same pattern in all directions.
- Directional: the signal propagates through a preferred direction, with an angular aperture of approximately 120 degrees.

The handover mechanism is configured to use the signal strength or the signal dominance at the beginning of a simulation cycle and it is based on the highest value: a mobile device tries to connect to the antenna that provides the signal with the highest value for the signal strength/dominance. In case the selected antenna cannot handle the device, it will try to connect to the antenna with the second highest value for the strength/dominance and so on.

In figure 3 we show the general data flow of the simulation tool. There are five input files needed by the simulation software: a map file, a configuration file with the technical parameters and location of each antenna (the network configuration), a general simulation configuration file, a configuration file for the synthetic population used for simulation, an optional configuration file needed to compute the location probabilities of each device. Except with the map files, all input files are XML files. During the simulation and after it is finished, the simulation software outputs a series of information split into several csv files. The antenna file contains the cell ID, operator ID, the location, technical params and the tile ID for each antenna. The network events file(s) (which is the most important file) contains the details about the network events generated by the interaction between mobile devices and antennas: the timestamp of the event, the cell ID, the device ID (the device which produced the event by its interaction with the antenna), the network type (3G, 4G etc.), an event code denoting the success or failure of a connection, the Timing Advance variable denoting the time for the signal to reach the antenna from a mobile device and the exact position (x, y and tile ID) of the device when the event was generated – "the ground truth". The persons file contains the exact position of each person at each time instant, regardless of whether he/she has a mobile device or not. The coverage area file(s) contains the geographical area where the signal strength (or the signal dominance) is greater than a predefined minimum value and the signal strength file contains the values of the signal strength computed in the center of each tile of the territory under consideration. The input and output files are accompanied by metadata files which defines the structure and values of the parameters a user can provide in input files and the structure of the output files.

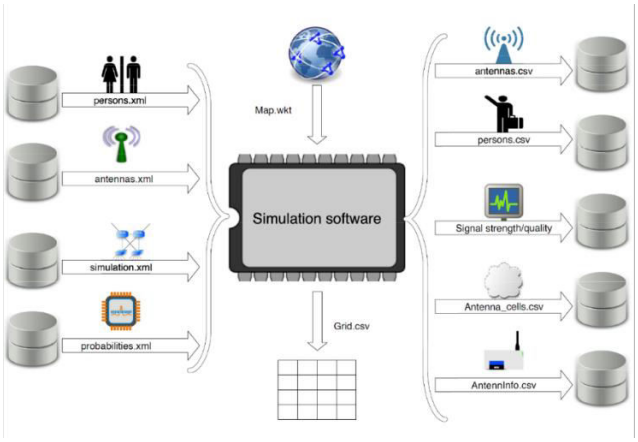

Figure 3: The data flow

4. Conclusion

The advent of new data sources in Official Statistics is also bringing the need for new statistical methods to infer about target populations with the traditional high-quality standards. These new data sources are mainly digital data, rendering their access, management and processing remarkably complex. In this line, the development of new statistical production frameworks becomes thus a challenge, since the use of real data to research stands as very costly (in a wide sense) or even impossible. To face this situation, we propose to use agent-based simulation models, which can provide a wealth of data to experiment and to test and developed a simulation tool to generate mobile network data that arise due to the interactions between mobile devices and the operators' network. A strong point for simulations is the provision of a synthetic ground truth for each parameterization, thus allowing the analyst to investigate and test robust methods valid for a wide range of potential situations which are never known in real conditions.

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Multi-stage design of Continuous Professional Development for teachers – directions for effective implementation Strategy 2030+

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Abstract: Professional development of teachers has become essential for a competitive progress in raising students' achievements in the developed countries. Through introducing new teaching techniques, assessment styles, and record-keeping approaches, professional development for teachers may make the educational process as a whole stronger and more competitive. The present research demonstrates through the example of newly introduced educational reform in the Czech Republic the application of steps related to the set objectives of professional development of teachers. The aim of the paper is to propose a clear structure for official guidelines for the implementation of effective teachers´ professional development with a number of recommendations for policy and practice. The emphasis is placed on the need to increase teachers´professional capacities constantly and systematically.

Keywords: professional development, teachers, reform

JEL classification: A230, H750, H440

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1. Introduction

The present research focuses on the importance of conceptualizing professional development of teachers. Through the example of newly introduced educational reform in the Czech Republic it demonstrates the emphasis placed on the need to increase teachers´professional capacities. The official document published by MEYS states that being one of the most important professions for nation's competitivness, teachers need considerable knowledge and skills, that need to be developed as their careers progress. Effective professional development for teachers belongs to a core part of recently published Strategy 2030+ that sets the directions for further development of national education. It sets two main objectives – the first one concerns the changes in the educational proces, the second one the equity of the access to education. The first one aims to upgrade and update the educational system on the regional level with an emphasis on the new challenges and at the same time solve current problems that burden persisting educational model. As per the officialy published document, the realisation of the objectives should be achieved by five strategic lines. The present research concerns Strategic line 3. This line confirms the support of educational staff in accordance with the latest educational trends and knowledge in order to increase teachers´professional capacities, mutual cooperation and confidence (MEYS, 2020).

In a short period of time it is necessary to adopt standards for professional development to guide the professional learning provided to educators. These standards should reflect the features of general standards of effective professional learning outlined in accordance with adopted strategy and in compliance with the standards for implementation. Thus effective professional development for

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teachers becomes a core part of securing effective teaching. It should be seen as a key driver of staff development, retention and school improvement. The strategic document presumes the formation of the competence profile of the teacher that would define the quality of pedagogical job with regard to the particular professional stage and in respect with the development of the competencies. The aim of the present research is to propose the directions for the effective distribution of responsibilities and competencies occurred in the course of conceptualizing professional development of teachers (CPD), official guidelines for the implementation of effective teachers´ professional development.

Until now there has been a lack of strategic planning of CPD provision to balance effectively between individual and organisational learning needs and national policy priorities in the Czech Republic. Organisational choices made in schools about roles and responsibilities do not always support or help to develop effective CPD planning and provision at different school units. School systems and processes for evaluating the effectiveness of CPD provision tend to be developed without reference to planned outcomes, specific criteria or value for the participants of educational process. It is highly important to develop and articulate a clear vision for integrated and systematic CPD. Another important reason for implementation of systemic and national wide planning of is that CPD strengthen and develop modern teaching methods that usualy focus on the personalised development of pupils. As per PISA survey the effects of modern teaching methods often manifest not only in the quantity learned by pupils but especially in their increasing motivation for further learning and self confidence. The latter are supposed to influence school achievements (ČŠI, 2018:65).

The research is based on the assumptions that (1) CPD is vitaly important for teachers with regard to their expectations of success and their motivation to engage in the course of teaching practice (2) there is a lack of strategic planning of CPD provision to balance effectively between individual and organisational learning needs and national policy priorities in the Czech Republic. These hypotheses will be examinated in the theoretical part and consequently the practical part will propose a clear structure for official guidelines for the implementation of effective teachers´ professional development with a number of recommendations for policy and practice.

2. Conceptualizing professional development of teachers (CPD)

The importance of CPD for effective teaching is well-documented in the literature, particularly the advantages it can provide in relation to teacher capabilities, student learning outcomes, overall school and educational reforms. According to Timperley et al. (2007), CPD is considered to be important for empowering teachers with a better understanding for their students, how to assess their learning outcomes, and knowing the best ways that students can learn. Professional development involves the career-long processes and related system and policies designed to enable educators (teachers, administrators, and supervisors) to acquire, broaden, and deepen their knowledge, skill and commitment in order to effectively perform their work roles (Schwille, Dembélé, 2007:29-32). The literature on CPD reports that with the recent focus on educational reforms, enhancing teacher quality has been considered the cornerstone to achieving these reforms (Desimone, 2011; Desimone, Porter, Garet, Yoon, & Birman, 2002; Schleicher and OECD, 2016).

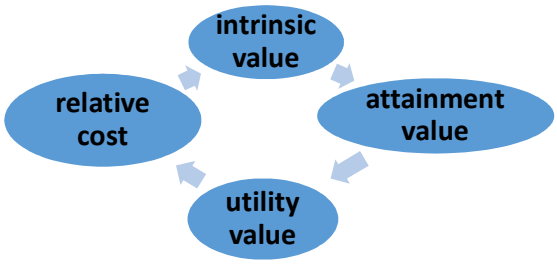
What are the attitudes of teachers towards their professional development? In general teachers perceive CPD as valuable, the literature reports that the value teachers place on CPD varies depending on the nature of the CPD itself. Research has shown that teachers perceive CPD valuable when it is relevant and applicable to their classroom (Hustler et al., 2003), when it provides teachers with

experiences that can be applied within their own classrooms (Stoll et al. 2012), and when it is carefully adapted to specific contents and contexts (Guskey, 2009). Additionally, (Hustler et al., 2003) found that the CPD that teachers valued the most was CPD that had been chosen by them.

3. Expectancy-value model in the teachers practice

Recognising the value that teachers place on CPD for their development is important in relation for understanding teacher motivation to engage in their professional development. In this regard, the expectancy-value model is useful. Expectancy-value theory postulates that achievement-related choices are motivated by a combination of people's expectations for success and subjective task value in particular domains. It explains that the value people place on a task indicates their motivation to engage in such a task (Eccles and Wigfield, 2002). According to the expectancy-value model, expectations for success and task value are shaped by a combination of factors. Eccles argues that expectancy and value are affected by task-specific beliefs and individuals' self-schema and goals, which in turn are influenced by other peoples' beliefs, socialization, and personal past achievement experiences. These authors further listed four components of task value that are presented in Figure No 1:

Figure No 1: components of expectancy-value model.



Source: Own processing based on Eccles and Wigfield theory

According to this model expectancy-value directly influence performance, persistence, and choice. Eccles and Wigfield (2002) assert that learner motivation to engage in learning can be described in relation to the value they attach to tasks and the level of achievement they expect. Thus, when a learner values a task but does not expect to succeed in it, or when they have high expectations of success but do not value the task, they will lack the motivation to engage in that task. McInerney and Liem (2008) stated that valuing a task appears to be the initial impulse for peoples' decision to engage in the task as they tend not to perform a task of little value.

Based on the theory of expectancy and value the following lines make parallels with the teachers' perception of CPD and emphasis the relevant facts for support the hypothesis. The intrinsic value is for a teacher the degree of enjoyment and personal fulfilment in the learning environment. Ryan and Deci (2000) show in their Self-Determination Theory that these needs are competence (obtaining mastery of tasks and learning different skills), autonomy (having a choice and control over their own behaviour) and relatedness (feeling connected to others). These facts are distinctive for the implementation steps for the present proposal of the directions for the effective distribution of responsibilities and competencies occurred in the course of CPD. Attainment value is a personal importance of doing well in a given task. CPD is important in relation to meeting teachers' professional and personal needs which can enhance their effectiveness (David, Bwisa, 2013). Utility value is the degree of fit with current goals

that refers to the participants' concerns about their job goals and needs. CPD programmes are valuable in this regard as they empower teachers with their professional skills, such as improving teaching skills and classroom management skills. Quality professional development need not to be expensive and overload the budget. By strengthening effective teachers, helping them to create local communities with other teachers and giving them time to pursue the experiencies on regional or school conditions the CPD could be achieved. That is to say that for CPD there are as well costless value added principles based one meeting the other teachers which can enhance their mutual effectiveness (David, Bwisa, 2013). In that reason it is necessary to emphasis that CPD is most effective in schools where senior leaders and managers understood its potential and were committed to using CPD as a key driver for school improvement and for enhancing the quality of classroom teaching and learning.

4. CPD in the Czech Republic

The following chapter helps to understand better the attitudes and situation in the Czech Republic. It will make possible to support or dismiss the sedond hypothesis. As per the survey carried out by TIMSS 2015 the satisfaction index of teachers with their job is well bellow the average. The research covers 48 countries and it shows that czech teachers takes 43rd place and rangs among the countries that has almost the less satisfied teachers. It is important to note that since that time the teachers´ salaries in the Czech Republic increased several times and in 2021 an average salary is higher by more than one third in comparison with the year 2015. Obviously as per the Talis survey (Talis, 2018:40) the salary level is the most important factor for the czech teachers. In this survey the incrase of salary is important for 78% czech teachers (in comparison with 50 % importance for teachers from other EU countries). This survey reveals that for almoust one half (48%) of czech teacher a high quality CPD is important (in EU it is 45 % teachers). As per expectancy-value model the intrinsic value personal satisfaction is connected with other components - attainment value as well as utility value. Thus the inadequacy to balance the material resources and personal development cannot meet the objectives set for the succesfull and effective personal development in terms of CPD. On the contrary to set high anappropriate expectations in the teaching objectives do not value the task. These effects lead to frustration and personal give up.

Another important feature is the way to pursue the CPD. The research conducted by National Institute for Education (Švancar, 2006) revealed that teachers in the Czech Republic mostly attend and the schools also prefere one-off courses. The reasons are evident: easy to organize one-day absence of the teacher in the school, lower costs and reasons of time. Conversely as per survey of ÚIV long-term courses have significantly more important benefits for the teacher´s professional development. It can offer the transmission of new methods and attitudes in a more comprehensive and effective way. One-day course can hardly include both the lectures and practical training that enables the teachers to transfer into their daily teaching practice. There are the topics for which one-day course is enough and they need not to be organised for more days. But the overall conception of CPD should be planned in accordance with the long-term perspective. The pattern of a lack of strategic planning for CPD in schools is further reflected in teachers' survey responses about the reasons prompting them to attend CPD. Teachers are less likely to attend longer and conceptional CPD because of a lack of the professional development plan or objective they want to achieve. These facts support the second hypothesis. The reasons prompting teachers to take part in CPD (taking the responses of all teachers in the sample together) tended to be more personal than collective. These are the important facts and

reasons manifestating the need to work on a comprehensive and systematic CPD that would be integrated on national, regional and local levels and would complete the document Strategy 2030+.

5. Directions for designing effective CPD planning

This chapter presents the conception of participation and cooperation of three levels in the educational system that will contribute to accomplish the task of successful balancing between national policy, regional and school individual priorities with the aim to guarantee enough self decision-making authority over own professional development. The suggested model is based on high level of respect for local decisions. Schools are supposed to have a high degree of autonomy regarding personalised CPD planning, cooperation and evaluation of the CPD plans. Regular horizontal and vertical interactions help to build trust and raise awareness of the major concerns, thus fostering a climate of compromise. The global strategy policies, curriculum development and objectives are supposed to be set on the national level in order to assure the equitable access. On local level the school leaders are a key component that is supposed to drive teacher professional development and advancement. Their role is to evaluate and redesign the use of time and school schedules to increase opportunities for professional learning and collaboration, including participation in professional learning communities, peer coaching and observations across classrooms, and collaborative planning. Evaluation policy, in particular, has much more to gain from forging a compromise among distinct perspectives than from imposing one view over all others. Providing teachers with data-driven feedback, aligned professional development and opportunities for advancement may help limit attrition, contribute to more effective teaching and improve student learning. The proposal of effective distribution of policies and strategies is framed in Table No1:

Table No1: Proposal of effective distribution of policies for CPD on 3 levels

National level	Regional level	School unit level
• role of state educational policy: to determine the educational and training requirements in accordance with the set objectives and priorities for CPD • adopt rigorous standards for teaching and professional development • removing statutory and regulatory barriers to allow for local policies that advanced professional learning and teacher leadership	• creating structures and providing dedicated funding streams to support teacher recognition and advancement • provide opportunities for intradistrict and intraschool collaboration • provide technology-facilitated opportunities for professional learning • conduct needs assessments using data from staff surveys to identify areas of professional learning	• provide opportunities for sustained engagement in collaboration, mentoring, and coaching, as well as institutes, workshops and seminars • identify and develop expert teachers as mentors and coaches to support learning in their area(s) of expertise for other educators • ensure evaluations used to support meaningful feedback and connect teachers to targeted professional learning opportunities • elaborate personalised plan of CPD based on personal preferencies with regard to needs of the school • providing opportunities for teachers to serve as peer observers, coaches and mentors

Source: Own processing

The distribution of tasks and responsibilities is determined first by the institutional structure in place in a given education system. Each educational policy requires some details on who realizes what. In case of the Czech Republic the country has already published strategy, defined skills and needs in critical areas for their education policies. There should follow the definition of tasks identified for each particular stakeholder with their tasks and responsibility mechanisms. The proposed design is supposed to enhance building strong linkages, creating clusters and sharing good practice that would lead to better outcomes and benefits for effective CPD. Obviously it aims to put the learner at the centre of the education and training experience.

6. Conclusion

To ensure a coherent system that lead teachers across the entire professional continuum, professional learning should link to their experiences, personal qualities, as well as to teaching standards, competencies and evaluation. It should also bridge to leadership opportunities to ensure a comprehensive system focused on teacher´s growth and personal development. Based on the data obtained from relevant statistical surveys and theoretical models both hypothesis set at the beginning were proved. The presented study thus confirmed that high-quality CPD has a significant effect on students´ and pupils' learning outcomes. Acceptance of the first research hypothesis in this paper was expected, due to the rapid technological, social and economic changes in the society and the necessity of schools to adapt the curriculum. So far planning and identification of CPD in the majority of schools in the Czech Republic tend to be unstrategic and erratic, and this results in ineffective CPD for both the school and individual teacher which confirms the second hypothesis. Lack of strategical and deliberate programmes of CPD that would support the whole educational system proves the urgent need of a well designed and organised planning CPD. Well designed and implemented CPD programmes have the potential to close the gap between beginner and more experienced teachers, between small and large sized schools, between schools situated in regional cities and in remote locations. Consequently, this survey presented the directions for the effective distribution of responsibilities and competencies occurred in the course of CPD. Anyhow the specific guidelines are supposed to be specified on the envisaged leved.

Effective professional development for teachers is a core part of securing effective teaching. It should be seen as a key driver of staff development, retention, wellbeing, and school improvement. The last part of the presented research summarized the expected distribution of competencies that are supposed to be implemented. The idea of presented model of effective CPD is aligned with three horizontal levels – national, regional and local. This construction is supposed to offer school and district priorities, providing a coherence for teachers, as opposed to having PD compete with differing school and district priorities. Findings from this study could be beneficial for policymakers who should take into consideration the advantages of the redistribution of competencies on different levels. By focusing more on the decentralisation, specifying the roles, duties and competencies of each level ensure the effectiveness CPD and enables to meet teachers' professional needs and are delivered in the most acceptable way.

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Impacts of Crime on Economic Performance and Economic Growth in the Czech Republic

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Abstract: Crime is one of the institutional factors that can affect economic growth. However, current studies have not yet reached a clear conclusion, some studies point to a strong negative impact of crime on economic growth, while others weaken or even confirm this relationship. The paper deals with influence of crime on economic performance, economic growth and economic level in the Czech Republic. The hypothesis that crime has a negative effect on these economic variables is verified. It is useful to examine this relationship to see if it has been affected by the current pandemic, as both a decline in crime and a decline in economic growth have been observed during the pandemic. This relationship is examined for individual types of crime and is distinguished between short and long periods. Based on a regression analysis using data from the Police of the Czech Republic and the Czech Statistical Office, it can be stated that a decrease in crime can stimulate both the economic performance and economic levels of the country while relationship between economic growth and crime growth rates is positive for all types of crime.

Keywords: crime, economic growth, economic level, economic performance, regression analysis

JEL classification: B15, H50, K14

1. Introduction

Crime can be characterized as a historical and social phenomenon, related to economic, cultural and social development and the structure of a given society, while it depends on society what is harmful at a given stage of development of society and what is criminal. By crime we mean a set of acts which criminal law considers to be criminal offenses committed in a certain territory during a certain period. This is a legal concept of crime. Another common concept is sociological, according to which a crime is defined as a socially harmful, anti-social or socially deviant act, and crime is the sum of such acts. Crime is simply divided into property and violence. The causes of property crime can be seen in a difficult financial situation and efforts to obtain additional resources are the causes of violent crime in the psychological side, where stress and tension from a difficult financial situation can result in aggression and violence.

Crime and the economy interact very closely. Crime reduces gross domestic product because it involves costs, while it is unproductive, as it does not create wealth, but only forcibly redistributes it. Crime impoverishes society, both the cost of labor and capital for the act itself, but also the cost of prevention. However, quantifying the cost of crime from an economic point of view is very inaccurate and difficult to quantify, as not all acts are reported. The net cost of crime is the difference between the level of GDP that would have been achieved if crime and prevention had not existed and the GDP that would have been achieved in the current case of crime and prevention.

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2. Literature review

There is limited literature on the relationship between the crime rate and economic growth moreover, with ambiguous conclusions. In some studies, there is a strong adverse effect of crime on economic growth while other studies report evidence of no statistically significant impact. In particular, while some studies present results suggesting a strong adverse influence of crime on growth, other studies report evidence indicating a weak negative effect or no effect at all. (Goulas & Zervoyianni, 2015)

Ojog (2014) found that there is no statistically significant effect of crime on economic growth in the European Union countries between 2004 and 2012. The results of the regression analysis fail to support the hypothesis that total crime has a statistically significant negative impact on economic growth. The results also fail to support the second hypothesis that crime has a statistically significant negative impact on economic growth. The results suggest that even if crime does not have a statistically significant effect on economic growth, it stresses the importance of savings, even though they contribute less to an economic growth, and it affects the population growth which contributes more now. The findings from the regression analysis suggest that different types of crime do not have any statistically significant effect on economic growth, but the presence of different types of crime has an effect on the determinants. The biggest effects on economic growth have the homicides, followed by domestic burglary, robbery and violent crime.

Detotto & Otranto (2010) studied the impact of crime on economic performance on Italy. They used monthly data of Italian GDP, data refer to the period 1979-2002. According their findings crime negatively impacts the economic performance, this may happen through several channels: crime discourages the investments, reduces the competitiveness of the firms, and reallocates the resources creating uncertainty and inefficiency. According their model a rise in crime rates by 1 % reduces the real economic growth by 0.0004 % in a month. Their also found, that the negative impact of crime on Italian economic performance is 5 % stronger during the recessions than the expansions. Their analysis seems to suggest the presence of a cyclical component in the crime effects, strictly related to the economic business cycle.

Kusuma, Harivari & Hidayat (2019) examined another angle in economic growth by using the number of crimes and economic variables in influencing economic growth. Their study uses panel data composed of 31 provinces in Indonesia between 2008-2016. They found, that crime in general and corruption affect negatively on economic growth. This indicates that any general or special crimes such as corruption will reduce the level of regional GDP which will then reduce the rate of economic growth in Indonesia.

Cardenas (Goulas & Zervoyianni, 2015) found a statistically significant negative association between per-capita-output growth and crime in a panel of 65 countries, after allowing for unobserved country-fixed effects and controlling for education and public infrastructure.

Goulas & Zervoyianni (2015) used panel data from 26 countries covering the period 1995-2009 a found that the effect of crime on growth is indeed asymmetric. The growth-crime relationship is found to be strongly negative in bad times, when market sentiment is pessimistic and thus uncertainty is high, employment is low and the strain on public-sector resources through public-safety spending is already sizable, and insignificant in good times. They do not find a general strong negative relationship between per-capita output growth and crime. Under circumstances of their model, they estimate that

countries could raise per capita output growth by about one percent per year if they were to reduce crime rates by 10 %.

Kumar (2013) examined the impact of crime, especially intentional homicide and robbery rates, on economic growth using state level data in India for the period 1991-2011. The Global Peace Index Report ranks India in the category of 25 most violent countries and shows that India loses about 4 percent of its GDP due to crime in 2012. His results suggest that higher crime rates reduce growth rate in Indian states, not simply the level of output. He found a negative and statistically significant relationship between the violent crimes and growth rate of per capita income. Intentional homicide rates affect both the level of per capita income and its growth rate in Indian states. However, the robbery rates affect only the growth rate.

Metu, Kalu & Maduka (2018) analysed the effect of crime on economic growth as well as the challenges to effective crime prevention and control in Nigeria using descriptive statistics. According them increased crime rate has adverse effects on sustainable economic growth in Nigeria by driving away both foreign and domestic investors, low investment eventually increases unemployment and poverty.

According them, from the empirical evidence, there is solid evidence that crime in its various forms negatively affects economic growth. Crime scares away both domestic and foreign investors and consequently reduces economic growth through reduction in foreign direct investment. Reduction in investment affects economic activities by reducing the level of employment and unemployment may leads to crime.

Kathena & Sheefeni (2017) examined the relationship between economic growth and crime rate in Namibia, using the time series quarterly data over the period 2000-2015. The cointegration test estimates show that there was no long-run relationship among the variables. The Granger causality results showed a bidirectional causality running from economic growth to crime rate and vice versa. The results of the generalised impulse response functions showed that an increase in crime rate does indeed result in a decline in economic growth.

3. Solution and results

The overall crime rate in the Czech Republic has shown a declining trend since 2000, and its significant decrease has also occurred as a result of the pandemic. When examining the impact of crime on economic performance, a statistically significant negative impact was found for all types of crime, with the exception of economic crime. The correlation coefficient is the highest for property crime (R^2 = 0.9679), which indicates an extremely strong dependence, as well as in the case of total crime, when R^2 = 0.9098, which is also an extremely strong dependence. The impact of violent crime on economic performance is strong (R^2 = 0.8603). The impact of economic crime on economic performance is weak with a correlation coefficient of R^2 = 0.1512 and, moreover, statistically insignificant at the 5% level of significance. The regression lines are shown in Figure 1.

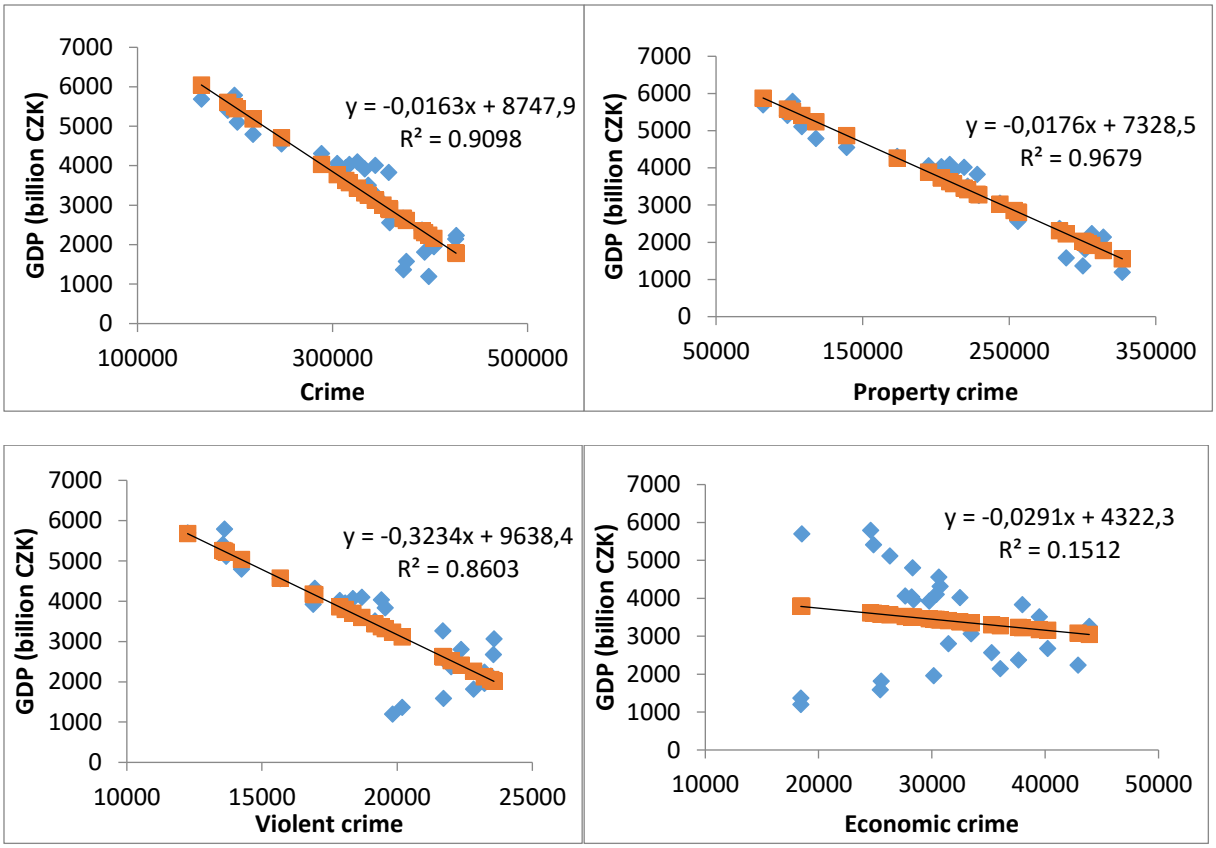
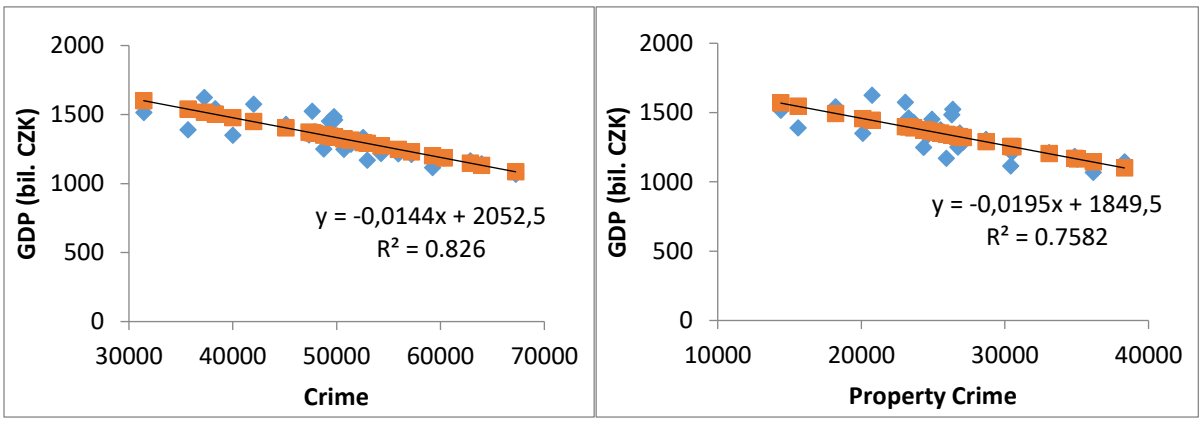


Figure 1: Crime and economic performance (1993–2021)

The same analysis was performed in a short period (2015 - 2021) in order to determine the impact of the current pandemic on the examined relationship, as both a decrease in crime and a decrease in economic performance were observed during the pandemic. With the same number of observations, all types of crime had a statistically significant negative impact on economic performance in the short term, but this impact was weaker, as evidenced by the correlation coefficients in Figure 2. Economic crime has the greatest impact on GDP (compared to long period in which it had the weakest effect) with a correlation coefficient of $R^2 = 0.8604$, then total crime ($R^2 = 0.826$), violent crime ($R^2 = 0.7641$) and property crime ($R^2 = 0.7582$). All types of crime have a strong impact on the country's economic performance.



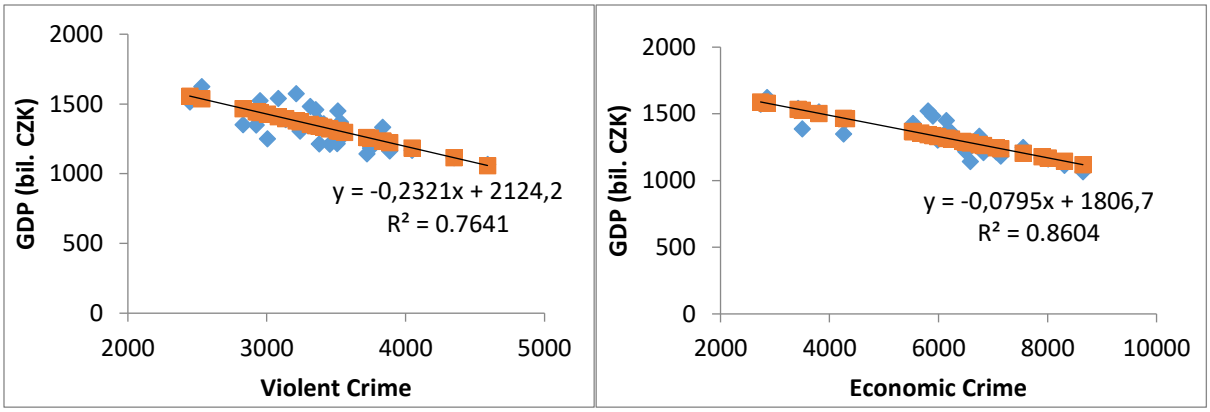


Figure 2: Crime and economic performance – short run (2015–2021)

Furthermore, the relationship between individual types of crime and the economic level measured by GDP per capita in purchasing power parity was examined. The conclusions of the analysis are the same as in the case of economic performance. All types of crime except economic crime have a statistically significant negative effect on the economic level with correlation coefficients for property crime (R^2 = 0.9708), total (R^2 = 0.9148), violent (R^2 = 0.8671). The impact of economic crime on the economic level is statistically inconclusive and the correlation coefficient is weak (R^2 = 0.1746). Regression lines for all types of crime and the economic level are shown in Figure 3.

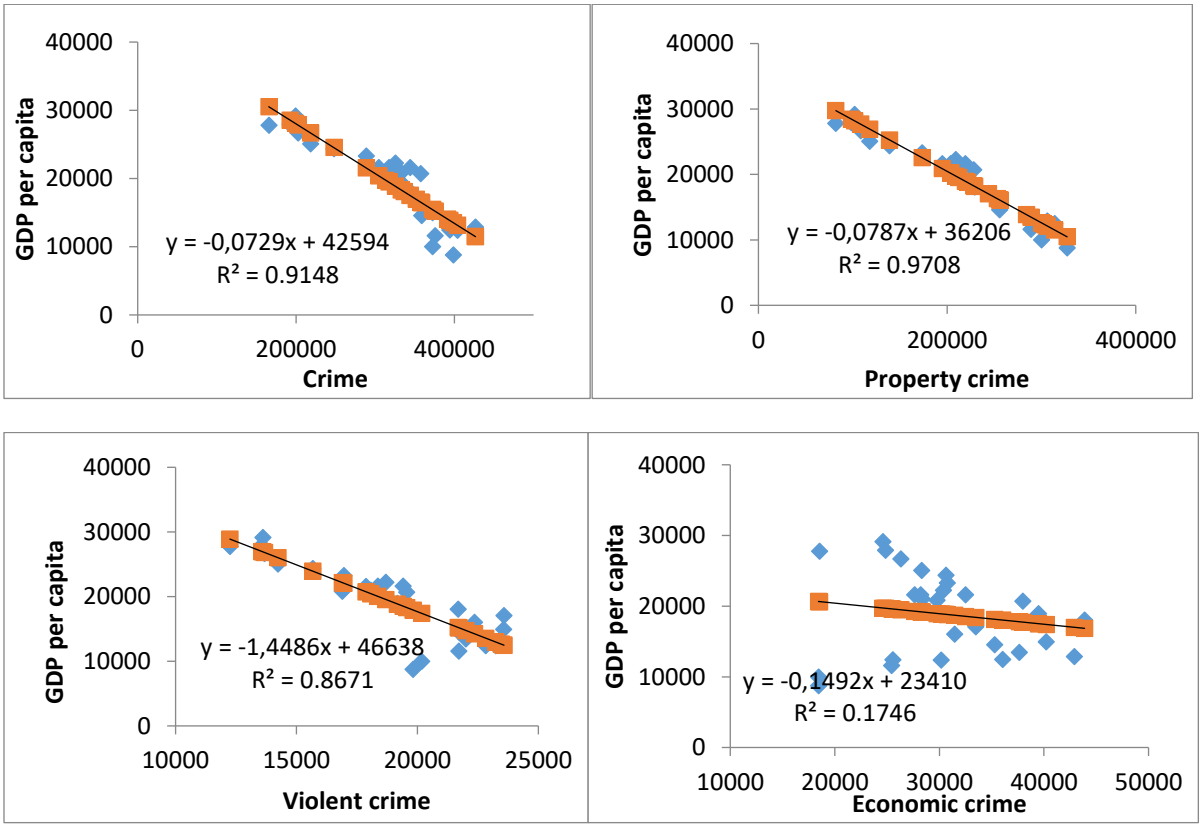


Figure 3: Crime and economic level (1993–2021)

The subject of the analysis was also the relationship between the growth rate of crime and economic growth, as the growth rate of real GDP. The dependence of economic growth on the growth rate of crime is in all cases positive but weak (the correlation coefficient R^2 ranges from 0.0468 to 0.2022) and statistically inconclusive at the 5% level of significance as we can see from Figure 4.

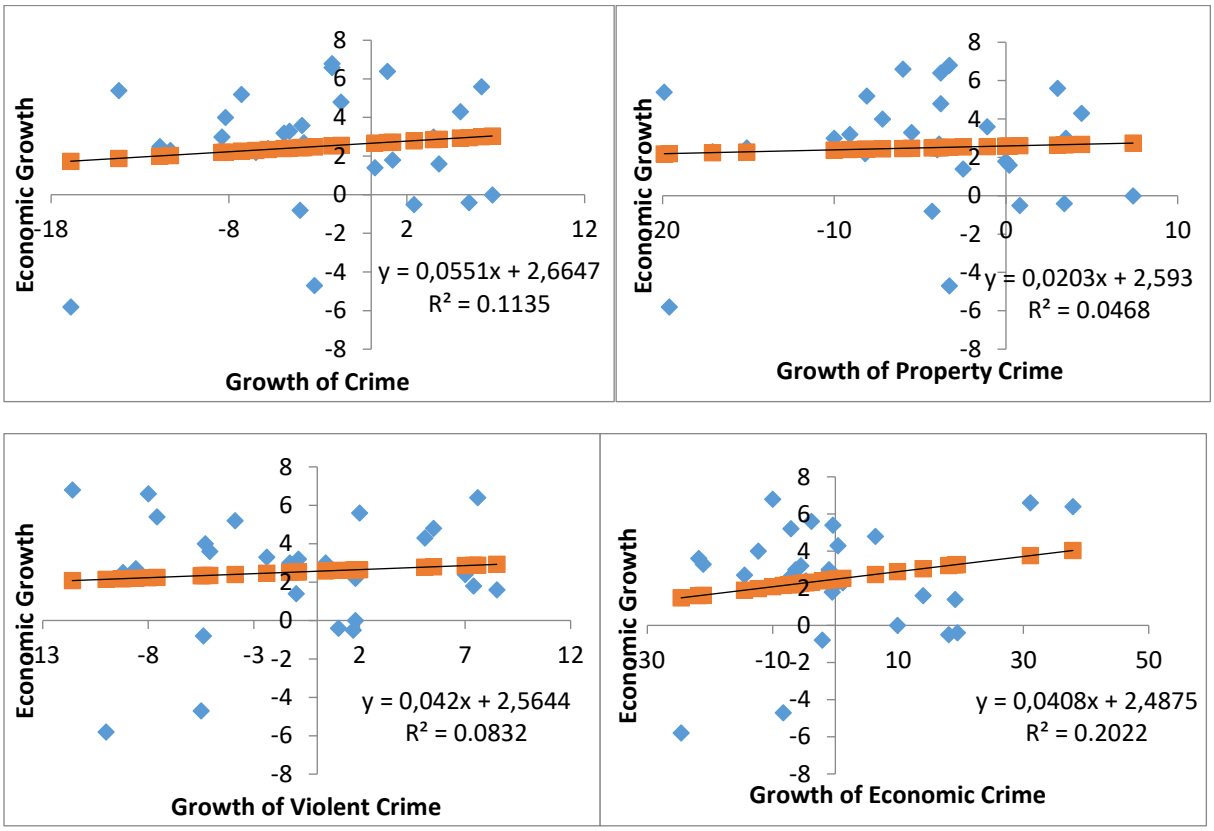


Figure 4: Growth of crime and economic growth (1993–2021)

4. Conclusion

Crime has a significant impact on the society. Crime leads to a decline in economic activities and increases social costs. According to Kumar (2013) crime can influence economic activities in two possible ways: affecting the level of output, for example, loss due to lost working days/lives or property damages or affecting the growth rate of per capita income which can happen due to foregone investments and institutional changes that influence productivity growth.

The example of the Czech Republic shows that all types of crime, ie. total, property and violent crime, with the exception of economic crime, have a statistically significant negative impact on economic performance measured by real gross domestic product and the economic level measured by gross domestic product per capita. It follows that the economic performance and the economic level can be improved by striving to reduce crime in the country. In a short period, which includes the crisis caused by the covid-19 pandemic, this impact is weaker. During this period, a decrease in both crime and real gross domestic product was observed in the Czech Republic.

The correlation between gross domestic product and crime is two-way. Gross domestic product affects crime and crime affects gross domestic product. It was found that gross domestic product has a statistically significant effect on property crime and theft in the Czech Republic. (Paličková, 2018)

As for the relationship between crime and economic growth, it is statistically insignificant for all types of crime, correlation coefficients are weak a regression lines are increasing. The direct relationship between economic growth and crime growth can be explained by the fact that economies with growing GDP mean more goods (eg. cars) that are potentially stolen for criminals.

Previous studies show that crime affects the economy to a greater extent in developing countries, where crime is high. While in economically developed countries with low crime, which is also the case in the Czech Republic, this effect is weaker or statistically inconclusive.

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An Effect of Financial Indicators on Share Price of largest US companies

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Abstract: There is fierce competition among various approaches for a share price determination, as technical, fundamental, and behavioural analyses try to explain the stock market phenomenon. This paper aims to contribute to the fundamental analysis and compare the importance of various financial indicators for investors. It uses financial data of one hundred largest companies from the New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotations (NASDAQ) and determines how significantly the financial indicators influence the price of the share, using a panel regression model as the main statistical approach. In the second part of the paper, a machine learning approach is used to cluster shares into groups using the financial indicators and is studied how much the structure of the clusters matches the sectoral structure of the companies and how miscellaneous are the companies from a financial perspective.

Keywords: fundamental analysis, machine learning, share price

JEL classification: G10

1. Introduction

An explanation and prediction of prices of shares have been a widely discussed and researched topic for many years. Technical, fundamental, and behavioural analysis are the main approaches to explaining share market movements (Bustos & Pomares-Quimbaya, 2020). This paper uses the fundamental analysis as the scientific approach and focuses on the description of the relationship between financial indicators and share price, using data from one hundred largest companies traded on the New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotations (NASDAQ). The main goal of the article is to determine, whether a stock price is affected by the values of financial indicators of the company, to identify indicators whose effect is statistically significant and to explore differences among industries. The paper aims to provide information on which financial indicators should a potential investor focused on in his/her investor decision.

The study of financial indicators has a long-term tradition, as the first paper has been published in 1957 (Collins, 1957). Since then, many other papers have been published, as can be seen in the literature review. Despite extensive research efforts in this area, there is no recent paper focused on the NYSE and NASDAQ. As these stock exchanges are among the most important ones in the world, this paper aims to fill this gap in the current research and study the effect of financial indicators on the prices of the 100 largest companies traded on the NYSE and NASDAQ.

2. Literature Review

As a first step of the literature review, the keywords were determined. As the main point of interest are financial indicators and their effect on share prices, keywords “financial indicators” and “share price” has been identified and searched for in titles, abstracts and keywords. Another keyword “stock

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price", which is commonly used with the identical meaning, has been added, with an "OR" relationship with "share price". Articles Web of Science and Scopus have been used as main sources. The found articles were evaluated based on their abstracts and a set of articles has been created to represent various stock markets and approaches. The results are presented in Table 1.

It can be seen that regression is the dominant approach in the analysis of the relationship between financial indicators and share prices, followed by neural networks. Cointegration, Vector Error Correction Model (VECM), Confirmatory Factor Analysis (CFA), Variance Inflation Factor (VIF), Principal Component Factor Analysis (PCFA). Panel regression is the most common regression model.

Table 1 List of papers analysing the relationship between financial indicators and share price

Years included	Country, companies	Method	Factor influential to the share price	Paper
1995-2004	Greece, 101	Regression	7 ratio indicators identified as influential	(Dimitropoulos & Asteriou, 2009)
2004-2013	20 emerging countries	PCFA, regression	Four influential factors identified by PCFA, plus size of the company and macro factors	(Takamatsu & Lopes Fávero, 2019)
2006-2015	Poland, 32	Cointegration, VECM, regression	Relationships differ among industries; rentability, liquidity and FL are mostly influential	(Ligocká, 2019)
2006-2018	Lithuania, 4	Regression	The relevance of financial indicators differs among companies	(Roldugin & Roldugin, 2018)
2010-2018	Jordan, 57	VIF, regression	7 indicators identified as influential	(Abdallah et al., 2022)
2011-2018	Indonesia, 24	CFA	Dividend policy, profitability and solvability are influential	(Sholichah et al., 2021)
2012-2020	China, Ctrip.com	Neural network	Asset growth rate, TAT, and interest coverage are the most influential	(Chen et al., 2021)
2013-2018	V4, 55	Regression	Only total equity influential in all V4 countries	(Aliu et al., 2021)
2014-2019	India, 12	Regression	P/E and EPS are influential, prices are generally unstable	(Sampathkumar et al., 2021)
2016-2020	China, 200	Regression	EPS, CF per share, profit per share and intrinsic value are influential	(Xu, 2021)
not given	China	Neural network	Net profit rate growth, ROE and net CF are the most influential	(Gao et al., 2022)

The papers imply there is a relationship between share price and financial indicators, however, different indicators seem to be influential in different markets. The review encourages studying the relationship between price and financial indicators for various markets separately, as this relationship tends to be different for different markets.

3. Data and Methodology

The data used for this paper are provided by the studied companies in their annual reports. These data were gained through a paid service Stock Analysis On Net (Stock Analysis on Net, 2022), which aggregates the publicly available data as Excel files, including the financial indicators values. The sector of each company was determined using Yahoo Finance (Yahoo, 2022). The statistical approach is primarily based on (Cipra, 2008).

As can be seen in the literature review, there is a vast number of financial indicators that need to be taken into consideration. As a panel regression (and regression in general) requires independent variables to be uncorrelated, a two-step approach has been applied. In the first step, a smaller sample of 15 companies has been selected and a correlation matrix has been created for all 30 financial indicators available at the service. A representative indicator has been selected from each group of highly correlated indicators, using correlation with the share price and the criteria. Six representative indicators were selected, and their definitions are as follows.

The first indicator is the current ratio (CR), which can be calculated using the formula:

$$CR = \frac{CA}{CL} \tag{1}$$

where CA represents current assets and CL represents current liabilities.

The second indicator is debt to assets (DA), which can be calculated using the formula:

$$DA = \frac{TD}{TA} \tag{2}$$

where TD represents total debt and TA represents total assets.

The third indicator is financial leverage (FL), which can be calculated using the formula:

$$FL = \frac{TA}{SE} \tag{3}$$

where SE represents shareholders' equity.

The fourth indicator is operating profit margin (OPM), which can be calculated using the formula:

$$OPM = 100\frac{OI}{R} \tag{4}$$

where OI represents operating income and R revenue.

The fifth indicator is receivables turnover (RT), which can be calculated using the formula:

$$RT = \frac{NS}{AC} \tag{5}$$

where NS represents net sales and AC accounts receivable (net of allowances).

The last indicator is total assets turnover (TAT), which can be calculated using the formula:

$$TAT = \frac{NS}{TA}. \tag{6}$$

Most of the cited articles use the price as a dependent variable. However, two arguments against the price were identified: the price does not affect a book value of a share and the dataset of prices of

analysed companies is not normally distributed and could not be transformed to the normal distribution using the transformation described below. For these reasons, a price-to-book ratio PB was selected, as it reflects both market and book value of a share and can be calculated using the formula:

$$PB = \frac{P}{BVPS}. \tag{7}$$

where P is the share price, more specifically closing price on the day when the financial report was published, and $BVPS$ is book value per share, which is defined as a total shareholder's equity divided by several shares of common stock outstanding.

3.1. Panel Regression Model

Data pre-processing was done using Python modules Pandas, SciPy and statsmodels. During the data processing, the following steps were taken. Outliers were removed using the Interquartile Range (IQR). Normality assumption has been tested for data without outliers using the D'Angostino normality test (D'Agostino, 1971). As the normality hypothesis was rejected for some indicators, data were transformed to a normal distribution using the Yeo-Johnson transformation (Yeo & Johnson, 2000).

Hausman test of endogeneity was performed as a next step to determine, whether a fixed-effects or random-effects model should be used. The fixed-effect model determines individual effects of unobserved, independent variables as constant over time, whereas the random-effect model determines individual effects of unobserved, independent variables as random variables over time. The p-value of the test was smaller than 0.001 which means the fixed-effect model should be used.

For the given dataset, the regression model can be defined by the formula

$$PB_{i,t} = \alpha_j + \gamma_1 CR_{j,t} + \gamma_2 DA_{j,t} + \gamma_3 FL_{j,t} + \gamma_4 OPM_{j,t} + \gamma_5 RT_{j,t} + \gamma_6 TAT_{j,t} + \varepsilon_{j,t} \tag{8}$$

where $\varepsilon_{j,t} \sim iid(0, \sigma^2)$.

The model overall was proved to be statistically significant, with the p-value of the F-test less than 0.001, however, the value of the coefficient of the determination is not very high (0.35). The p-value of the t-test of significance was below 0.05 and they can be considered statistically significant: γ_3, γ_5 and γ_6. Consequently, financial leverage, receivables turnover and total assets turnover were proved to affect the price of the share, whereas current ratio, debt to assets and operating profit margin were not.

The low value of the coefficient of determination may be caused by different effects of financial indicators in various industries, as can be found in (Ligocká, 2019). To investigate this possibility, the healthcare sector has been selected as a sample sector, as it contains the biggest number of companies. The model for 20 companies was also determined as statistically significant, with a notably higher value of the coefficient of determination of 0.71. Furthermore, debt to assets and financial leverage were determined as statistically significant using a 0.05 level of significance.

A classical regression model was created as a next step to investigate the differences among industries. The information about the sector was added to the model using one-hot encoding, omitting industries with fewer than 5 companies. Out of 7 industry coefficients, 5 were evaluated as statistically significant. More specifically, communication services and energy have negative coefficients and consumer defensive, healthcare and technology have positive coefficients, i.e., the companies in the

communication services, and energy sector would be valued lower than companies with the same financial indicators, but doing business in the consumer defensive, healthcare, and technology sectors.

3.2. Cluster model

The main outcome of the regression model is a difference among the evaluated industries. The purpose of the second part of the paper is to evaluate the homogeneity of companies inside the individual industries. The cluster model splits data samples into homogenous groups. The cluster method is a non-supervised machine learning method, i.e., it requires no "correct" solution. K-means algorithm was selected for the model. This method creates a set of points across the value domain, each representing the centre of each group. Each point is classified into a group based on the closest centroid.

The cluster model has been created using the Python module scikit-learn. Two models were constructed: a model with reduced dimensionality and a non-reduced dimensionality model. Data was transformed for both models using a standard scaler, which standardized features by removing the mean and scaling to unit variance. For the first model t-distributed stochastic neighbour embedding (TSNE) method was used to reduce the dimensionality of data to 2 (van der Maaten & Hinton, 2008). An optimal combination of perplexity and number of clusters was determined as 6 and 10, using the silhouette index as a criteria function. The results can be seen in Figure 1. The silhouette index is 0.5267.

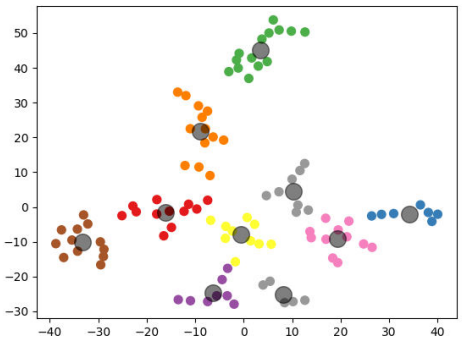

Figure 1 Result of the cluster model

As can be seen in Table 2, companies from most industries are spread across multiple clusters, which indicates the analysed industries consists of diversified companies from a financial perspective. Three industries are not presented in the table as there were fewer than 5 companies present in the data sample.

Table 2 Count of companies in individual clusters

Sector/Cluster number	0	1	2	3	4	5	6	7	8	9
Communication Services					1		3	1	2	3
Consumer Cyclical		3	3	1	1	1	1	2		1
Consumer Defensive		1	4					1	1	3

Energy	1		1		2	1		1		
Healthcare	4		3	2		4	3	1	2	1
Industrials		2	3	2	3	1		3		
Technology	6	1		1	4	2	5	1		

Similar results were provided by the model without data reduction. Most notable differences were observed for the communication services model (which is split into 3 groups instead of 5) and the consumer defensive sector (which is split into 6 groups instead of 5).

4. Discussion

It has been proved by the panel regression model that companies operating in different industries are not equally valuated on NYSE and NASDAQ. Financial indicators do affect the valuation of the company; however, their effect should be considered separately for each sector on NYSE and NASDAQ. A consumer defensive, healthcare and technology sectors company would be valuated higher on the market than a company from the communication services and energy sector with the same financial indicator values. A potential investor should keep in mind that investor sentiment may change quickly as the world faces unprecedented challenges. A subject of further research could examine whether this relationship would change when an energy crisis may be a result of the Ukrainian war. Another possibility could be to explore a longer time series to explore whether the investor sentiment against various sectors changed over time.

The cluster model showed the sectors are heterogenous from the financial perspective and groups of companies with similar financial indicators values consist of representants of various sectors. A subject of another analysis could be to determine a relationship among companies in each group, using both financial and non-financial perspectives. More financial indicators may be used in the cluster model, as the TSNE method provides good results in reducing multicollinearity (van der Maaten & Hinton, 2008).

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Management Control Systems and Innovation Activities: Textual Narrative Synthesis and the Case of Czech Banking Sector

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Abstract: Various industries, incl. banking sector, are currently affected by various competitive pressures, disruption, COVID-19 pandemics and macroeconomic development. Natural answer of companies to these pressures are heterogeneous innovations. Innovations are closely associated with risks. In contrary to the innovation activities, banking sector is highly regulated with requirements of robust management control systems. The goal of the paper is to identify and analyze current state of relationship between management control and innovation in an organization and current issues faced by banks providing banking services in Czech Republic in this area. Methods of systematic literature review of 23 articles from years 2019 – 2022 and interviews with 10 banking managers were used. The results identified insufficient focus of research on banking sector and the need of banking management practitioners for more relevant sources. The conclusion calls for additional research in banking sector for finding the balance on innovation vs management control continuum.

Keywords: Banking, Company, Innovation, Management Control, Management Control Systems.

JEL classification: M100, O31, L21.

1. Introduction

Organizations are currently performing under volatile and turbulent conditions. Natural answer of organizations to these pressures and disruption is their own way of improving services, processes and digitalization, e.g. through series of heterogeneous innovations of their governance, digitalization and business model (Stashchuk & Martyniuk, 2021). Financial sector and banking industry are recognized for undertaking significant challenges in relation to competitive pressures, disruption, COVID-19 pandemics and macroeconomic development. Similarly to other organizations, answer of banks to disruption of financial sector is their own way of innovation activities. While this innovation activities are being planned and executed, traditional banks face their own set of specific innovation problems and barriers. One typical feature of banking industry is that it is highly regulated (Hadjiemmanuil, 2015). Banking industry has a great importance to economy and faces by its nature to various risks which evolved to requirement of robust management controls systems in banks. Nowadays banks face various competitive pressures which have to be addressed, mainly by innovation, while ensuring that robust management control activities, partly required by legislation, are in place. Various authors concluded that innovation plays a crucial role in the sustainable growth, success and competitiveness of organization or indicated positive relationship between innovation and organizational performance (Anh, Nguyen & Tran, 2021). Every organization conducts innovation efforts within its governance framework. Integral part of management functions is management control, embodied by notion of an organizational control configuration - defined as a set of systems, rules, practices, values, and other activities used to convey how individuals at every level within an organization must behave to achieve the organization's objectives and perform at a satisfactory level (Martin-Rios, 2018). Several studies indicated (e.g. Bisbe & Malagueno, 2015) insights into the channels through which control systems exert an influence on product innovation by examining the extent to which different forms of control

are directly associated with the distinct phases of innovation processes. The thinking about the relationship between management control practices and innovation has undergone significant turn. The "traditional" view has been that management controls mostly impede innovation. Later studies indicated positive relationship between management controls and innovation (Akroyd, Biswas, & Chuang, 2016; Bedford, 2015; Ylinen & Gullkvist, 2014), with introducing condition of interactive control systems (Bisbe & Malagueno, 2009; Chenhall & Moers, 2015). In order to allow management professionals not only from banking industry balance innovation activities with the need of robust management control systems, they may search for solutions in current body of research. Fundamentally, knowledge advancement must be built on prior existing work. To push the knowledge frontier, we must know where the frontier is (Xiao & Watson, 2019). Helsen, et al. (2016) and Barros & Ferreira (2019) highlight the need for a more structured methodological approach in this area. The diversity of management control systems and their aspects, definitions and research instruments used makes it difficult to compare findings and generalize results.

2. Methods

The goal of the paper is to identify and analyze current state of relationship between management control and innovation in an organization and current issues faced by banks in Czech Republic. The paper utilizes mainly exploratory research and methods of qualitative research; structured into 2 parts.

First part builds on the work of Lill, Wald & Munck (2021). Their review showed important results for research of "innovation – management control systems" relationship when they stated that existing studies advance the debate about the detrimental versus beneficial character of management control systems for innovation, showing that the repressing character of control is not inherent to control itself, but emanates from the design of the respective management control system. This paper would like to provide literature review for state of current knowledge. The partial goal (hereinafter referred to as "PG1") of this part is to synthesize and compare evidence regarding relationship between management control and innovation in an organization. The PG1 might be characterized as textual narrative review, what includes characteristics (quality, findings, context, etc.) from reviewed literature (Asmussen & Møller, 2019; Lingeren, et al. 2020). For the sake of extent of this paper, the sample strategy was systematic, but it was limited only to Web of Science database (hereinafter referred to as "WoS"). This is also a limitation of this paper. The methods used are content analysis and thematic analysis of selected articles, followed by qualitative analysis (McColl-Kennedy et al., 2017). The review within this paper was conducted in line with 8-step process of systematic literature review proposed by Xiao & Watson (2019), which after screening for inclusion resulted to analysis of 23 scientific articles from period of years 2018 – 2022 in English language. Summarized results of this literature review are stated in 3rd section of this paper.

Second (empirical) part of research is focused on Czech banking sector. The partial goal of this part (hereinafter referred to as "PG2") is to explore and identify opinions and experience of banks' managers regarding influence of management control systems on innovation activities in banks. Research sample included 10 management professionals from banking in Czech Republic, covering 6 individual banks (departments: legal, internal audit, project managers). Available sampling was applied. Qualitative content analysis (QCA) of the data is used to identify the key concepts and opinions. Following Barrett et al. (2005, p. 2), the analysis "*is not intended to celebrate the empirical*

detail" but rather to identify new and emerging issues for study. Summarized results of these interviews are stated in 4th section of this paper.

3. Current Research of Management Control Systems – Innovation Relationship

Henri & Wouters (2019) stated that in case of high environmental unpredictability, right design of management controls could support the decision maker in combining and summarizing the information from different sources. Santos et al. (2022) analyzed the influence of the use of different types of management controls (cost information, budget information, nonfinancial indicators and informal controls) on product innovation mediated by knowledge sharing and moderated by technological turbulence. In comparison with Henri & Wouters (2019), they included more types of management controls, but also focused on specific industry – startups in traction stage. As technological turbulence increases, budget information becomes particularly relevant to the innovation process. Informal controls are directly related to knowledge sharing in the startups studied. The findings reveal that the use of management controls by startup companies is diversified and drives the product innovation process from different configurations, with emphasis on the use of informal controls. They also point to knowledge sharing as a useful and strategic element for the innovation process in these companies. Carlsson-Wall et al. (2021) also indicates knowledge sharing as very important "control anchor" enabling new product development. Moreover, Spanò et al. (2019), analyzing the countervailing relationship between control and innovation in highly innovative networks, documented that successful changes are facilitated by the implementation of adequate and innovative informal control devices favoring collaborative relationships, reinforcing innovation and shared knowledge and capabilities within the organization. Dynamic knowledge sharing and informal controls are the current trend in ensuring flexibility and innovation potential. Organizations have been employing self-managing teams to circumvent bureaucratic controls and stimulate innovation. However, this goal is not easily achieved; in many situations, informal controls replace formal controls.. Kober & Thambar (2022) chose different approach to examining management controls. In the midst of COVD-19 pandemics they highlighted that management control systems can be used to simultaneously manage short-term/operational and long-term/strategic objectives to navigate a crisis and that can be mobilized during crises to identify and embrace opportunities; considered very useful in assisting organizations to survive crisis. Summarized synthesis of 23 analyzed articles is in Figure 1 bellow.

Geographic Focus	Industry Focus	Methods (research tools)	Innovation Focus
Brazil (3)	Start-ups (3)	Questionnaire (13)	Product innovation (8)
German (3)	Manufacturing firms (2)	Interviews (6)	Processes (3)
Worldwide (3)	R&D/innovation focused (3)	Case study (4)	Managerial/non-technological (2)
Australia, Europe, Spain, Finland (per 2)	MNC (2)	Document analysis, observations (4)	Agile project management (2)
Canada, Italy, France, Netherlands (per 1)	Various (4)	*note: research tools might be combined, therefore $\Sigma \neq 23$	Innovation in general in comp. (2)
Others and unknown (4)	Others and unknown (9)		Others (6)

Figure 1: Prevalence of research topics (out of 23 articles)

It is clear that banking, or financial industry generally speaking, is not covered by current research, utilizing mainly qualitative research approach. Geography focus does not contain Czech Republic or broader area of Central and Eastern Europe.

4. Empirical Results

Respondents confirmed that innovation activities in banks play an important role in current governance. Despite the fact that FinTech competitive threat is not perceived as a current issue, management is aware that immediate steps have to be taken now as the need for innovation is very often customer driven. While innovation activities are planned and conducted, there is clearly perceived higher regulation pressure and the robust control systems of banks are the core of current business. Respondents stated that balancing innovation and regulation is very often based on the management decisions not lead by current research. Six respondents (3 banks) stated that they are aware of innovation activities which has been conducted, but they were unsuccessful due to the very high level of risk to be taken; therefore they have been terminated. Four respondents (2 banks) identified conducted innovation activities which had been put in practice, but due to the lack of correct management control systems design these innovation surfaced as problematic to fulfil regulatory requirements. Innovation creation in banks is still strict and innovation departments are working under management control systems very similar to the rest of banks; respondent could not provide answer, whether it is because of regulation or general banking management control systems design.

5. Discussion and Research Opportunity

Our literature review provided (PG1) identified that current body of research agrees with results of Lill, Wald & Munck (2021). The significant issue is that current research still uncovers different angles of the existence of detrimental versus beneficial character of management control systems for innovation while it is very often organization context which tilts the scale of these beneficial or detrimental character of management control systems to one side. Additionally, management control systems itself has some neutrality regarding innovation effects; it is the management control systems design what counts. The prevalence of qualitative research has been identified while banking sector was not incorporated in analyzed studies. Gooneratne & Hoque (2013) stated the need for better understanding the future potential for management control research and bridge the gap between theory and practice by penetrating currently neglected areas of research. Paper did not identify that banking sector is included in current research in sufficient manner, despite the fact that banks innovate and simultaneously must fulfill the requirements for robust management control systems. Interviews (PG2) confirmed search for this balance in banking management practitioners. Therefore, banking sector should provide a relevant research opportunity in this area. Overall, the evidence for the relationship between management controls and innovation is somewhat mixed, creating a need for better understanding of why and how the presence of management control practices might provide information that supports innovation, therefore the step towards rendering management control research might be more important and relevant to the interested parties in academia and to practitioners. Furthermore, the notion of innovation could be expanded to consider new technology or innovation in terms of internal processes. Some industries and geographic locations are not covered. The geographic focus on Central and Eastern Europe might be proposed. Several studies focused on startups, but current research somehow did not cover another part of banking innovation puzzle - FinTech businesses. Reviewed articles are also static in that they does not incorporate the evolution of management control practices and product innovation over time. Also generalizations from the results of some studies to other organizations require caution because of the scope of the analyzed sample.

6. Conclusion

Current research does not provide standpoint on detrimental effects of management control systems on innovation. In practice, it is always organization-specific context, which has to be taken into an account while enabling management control system being a driver for innovation; therefore practitioners need to systematically assess context factors and consequences of their management control systems design. To deal with this challenge it is necessary to fully understand existing conceptualizations of management control systems and to adapt these concepts to the individual organization and its environment. Identification of the right management control systems design to supervise and control innovation activities in a company while allowing an innovation-needed level of creative freedom is crucial for company's innovativeness. As our research showed, this might be an issue in case of banks, considering the high level of regulation required robust control systems basically in any activity. Despite paper's form of exploratory research, it proposes several new findings worth future research. Banking industry must remain stable to ensure right function of economy, but on the other hand, it has to grow and compete with currently less regulated FinTech competitors. In future, structured research approach must be applied to ensure objective findings, especially triangulation of research methods and enlargement of sample of banks. Innovations are closely associated with risks and losses. To be successful, companies must show a right risk appetite to bear these risks. However, blind faith in the success of these uncertain bets would be fatal (Bedford, 2015), what is the price that regulators and banks neither want nor can pay. Therefore, organizational structures and control mechanisms of banks should use all possible tools and mechanisms to reduce this risk while still allowing banks to innovate. Finding this balance should be definitely be the topic for future research.

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Smart Tourism City: A Case of Olomouc

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Abstract: This paper deals with the principles of smart cities being applied in the sector of tourism. Thanks to development of information technologies since 1990s, the tourism sector has been changing a lot – new applications, online booking systems, electronic communication, etc. After a short introduction of theorical framework concerning the concepts of smart cities and smart tourism, the question of how the city of Olomouc approaches the above-mentioned concepts is posed. Afterwards, the main features of the concept of Smart Tourism Cities being applied in the city of Olomouc are presented. At the end of this paper, several topics for future research are propounded.

Keywords: Smart City, Smart Tourism, Smart Tourism City, Olomouc, synergy, ICT

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1. Introduction

A massive development of information and communication technologies has brought a lot of changes in the field of market systems all around the world since 1990s. ICTs are playing very significant roles not only in our everyday life but also in urban development. In view of the fact that urbanization speeds up constantly, the cities try to solve this phenomenon by using smart technologies being necessary to build smart cities (Lee, et al., 2020).

According to Gretzel, et al. (2015), the semantic of adjective *"smart"* is very closely connected with *"technological, economic and social developments enriched by ICT revolutions that bank on sensors, data, new ways of connectivity and exchange of information."* It is obvious that smart technologies have considerably penetrated tourism sector too. In connection with previous statement, there are two new approaches appearing in tourism – smart tourism and smart city.

In view of the previous facts, two research questions come on our mind: *How the city of Olomouc approaches to the concept of Smart City? Can the city of Olomouc be considered the Smart Tourism City?*

2. The synergy between the concepts of Smart Tourism and Smart City

To understand well the concept of smart cities, the formal and comprehensive definition of Mohanty (2016) could significantly help us: *"A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operations and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, and environmental aspects"*. The phenomenon of

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smart cities, as we can observe in the definition mentioned above, is very closely associated with the three-pillar conception of sustainability – social, economic, and environmental (B. Purvis, et al., 2019).

The main characteristics of smart cities were summed up by Berrone, et al. (2016):

- the efficacious use of information and communication technologies (ICT),
- the use of co-creative platforms being meant for stakeholders,
- the effective use of data generated through interfaces with stakeholders.

We would like to remind the smart city concept is based on human capital and information management. According to Sajid Khan, et al. (2017) *"smart solutions are a function of how key skills of employees are used in the delivery of outcomes."*

In connection with the concept of Smart Cities, we will focus on the second concept being called Smart Tourism City. In general, the tourism is a phenomenon which is defined by the movement of people outside their usual domicile for personal or professional reasons. Since 1990s, the tourists adopt a proactive approach and create experiences actively while traveling. Together with heyday of Internet and information and communication technologies (ICT), the distribution of tourism information and sales become faster and easier, and the tourism industry adopted e-tourism strategies by developing Web sites, electronic commerce, and related governance (Lee, et al., 2020). Based on previous statement, we can define smart tourism as synergy between tourism and information and communication technologies (ICT).

Boes, et al. (2016) delimit six main tourist-related elements of smart cities: *"smart mobility, smart government, smart economy, smart people, smart living and smart environment."* Within smart tourism, Lee, et al. (2020) summarize five fundamental components of smart tourism: smart tourism: transportation, accommodation, gastronomy, attraction, and ancillary service. The concept of smart tourism can be perceived as a *"business ecosystem"* in a destination working thanks to data sharing among stakeholders.

Owing to the synergy between the concepts of Smart City and Smart Tourism, it is necessary to present the third concept being considered *"smart"* – the concept of Smart Tourism City. The smart tourist city can be defined *"as an innovative tourist destination that guarantees sustainable development that facilitates and enhances visitors' interaction with experiences at the destination and eventually improves the residents' quality of life thank to the integration of ICT infrastructures." (*Lee, et al., 2020).

According to Gelbman (2021), three fundamental components of smart tourism cities should be emphasized: smart destination, smart experience, and smart business. The smart destination is defined by mobility, by allocation and quality life of their residents. The second one makes tourism easier thank to smart surroundings – which means the betterment of the experience of tourists. The smart business leans on business ecosystem inside of it the stakeholders are interconnected and where come about the exchange and co-creation of touristic resources.

3. A case of the city of Olomouc

The city of Olomouc has been working on implementation of new technologies into the city's infrastructure for a long time. It is necessary to mention that the implementation has not always been systematic, notable because of lack of financial sources and political will.

Today, the situation has diametrically changed. The department of ICT and Smart City has been established. Its main task is to prepare *"The Plan for Smart City of Olomouc"*, its updating, implementation, and coordination (M. Pelikán et al., 2021).

From our point of view, we observe three main fields in the city of Olomouc within the concept of Smart City Tourism – electronic communications, websites, and applications; transport and possible participation of secondary school and university students in development of the concept of Smart City including Smart City Tourism (M. Pelikán et al., 2021).

3.1. Electronic communication, websites, and applications

There are two ways of communication between the government of the city and the public – electronic communication and paper-based communication. Concerning the first one, the city of Olomouc is the administrator of wide range of websites where important and current information are published. According to data analysis from 2019, two of three the most visited websites are related to tourism sector – the map portal of Olomouc and the tourism web of Olomouc (Tourism Olomouc, n.d.). It is important to highlight that the tourism web exists in 11 language versions including English, German, French, Spanish or Russian (M. Pelikán et al., 2021).

A wide range of interactive materials in different language versions is available to all potential visitors of the city of Olomouc – image publication and brochure, tourist guides, information brochures, monuments, maps and plans, newsletters (Tourism Olomouc, n.d.). The city of Olomouc is also an administrator of two touristic applications called the Panorama Olomouc and the Holy Trinity Column.

3.2. Transport

The efficient and systematic use of data acquired from transport network is very important for more efficient and faster operation of integrated rescue system and public transport in real time, however in planning of sustainable strategic development of the City of Olomouc and its city planning. Subsequently, the data are used within the administration, updating and betterment of the application called Smart Olomouc which serves to all drivers, residents, and visitors of the city of Olomouc. Its aim is to provide information from the local centre of transport (Mobilní aplikace Olomouc, n.d.).

Concerning the public transport procured by transport company of the city of Olomouc, their website publishes regularly updating connected with actual transport situation in the city, with delays of means of public transport and with timetables. The possibility to order a ticket by SMS represents a very important step in digitalisation of local public transport. However, if we take into consideration a limitation consisting in impossibility to purchase a ticket from foreign SIM card, the efficiency of this tool is considerably restricted (Dopravní podnik města Olomouce, n.d.).

In conclusion, we should not forget to mention the other possibilities of transport in the city which are provided by private companies. To use them, each potential client has to download the applications serving like an intermediary between the company and the client and also like a form of payment for the service. The companies called Bolt and Eagle Scoots provide E-scooter sharing (Procházka, 2020). And also, there are two companies called Rekola and Nextbike specializing in bike sharing (Štědrá, 2020).

3.3. Participation of secondary schools and university students

The government of the city of Olomouc is open and enthusiastic to young talents studying at secondary schools and universities. These students can participate in development of the concept of Smart City of Olomouc. Thanks to their seminary works or theses, they can start a collaboration with several departments of the city hall and then, after their works are finished, the results can be sent to be discussed during local authority session. If the results have values, they can be implemented into strategical documents of the city of Olomouc (Štědrá, 2020).

4. Conclusion and discussion

Within this paper, three *"smart concepts"* have been presented – the concepts of Smart City, Smart Tourism and Smart Tourism City. Subsequently, we focused on the city of Olomouc striving to find out if the principles of Smart City are applied. Thanks to the publication of a strategic document called *"The Plan for Smart City of Olomouc"* (M. Pelikán et al., 2021), we assume that the city of Olomouc satisfies the conditions for being classified as Smart City. Afterwards, we analysed if the ICTs are used in tourism sector of Olomouc. The city proposes to tourists a wide range of websites and applications for discovering the city and its surroundings and for the use of public transport. The local government appreciate collaboration among the city hall and talented students who can also participate in the development of the concepts of Smart City and Smart Tourism City in the city of Olomouc.

Within the topic, it would be very remarkable to enrich the concept of Smart Tourism City with the phenomenon of augmented reality. The metaverses of this approach have already been applied in the city of Incheon in Korea. According to Carmigniani & Furth (2011), the augmented reality is defined as *"reinforced real experience provided by computer-generated images through digital devices, based on the physical world environment."* The augmented reality can provide a very interesting content on tourist's smartphones. In the case of Incheon, a famous sandbox game called Minecraft, where tourists discover the city and its famous places as avatars using the smartphones, has been used (Um, et al., 2022).

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The impact of Covid 19 on the performing arts industry

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Abstract: Covid 19 is an infectious disease that has affected the lives of ordinary people as well as the economies of countries around the world not excluding the Slovak Republic. However, the impact of the disease on different sectors varies. This paper will be focused on a specific sector of the cultural and creative industries - the field of performing arts, which has been significantly affected. The article is focused on the current situation and financial and economic impacts of the disease on this sector. The main source of information is based on data from the Ministry of Culture. The medians of the financial ratios were provided by a company dealing in the analysis and calculation of averages.

Keywords: covid 19, financial indicator, performing arts industry, cultural and creative industry

JEL classification: Z10, M21

Grant affiliation: VEGA no. 1/0582/22 “Dimenzie medzisektorového podnikania subjektov kultúrneho a kreatívneho priemyslu v kontexte trvalo udržateľného rozvoja”

1. Introduction

Cultural and creative industries are among the important sectors of the national economy of each country and make up approximately 4% of the gross domestic product in Europe. However, this industry was seriously affected by the arrival of the Covid-19 pandemic. By culture as a discipline we can understand everything that people say, do and think. It is a very extensive complex of phenomena, which includes areas such as: leadership, faith, morality, language, law, custom, in short, everything that allows people to orient themselves together. The word culture comes from the Latin "colere" which means to care or grow. (Pappas, 2021) Culture as a concept represents our spiritual, intellectual and at the same time educational level. It is said that culture is complexly connected with us. Cultured people in Central Europe are those who go to the theater, listen to classical music, attend concerts and behave in a cultured manner. Anthropologist James Sprandley said, “Culture is the acquired knowledge that people use to interpret experience and shape behavior.” (Sprandley, 2016)

Currently, we distinguish several layers of culture that exist at different levels:
- National level – it is connected with the nation as a whole,
- Regional level – related to ethnic or religious differences within a nation,
- Generational level – these are differences between parents and children,
- Corporate level – is associated with a specific cultural organization,
- Level of social class – it is about differences in education and employment opportunities.

Culture is not inherited genetically and its existence cannot exist by itself, but is always shared by the members of a given society. Hofstede defined the concept of culture as: "the collective programming of the mind, which distinguishes the members of one group from another, which is passed down from

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generation to generation, constantly changes because each generation adds something of its own, something that describes it and thus passes it on. (Lumen, 2021)

The cultural industry refers to activities that create economic value based on artistic talent or creative input. However, this concept does not only affect the field of culture, but also several branches of the economy and also represents an important role in the process of globalization and digitization. The cultural industry mainly includes film production, music and television. We can say that it is an industry that adds economic value to the results of creative activity. We can observe the importance of the cultural industry and its growth all over the world for decades. In recent years, we can see the inclusion of the cultural industry in several strategic plans at the local and national level. (Ministry of Culture, 2020). In the first half of the 20th century, the term creative industry, which is closely related to the cultural industry, began to be used more prominently. The term creative industry includes several areas and at the same time changes our perception to the term industry, which is constantly understood only as a pure production character. In this case, it is necessary to look at the industry as a chain, which must already include production, reproduction, distribution, storage, archiving and restoration when creating a creative activity. (Ministry of Culture, 2003). Skill, talent or own creativity are those business activities that belong to the branches of the creative industry. All areas positively influence and affect the quality of life of people. Several studies indicate that the creative sector is one of the fastest growing segments of the economy and can better adapt to new conditions. Ministry of Culture, 2020).

2. Methodology

The object of investigation of our contribution is the cultural and creative industry in Slovakia. In 2020, the most dominant sector of the cultural and creative industry is software, IT and computer games with 30%, then advertising and marketing with 31%, TV, film, video, photography and radio with 13%, architecture with 10%. Other branches of industry already have a lower representation than 10%. These are publishing activities with 7%, design with 6% and performing and visual arts, music with 3%. For comparison, in 2018 the most dominant industry was advertising and marketing with more than 33%. The Covid-19 pandemic may be the reason why software, IT and computer games have grown so much in the last two years, mainly because we were forced to go online due to anti-epidemiological measures. (Slovak Business Agency, 2021) The largest representation of the cultural and creative industry in Slovakia for the year 2022 in terms of the legal form of business entities is a limited liability company with more than 51%. Next, trade with 44.80%. The remaining business entities such as freelancers, joint-stock companies and other legal forms have only a small representation. (Ministry of Culture, 2020) Currently, it is not statistically possible to obtain the sales of all business entities in the cultural and creative industry in Slovakia. This is because not all entities are required to submit financial statements. The pandemic had a serious economic impact on the Slovak Republic. Although its impact on individual industries was different. We will try to point out the negative impacts on the performing arts industry.

The disease COVID-19 is an infectious disease which, according to available information, is caused by the SARS-COV-2 virus. The first case of this infection was identified in the Chinese city of Wuhan in December 2019. The virus has spread throughout the country and is causing an ongoing pandemic. In Slovakia, we recorded the first case of the disease in March 2020, when the so-called the first wave, which lasted until June 2020, when the epidemiological situation improved. During the first wave,

cultural and creative industry businesses were closed for 2-3 months. In 2020, the sector of cultural and creative industries will experience a break for at least half a year. Although measures were partially or completely relaxed during the summer months, most of the planned events were either moved or completely cancelled. During the summer months, craft markets are also held, where not only craftsmen but also small entrepreneurs have lost financial resources, who provide everything necessary for servicing such markets. Restrictions during the so-called the second waves lasted more than 5 months for the cultural and creative industries. During the summer months, the operations of this branch were reopened. At the end of 2021, the epidemiological situation worsened again and the so-called the third wave of the pandemic. However, the operations were closed for less than two months. Subsequently, Slovakia switched to the regime - vaccinated, tested or people who have overcome the disease of COVID-19 for a period of six months. All these three population groups could participate in events, they could visit cinemas, theatres, museums and exhibitions.

3. Results and discussion

To carry out the analysis, we focused on the performing arts industry, which consists of - creative, artistic and entertainment activities, which according to SK Nace is division 90. In this division, we can include participation in live performances, events that are intended to satisfy the needs of customers in the field of culture . Therefore, we also include the production of theatres in this subsector. During all 4 waves of the pandemic, theatres had to be completely closed for several months, which caused them huge losses. Based on the measures taken by the Government of the Slovak Republic, all performances and shows were cancelled. Due to the long-term loss of income, most of the employees had to find another job that was not at all related to their profession. They did so in order to provide for their families. Theatres were forced to refund their customers for all tickets for events that were cancelled due to the corona crisis. All these funds were returned only electronically. Thus, the complete closure of theatres was a big problem for the industry. They were left without any income. After the opening of the theatres, the theatres also had a shortage of employees, because they were afraid of closing the theatres again, and so often the employees stayed in other jobs than to return to the theatres where they had an uncertain future.

In our contribution, we further focus on the evaluation and development of the average values of basic financial and economic indicators for the subsector of creative, artistic and entertainment activities. The necessary data was provided by the company CRIF-Slovak Credit Bureau, which deals with the publication of the professional publication of industry standards of medium values. The company provides a cross-section of figures for individual economic activities in Slovakia. The data that we will analyze in more detail are for four seasons. In 2020, 1,056 economically active subjects participated in the aforementioned survey. Which is a 55% increase over 2019. In 2020, 1,040 businesses achieved assets of 1.6 million euros. 6 companies are in the range from 1.6 million euros to 5 million. Only 2 companies reported that their assets exceeded the value of 5 million euros. For a more detailed analysis, we chose financial and economic indicators of liquidity of the 3rd degree and turnover of assets.

Liquidity expresses how companies can use all short-term assets to cover their short-term liabilities. The sector of creative, artistic and entertainment activities is within an acceptable range. Thus, liquidity did not exceed the value of 2.5.

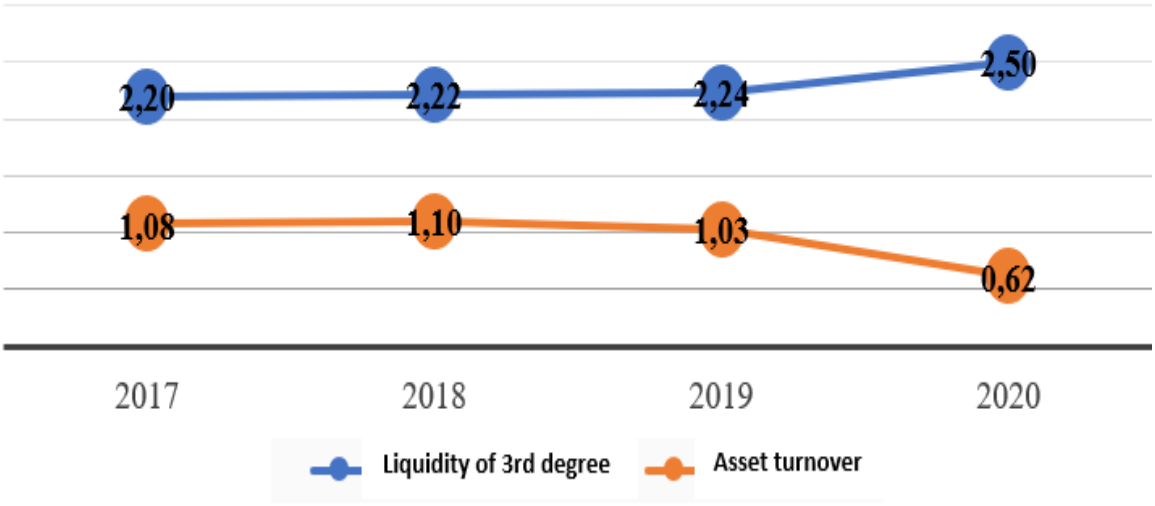

Figure 1: Evolution of the 3rd degree liquidity indicator and asset turnover

Asset turnover tells us how many times all assets in the company are turned over and used in one year. From 2017 to 2019, we observe a fairly stable development of asset turnover. During this period, the average turnover of assets is above the value of 1. That is, in one year, assets are turned over once in the subsector of creative, artistic and entertainment activities. In 2020, the situation worsened and asset turnover fell to 0.62. This reduction can be caused by the corona crisis, which negatively affected this sub-sector.

Another financial and economic indicator is the current indebtedness of the subsector. In the sector of creative, artistic and entertainment activity, the current indebtedness in 2017 was 10 years.

Table 1: Evolution of current indebtedness

	2017	2018	2019	2020
Current indebtedness	9,62	8,66	7,12	29,08

By 2019, it has a downward trend. In 2019, current indebtedness for this sector reached the 7-year mark. In 2020, we see a huge increase. On this financial-economic indicator, we can see how the impact of the COVID-19 pandemic has affected this industry. In the last observed period, the increase represented a value of 30 years. That is, it takes 30 years on average for companies in creative, artistic and entertainment activities to pay off their foreign resources through profit and depreciation. In one year during the corona crisis, current indebtedness in creative, artistic and entertainment activities increased by 23 years.

The last examined indicators are the share of newly created value in sales, the share of added value in sales and operating profitability of sales.

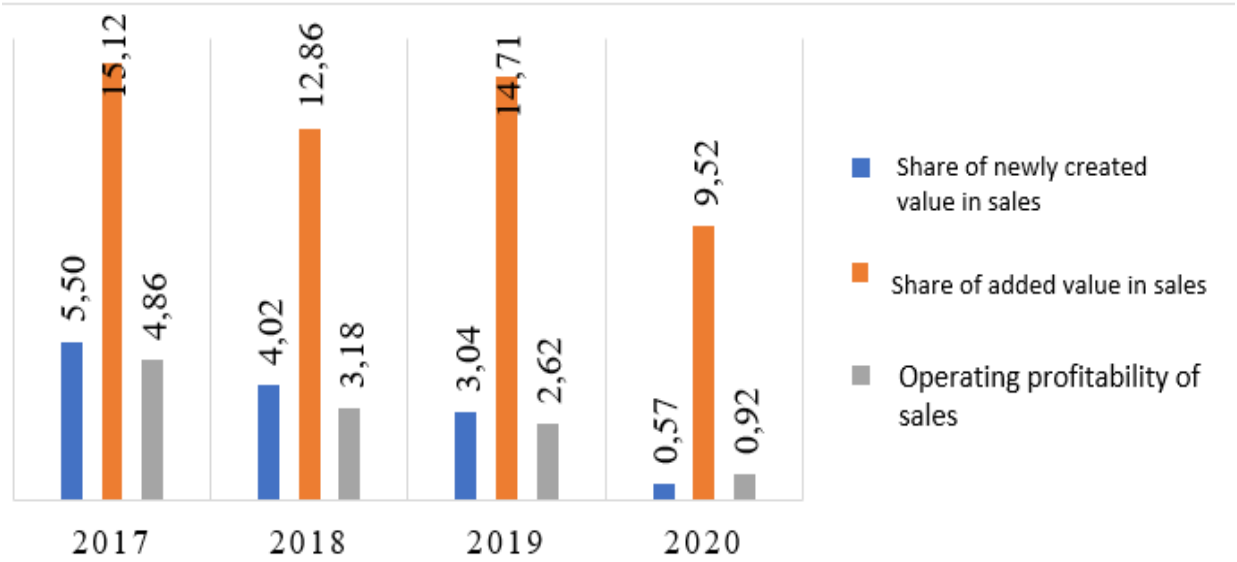

Figure 2: Evolution of share of newly created value in sales, the share of added value in sales and operating profitability of sales

From the point of view of development, the share of newly created value in sales has a decreasing tendency throughout the monitored period. In 2020, the investigated sector was able to create only 0.57% of the newly created value through its own production. Given that we have been following a downward trend for four years, we can conclude that the sector of creative, artistic and entertainment activities does not manage to create newly created value in sales. The share of added value in sales has an unstable development. In 2018, it decreased by 2.21% year-on-year. In 2019, there is a growing development of 1.85%. In the last monitored year, the added value decreased to 9.52%, so the contribution of companies to the performance value is decreasing. Our operating profitability of sales has been decreasing since 2017 until the last year. Already in 2018, there was a decrease of 1.68%. In the last year, it decreased to a value of 0.92%, which is the highest drop for all monitored years. This is a decrease of 3.94% compared to 2017. This indicator also tells us that the COVID-19 disease had a negative impact on this sub-sector.

4. Conclusion

The cultural and creative industry is an important part not only for Slovakia, but also for the world economy, as it represents approximately 4% of the countries' GDP. The primary goal of the submitted paper is to analyze and evaluate the impact of the COVID-19 pandemic on the performing arts industry in the Slovak Republic. Based on the processed data and the evaluation of the development of financial and economic indicators, it can be claimed that covid-19 had a very negative impact on companies operating in this industry. The year 2020 represented a downward trend in almost all financial and economic indicators. Aid from the state during the first wave of the pandemic was very unsystematic and even chaotic. The reason why such chaos has arisen is certainly also the fact that in Slovakia we have a great diversity of business entities and also their legal forms of doing business in this industry. The cultural and creative industry was able to cover part of its costs through the support of the Ministry of Labour, Social Affairs and the Family. During the corona crisis, the state must take responsibility and compensate the economic losses incurred by the entities. Therefore, several compensatory instruments were adopted: postponement of tax payment, postponement of contributions to the social insurance company, partial compensation of fixed costs, payment of rent costs, postponement

of installments from loans and credits and many others. However, only a small percentage of entities used this assistance.

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Key Factors of the Industrial Revolution 4.0 in the Slovak Smart Manufacturing

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Abstract: The main objective of the present paper was to identify, on the basis of the theoretical framework, the concepts that are concerned with digitalisation, the Fourth Industrial Revolution, smart manufacturing and at the same time to interpret the results of the research that analyse the current state of the studied issue in manufacturing enterprises in Slovakia. In the first part of the paper, we compared foreign authors' views on the studied issue. In the construction of the theoretical framework, literature research, system analysis, comparative analysis, induction, deduction from foreign scientific sources from international databases were used. Interpretation of the studied issue from the practical aspect was realised on the basis of the evaluation of the questionnaire survey. The standardised electronic questionnaire was used to explain the key factors of the Industrial Revolution 4.0 in 106 manufacturing enterprises located in the Slovak Republic.

Keywords: digitalisation, smart manufacturing, Fourth Industrial Revolution, Industry 4.0

JEL classification: L60, O14, O25

Grant affiliation: The research paper is a partial output of VEGA No. 1/0375/20 research project titled „New dimension in the development of production management and logistics under the influence of Industry 4.0 in enterprises in Slovakia“.

1. Introduction

The Fourth Industrial Revolution changed the traditional philosophy of production systems. The concept of Industry 4.0 enforces the smart factory, which introduces changes in the factors and elements of traditional production systems and incorporates the current smart systems requirements to compete in the future. The development of new digital technologies linked to the Internet of Things, together with advances in artificial intelligence and automation, is enabling a new wave of production innovation. In the first part of the paper, we compared foreign authors' viewpoints on the issue of the Fourth Industrial Revolution and smart manufacturing. Subsequently, in the next part of the paper, the key factors of Industry 4.0 in 106 manufacturing enterprises participating in the Slovak industry were presented.

2. Theoretical Framework

The modern manufacturing industry is investing in new technologies such as the internet of things, big data analytics, cloud computing and cybersecurity to cope with system complexity, increase information visibility, improve production performance, and gain competitive advantages in the global market. These advances are rapidly enabling a new generation of smart manufacturing (Yang et al., 2019). New technologies, especially information technology and information techniques, organization and logistics are implemented in modern business a system, which has led to new ways of production, new ways of doing business and better service activities in the sphere of industrial production (Hozdić, 2015).

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The most significant application of digitalisation in industry is, according to Schumacher et al. (2019) application of smart manufacturing in the form of Industry 4.0. Industry 4.0 is generally considered to be the Fourth Industrial Revolution, driven by the digitalisation and automatisation of production and value chain processes (Bauer et al., 2018). The idea of the Fourth Industrial Revolution is the integration of production with the most modern information and communication technologies. This makes it possible to produce products according to individual customer requirements and to produce them in batch sizes of one piece at the price of mass-produced goods (Ustundag and Cevikcan, 2018). Industry 4.0 makes it possible to interlink all elements related to manufacturing processes. The implementation of modern technology, techniques and management methodologies specific to Industry 4.0 should cover the entire production process as well as management processes. The main target is the connection between the real physical world and the digital factory – creating Smart Factory (Grabowska et al., 2020). Imran et al. (2018) define that Industry 4.0 describes the increasing digitalisation and automatisation of the manufacturing environment, as well as the creation of digital value chains that enable communication between products, their environment and business partners. The use of advanced digitalisation, the combination of internet technologies and smart objects (machines and products) seems to be leading to a new fundamental paradigm shift in industrial production. Industry 4.0 based smart factories merge physical and cyber technologies, making the involved technologies more intricate and accurate; improving the performance, quality, controllability, management, and transparency of manufacturing processes in the era of the internet-of-things (IoT) (Kalsoom et al., 2020). Industry 4.0 represents a new concept of industrialisation that uses cyber-physical systems, internet of things, internet of services, big data, cloud computing. The smart factory is the core of Industry 4.0 (Adamson et al., 2017). The smart factory integrates the aforementioned technologies to improve the performance, quality and controllability, and transparency of production processes. In a smart factory, the system is context aware and helps humans and machines to perform their tasks based on information from both physical and virtual worlds (Liu et al., 2017). Factories become smarter, more efficient, safer and more environmentally sustainable, thanks to the combination and integration of production technologies and devices, Information and Communication systems, data and services in network infrastructures (Strozzi et al., 2017). Smart manufacturing is an emerging form of production integrating manufacturing assets of today and tomorrow with sensors, computing platforms, communication technology, control, simulation, data intensive modelling and predictive engineering. It utilises the concepts of cyber-physical systems spearheaded by the internet of things, cloud computing, service-oriented computing, artificial intelligence and data science. Once implemented, these concepts and technologies would make smart manufacturing the hallmark of the next industrial revolution (Kusiak, 2017). Smart Manufacturing responds and leads to a dramatic and fundamental business transformation to demand-dynamic economics keyed on customers, partners and the public; enterprise performance and variability management; real-time integrated computational materials engineering and rapid qualification, demand-driven supply chain services; and broad-based workforce involvement (Davis et al., 2012). Ramakrishna et al. (2017) say that digital manufacturing or smart manufacturing or intelligent manufacturing refer to communication and computing technologies which enable all players in the value chain of products at the supply chain, enterprise and shop floor levels to be digitally connected and data analytics-driven, thus achieving intelligent coordination for demand and supply matching, faster time to market, mass customization and cost benefits. Sjödin et al. (2018) define the concept of Smart Factories as the use of industrial devices that communicate with users and with other machines, automated processes and mechanisms to facilitate real-time communication between the factory and the market to support dynamic

customization and maximise efficiency. Radziwon et al. (2014) define Smart Factory as a manufacturing solution that provides such flexible and adaptive manufacturing processes that solve problems arising in a manufacturing facility with dynamic and rapidly changing boundary conditions in a world of increasing complexity. Herrmann (2018) indicates that more flexible production is needed nowadays to meet customer expectations. To achieve these objectives, a new level of automation should be achieved, by the introduction of methods of self-optimization, self-configuration, self-diagnosis, cognition and intelligent support of workers in their increasingly complex work. This is summarized by smart factory. In a typical traditional factory, providing high-end quality service or product with the least cost is the key to success and industrial factories are trying to achieve as much performance as possible to increase their profit as well as their reputation. In contrast, in an Industry 4.0 factory, in addition to condition monitoring and fault diagnosis, components and systems are able to gain self-awareness and self-predictiveness, which will provide management with more insight on the status of the factory.

3. Research Methodology

The construction of the theoretical framework was based on a research and excerpts of foreign expert sources from the international databases Web of Science, Scopus and EBSCO. In constructing the research results, we interpreted the results of the questionnaire research. Data collection was conducted between June 2021 and September 2021 through an electronic standardised questionnaire. The questionnaire was distributed among managers of manufacturing enterprises in Slovakia via e-mail addresses. The questionnaire was structured into several areas. The first area concerned the identification of respondents and then other parts of the questionnaire were related to the digitalisation, the fourth industrial revolution and smart factory. In the development of the paper, we used classical research methods which include: literature research, system analysis, comparative analysis, induction, deduction and questionnaire survey method.

Enterprises were categorised according to size on the basis of the European Commission 2003/361/EC, which classifies small enterprises (10-49 employees), medium-sized enterprises (50-249 employees) and large enterprises (>=250 employees). The object of research in the submitted paper was 106 manufacturing enterprises located in the Slovak Republic. 47.2% of large enterprises, 46.2% of medium enterprises and 6.6% of small enterprises participated in the questionnaire survey. According to the legal form of business, limited liability company was the most represented in the survey (75.5%). Enterprises that indicated the legal form of a joint stock company obtained a share of 22.6%. Limited partnership and general partnership also participated in the survey, with an identical share of 0.9%. In identifying the research sample, it was ascertained in which industrial sector the manufacturing enterprise operates. Based on the summary of the results from the questionnaire survey, most enterprises operate in the machinery & equipment industry (26.4%). From the data, we observe that enterprises operating in the electronics & electrical components industry accounted for a share of 23.6%. Enterprises in the automotive industry also recorded a high participation rate, with a participation rate of 20.8%. Furthermore, enterprises from the food industry were represented, which represented a share of 16%. Enterprises from the mining industry participated the least (13.2%). According to the geographical location, the Bratislava, Trnava and Trenčín Regions were represented with the same percentage share (21%), followed by the Nitra and Žilina Regions, which also reached an identical percentage share (11%). The participation of enterprises from the Prešov Region was at the level of 9%. Enterprises from the Banská Bystrica Region were represented with a share of 8%. The

least number of respondents participating was from the Košice Region. This region was represented in the survey with a share of 4%.

4. Research Results

The following selected facts were evaluated through descriptive analysis, which dealt with the issues of digitalisation, the fourth industrial revolution and smart factory production in enterprises in Slovakia. In the survey, enterprises were asked whether the manufacturing enterprise is confronted with challenges related to digitalisation in the context of the ongoing Fourth Industrial Revolution. Table 1 clearly summarizes the results of the analysis, based on which we can see that almost 77% of manufacturing enterprises perceive digitalisation and accept the Fourth Industrial Revolution in their business processes. 16% of the respondents partially accept digitalisation with the Fourth Industrial Revolution. Only 7.5% of the surveyed enterprises do not encounter digitalisation or the current Fourth Industrial Revolution.

Table 1: Digitalisation / Fourth Industrial Revolution in manufacturing enterprises in Slovakia

Digitalisation / Fourth Industrial Revolution	Absolute Frequency	Relative Frequency
Yes	81	76.4
No	8	7.5
Partially	17	16.0
Total	106	100.0

Source: own research

The Fourth Industrial Revolution is considered Industry 4.0, which represents the driving force behind digitalisation and automatisation. The actual implementation of Industry 4.0 in manufacturing enterprises requires having a corporate strategy in place that addresses digital transformation in each business area. In the surveyed enterprises in Slovakia, the implemented Industry 4.0 strategy is predominant with a share of 30.2%. Industry 4.0 is in the state of implementation in manufacturing enterprises with a share of 25.5%. The formulated Industry 4.0 strategy is at the level of 15.1% in the surveyed enterprises. Industry 4.0 strategy is under preparation with a share of 14.1% and pilot initiatives are at the level of 12.3%. Industry 4.0 strategy is not implemented in only 2.8% of manufacturing enterprises.

Table 2: State of implementation of Industry 4.0 strategy in manufacturing enterprises in Slovakia

Industry 4.0 strategy	Absolute Frequency	Relative Frequency
No strategy exists	3	2.8
Pilot initiatives launched	13	12.3
Strategy in development	15	14.1
Strategy formulated	16	15.1
Strategy in implementation	27	25.5
Strategy implemented	32	30.2
Total	106	100.0

Source: own research

When implementing Industry 4.0 in manufacturing enterprises, digitalisation needs to transform different areas in the enterprise. From the responses, we obtained that manufacturing enterprises implement Industry 4.0 mainly in production (21.70%), followed by logistics (15.09%), IT (14.15%), purchasing (13.21%), and research and development (12.27%). The smallest percentages were achieved in the business areas of service (9.43%), human resources 8.49%, and finance (5.66%).

Table 3: Areas of Industry 4.0 implementation in manufacturing enterprises in Slovakia

Business areas	Absolute Frequency	Relative Frequency
Research and Development	13	12.27
Purchasing	14	13.21
Production	23	21.70
Logistics	16	15.09
Human Resources	9	8.49
Finance	6	5.66
Service	10	9.43
IT	15	14.15
Total	106	100.0

Source: own research

The implementation of Industry 4.0 in manufacturing enterprises also includes the use of several Industry 4.0 technologies that are an integral part of this concept. Based on the fact that Industry 4.0 is used in the analysed enterprises primarily in production, we examined the implementation of selected Industry 4.0 technologies in production. Based on the validity values, we can conclude that the most used Industry 4.0 technology in production is autonomous robots, which scored an average of 3.77 points (SD=1.948) with median of 4 and mode of 5. Smart sensors (M=3.72, SD=2.317, Median=5, Mode=6), cloud computing (M=3.68, SD=2.031, Median=4, Mode=5), predictive maintenance (M=3.56, SD=1.903, Median=4, Mode=5) also gained an average value above 3 points. manufacturing enterprises use least likely to use cyber-physical systems (M=2.14, SD=2.286 Median=1.5, Mode =0), artificial intelligence and machine learning (M=1.53, SD=2.161, Median=1.50, Mode =0) among the Industry 4.0 technologies.

Table 4: Using Industry 4.0 technologies in manufacturing

Industry 4.0 technologies	N	M	Median	Mode	SD
Smart Sensors	106	3.72	5	6	2.317
Additive Manufacturing	106	2.75	3	0	2.230
Predictive Maintenance	106	3.56	4	5	1.903
Cyber-physical Systems	106	2.14	1.5	0	2.286
Artificial Intelligence and Machine Learning	106	1.53	0	0	2.161
Cloud Computing	106	3.68	4	5	2.031
Autonomous Robots	106	3.77	4	5	1.948
Internet of Things	106	2.72	3	3	1.766
Big Data	106	2.68	3	2	1.849
Digital Twin	106	2.33	2	1	1.840

Source: own research

The use of Industry 4.0 in the manufacturing process benefits businesses. Respondents identified that inventory data has the greatest benefit in implementing Industry 4.0 as it achieved the highest mean of 4.67 points (SD=1.717) with a median of 5 and a mode of 6 points. Respondents attributed equal importance to manufacturing throughput time (M=4.58, SD=1.530, Median=5, Mode=6) and overall equipment effectiveness (M=4.58, SD=1.434, Median=5, Mode=6). The smallest benefits for enterprises leveraging Industry 4.0 in production are manufacturing residuals (M=4.20, SD=1.588, Median=4, Mode=5) and employee utilisation (M=3.56, SD=1.842, Median=4, Mode=4). The other possibilities are concentrated in Table 5.

Table 5: Benefits of Industry 4.0 in the manufacturing process

Benefits of Industry 4.0	N	M	Median	Mode	SD
Inventory data	106	4.67	5	6	1.717
Manufacturing throughput times	106	4.58	5	6	1.530
Equipment capacity utilization	106	4.42	5	6	1.460
Manufacturing residues	106	4.20	4	5	1.588
Error quota	106	4.23	5	5	1.545
Employee utilisation	106	3.56	4	4	1.842
Data on remaining processing	106	4.41	5	5	1.439
Overall equipment effectiveness (OEE)	106	4.58	5	6	1.434

Source: own research

5. Conclusion

The Fourth Industrial Revolution is the key to increasing productivity, supporting economic growth and ensuring the sustainability of manufacturing enterprises. Industry 4.0, which is considered to be the driving force of the Fourth Industrial Revolution, has an integral impact in manufacturing processes, as it represents a response to the trend towards digitalisation of industry. The implementation and use of Industry 4.0 in production management represents its transformation through Industry 4.0 technologies into smart manufacturing, making it the key element in the performance of the manufacturing organisation. The main objective of the present paper was to identify, on the basis of the theoretical framework, the concepts that are concerned with digitalisation, the Fourth Industrial Revolution, smart manufacturing and at the same time to interpret the results of the research that analyse the current state of the studied issue in manufacturing enterprises in Slovakia. In the first part of the paper, we compared foreign authors' views on the studied issue. Interpretation of the studied issue from the practical aspect was realised on the basis of the evaluation of the questionnaire survey. The questionnaire survey involved mainly large enterprises in Slovakia. The Bratislava, Trnava and Trenčín Regions were represented in identical percentages in the research sample. Based on the summarisation of the results from the questionnaire survey, the largest number of enterprises participated from the machinery & equipment industry. More than 3/4 of manufacturing enterprises perceive digitalisation and accept the Fourth Industrial Revolution in business processes. In the surveyed enterprises in Slovakia, the implemented Industry 4.0 strategy is predominant. From the answers we obtained that manufacturing enterprises implement Industry 4.0 mainly in production. The most used Industry 4.0 technology in production is autonomous robots. Respondents identified that inventory data was the biggest benefit in implementing Industry 4.0 in manufacturing.

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Trust in the police: Determinants of different development of police credibility in the Slovak Republic and in the Czech Republic

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Abstract: Trust is a presumption and a consequence of quality police service for citizens. The relationship of trust and distrust between the citizen and the police is complicated not only in terms of the complexity of current socio-economic relations and crises (macro level), but also in terms of the nature of police work and internally differentiated police activities (micro level). The aim of the paper is to identify probable determinants of different development of police credibility in the Slovak Republic (according to Standard Eurobarometer 96 Winter 2021-2022 46 % of the public trust in the police) and in the Czech Republic (according to Standard Eurobarometer 96 Winter 2021-2022 77 % of the public trust in the police). The presented research was realized at the Police academy of the Czech Republic in Prague and at Academy of the Police Force in Bratislava in summer semester 2022 and methodologically was based on similar foreign research. The unifying starting point for researching become the Integrated model of trust in a police organization.

Keywords: Internal security, police, police force, public service, trust

JEL classification: Z18, J18

1. Introduction

Trust is a presumption and a consequence of quality police service for citizens. Gaining trust is a long and complicated process, which is not only related to the fact, that the police can have crime under control, resp. is effective in detecting and clarifying. Trust in the police is related to overall social conditions, changing norms and economic changes (macro level), as well as to the professionalism of police officers, their communication skills, etc. (micro level).

National differences also play an important role in this context. The aim of the paper is to identify probable determinants of different development of police credibility in the Slovak Republic (according to Standard Eurobarometer 96 Winter 2021-2022 46 % of the public trust in the police) and in the Czech Republic (according to Standard Eurobarometer 96 Winter 2021-2022 77 % of the public trust in the police) based on Integrated model of trust in a police organization and finding out the impact of the pandemic Covid-19.

2. Literature Review and Methods

The low credibility of the police negatively affects the effective fulfillment of goals and tasks, as citizens refuse to cooperate (Boateng, 2013). Credibility is a prerequisite for accepting the method of police intervention (Kyprianides et al., 2020).

In line with Dinušová (in Baričičová, 2021), the authors understand the relationship of trust and distrust between the citizen and the police force as complicated not only in terms of the complexity of current social relations, but also in terms of the nature of police work and internally differentiated activities of

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the police force. “The relationship between the police and the public is not unilateral, but bilateral, so on the one hand it is formed under the influence of factors affecting the activities of the police force, quality of work and ability to fulfill certain social functions, on the other hand the general credibility, security and the economic situation and the overall situation of the citizen and the public” (Dinušová 2020).

The Integrated model of trust in a police organization (Boateng, 2013), modified by the focus of mass media (Junková, Kný, 2021) and authors, becomes to some extent the unifying starting point for researching the issue. The dashed and unbroken lines indicate the interconnection and the + signs indicate the positive effect and the – signs the negative effect.

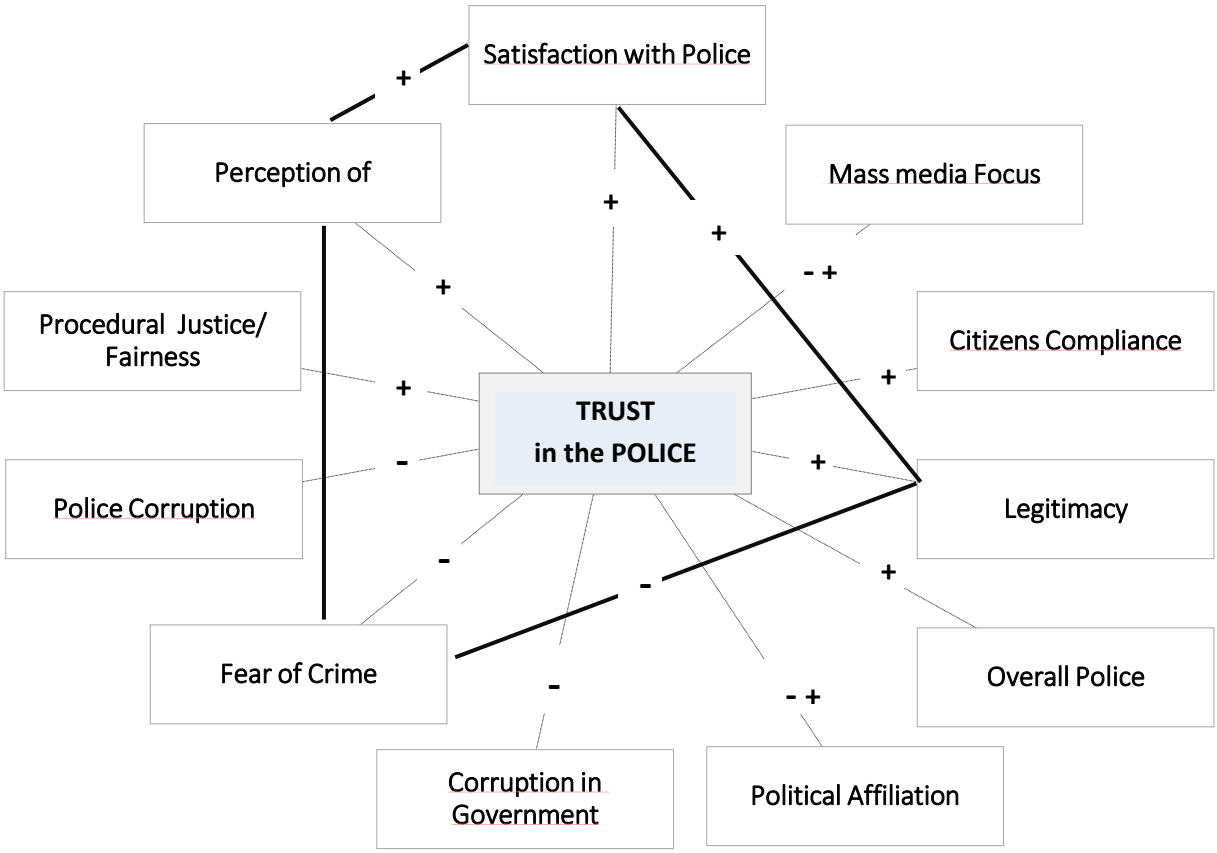

Figure 1: Integrated model of trust in a police organization (Boateng, 2013; modified by Junková, Kný, 2021 and authors)

According to some studies (Nix, J., Wolfe, S. E., Rojek, J., Kaminski, R. J., 2015), the perception of procedural justice (where the police act fairly and impartially without an authoritative approach) is more important in assessing trust in the police force than other relevant factors (police contact, demographic factors, fear of crime, etc.). Research in the US suggests that procedural justice (police justice) and crime control efficiency are key determinants of police satisfaction and police confidence (Lee H.D., Boateng, F.D., Marenin, O., 2015).

Currently, when “the importance of the police as a guarantor of internal security and, more recently, one of the actors in support of society-wide resilience to crisis is growing” (Junková, Kný, 2021), Murdza draws attention beyond the Integrated model of trust in a police organization to the impact of social crisis, which “determine the activities of social institutions, including the police and lives of police

officers" (Murdza, 2021) and Sabayova draws attention to the fact, that so far "little attention has been paid to examining differences in trust within selected socio-economic groups" (Sabayova, 2021). Kaščák complements the factors influencing the credibility of the police force with illegal or unethical activities of members of the police force: "The police force is a power tool of the state, so individual members of the police force have extensive powers and competency, which in combination with autonomy in decision-making act on 53% of them strongly or very strongly as "disturbing influences" in terms of abuse of power by a public official, as shown by research carried out directly in the service performance by Proffessor Ernker" (Kaščák, 2021).

The most common source of data on trust remains the level of trust resp. distrust in attitude surveys. Eurobarometer is one of them.

Table 1: Trust and distrust in selected areas in the Slovak Republic (SK) and the Czech Republic (CZ) in Winter 2021-2022

Selected areas	Tend to trust (in %)		Tend not to trust (in %)	
	SK	CZ	SK	CZ
Political parties	16	17	80	83
The Government	22	45	73	55
The Parliament	23	35	70	65
Justice, legal system	31	61	65	39
NATO	29	68	58	32
Police	46	77	51	23
The written press	41	51	50	49
The EU	43	50	47	50
Television	51	50	46	50
Public administration	49	53	45	47
Regional or local public authorities	49	60	45	40
Radio	51	70	43	30
Army	54	86	39	14

Source: Standard Eurobarometer 96

Slovak respondents have a significantly lower tendency to trust and a greater tendency not to trust in the above-mentioned selected areas than Czech respondents. Fifty percent and higher tendencies to trust were noted among Slovak respondents in only three of the thirteen areas, while Czech respondents tended to trust ten areas. Fifty percent and higher tendencies to distrust were noted in the case of Slovak respondents in seven of the thirteen areas, in the case of Czech respondents in five ones.

Trust and cooperation between the police and citizens vary between states, as the trend in the development of trust or distrust does. Low trust in the police in the Slovak Republic has been a long-term phenomenon. Compared to the Czech Republic, the development curve indicates that citizens generally react to social occurrence in a similar way. However, the differences in the share of distrusters and the fact that from almost identical starting positions of both countries in 2004 the distrust in the Czech Republic decreased from 58 % to 23 % (in 2020), are alarming. In the Slovak Republic, more than half of the respondents still do not trust the police a long time (51 % in 2020).

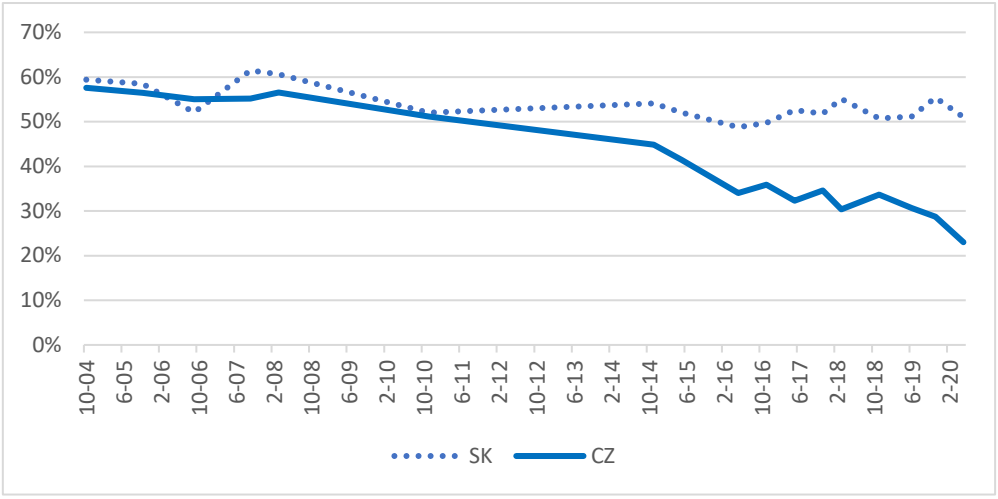

Figure 2: Distrust in the police in the Slovak Republic and in the Czech Republic according to Eurobarometer in 2004-2020

Thomassen´s research shows, that "perceived corruption in the public sector damages trust in the police more than trust in other government institutions" (Thomassen, 2013). The Corruption Perceptions Score which measures how corrupt each country´s public sector is perceived to be according to experts and businesspeople is 52 in the Slovak Republic and 54 in the Czech Republic (a country´s score is the perceived level of public sector corruption on a scale of 0-100, where 0 means highly corrupt and 100 means very clean; Transparency International, 2021). The minimal difference in the score does not indicate that the perception of corruption could have fundamentally affected the higher distrust in Slovakia.

Specifically expenditures of the Slovak Republic for the police services presented 1,4 % of GDP and 3 % of total state budget expenditures; in the Czech Republic approx. 1 % of GDP and 2,2 % of total state budget expenditures (Eurostat, 2020).

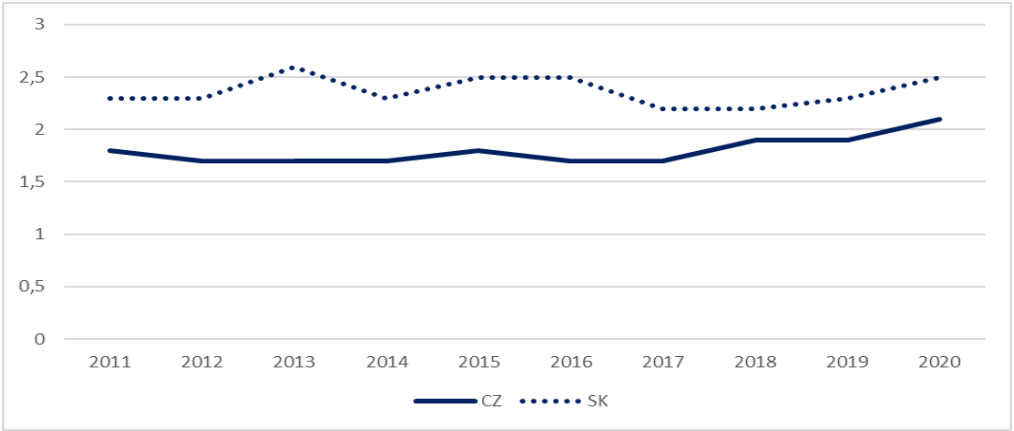

Figure 3: General government expenditure by function (COFOG) - percentage of GDP

The relationship between expenditure and trust has not been proven. As well as the relationship between the economic situation and trust. A larger proportion (53 %) of Slovak Eurobarometer respondents rated the economic situation in the country better (21 %) or the same (33 %), while only 39 % of Czech Eurobarometer respondents rated it better (20 %) or the same (19 %). Majority of Czech

Eurobarometer respondents (61 %) and 43 % of Slovak Eurobarometer respondents rated the economic situation in country worse (Standard Eurobarometer 96, Winter 2021-2022).

The presented research was realized at the Police academy of the Czech Republic in Prague (130 respondents) and at Academy of the Police Force in Bratislava (74 respondents) in summer semester 2022 and methodologically was based on foreign research (Lee H. D., Boateng, F. D., Marenin, O., 2015, 2015; Boateng, F. D., 2013) with an effort to find out which factors are the main determinants of satisfaction with the police and the level of (dis)trust in the police.

The survey was conducted electronically among students of bachelor´s and master´s degree: 204 respondents (107 women, 97 men), 30 questions. The only dependent variable was trust in the police, which was either explicit or implicit in questions. The independent variables in this research were procedural justice, police work efficiency, subjective fear of crime and police willingness (engagement).

3. Results

The police organization is the main guarantor of security and law enforcement and is practically the most visible among the authorities, unfortunately, mainly as a symbol of repression, which theoretically can affect the differences in perception of different socio-economic groups.

Table 2: Trust according to socio-economic groups in the Slovak Republic and in the Czech Republic

Respondents´ answers	SK		CZ		SK			CZ		
	Man	Woman	Man	Woman	Capital	City	Village	Capital	City	Village
Definitively agree (%)	17	11	23	33	1	15	12	9	31	16
Rather agree (%)	37	29	24	16	8	32	27	6	21	13
Total (%)	54	40	47	49	9	47	39	15	52	29

Source: own research

Research has shown, that: in the Slovak Republic most men trust the police, in the Czech Republic more women; according to the aspect of place of residence, in both countries, police in smaller cities enjoyed greater trust and respondents living in capital cities had the lowest confidence.

Respondents were asked to identify (among 11 factors of Integrated model of trust in a police organization: Satisfaction with Police, Mass media Focus, Citizens Compliance, Legitimacy, Overall Police, Political Affiliation, Corruption in Government, Fear of Crime, Police Corruption, Procedural Justice, Perception of) top 3 crucial factors of the positive impact on trust in the police.

Slovak respondents most often mentioned the overall Satisfaction with Police, Mass media Focus and subjective Perception of the police based on experience. Czech respondents stated Mass media Focus, Political Affiliation and Satisfaction with Police. A negligible factor in both countries is the fear of crime. As for the factors that should negatively affect trust, it is corruption in both sets.

Empirical research also took into account social aspects that may have been reflected in the perception by the public. The pandemic Covid-19 appears to have affected public confidence in the police. While 66% of Slovak respondents think it has fallen, 56% of Czech respondents believe it has risen.

Table 3: Trust in the police in the Slovak Republic and in the Czech Republic during the pandemic Covid-19

Respondents´ answers	SK		CZ	
	Men	Woman	Men	Woman
Definitively increased	3 %	1 %	6 %	4 %
Rather increased	19 %	12 %	21 %	25 %
Has declined	28 %	15 %	23 %	18 %
Definitively declined	7 %	16 %	1 %	2 %

Source: own research

4. Discussion and conclusion

No significant differences were found in the presented aspects based on Integrated model of trust in a police organization in terms of their possible impact on different development of police credibility in the Slovak Republic and in the Czech Republic (Table 1: Trust and distrust in selected areas in the Slovak Republic and the Czech Republic in Winter 2021-2022; 46 % of the Slovak public tend to trust in the police and 77 % of the Czech public tend to trust in the police). Empirical research beyond the aspects of Integrated model of trust in a police organization demonstrated the impact of the pandemic Covid-19, when Czech respondents perceived an increase in the credibility of the police and Slovak respondents perceived a decrease in it.

We identify a slightly increased difference in procedural fairness, to which Slovak respondents were more sensitive, and in allegations of corruption in government and political affiliation, which affected Czech respondents.

Paradoxically, in terms of the feeling of security as a determinant of trust, in both countries this factor was irrelevant in this context.

The assumption that the perception of procedural justice is more important in assessing trust in the police force than other relevant factors has not been confirmed, as in the Slovak survey this determinant of trust was only in 6th place and in the Czech Republic even in 10th place.

On the contrary, perceived corruption in the public sector also damages police confidence. This is confirmed by the fact that in both countries this factor was in the first place of factors that negatively affect confidence, while the Czech respondents were a bit more sensitive. The minimal differences in the perception of corruption in the public sector and in the score do not indicate that this factor could be behind such a fundamentally different development of confidence in Slovakia and in the Czech Republic.

In conclusion, there were no statistically significant differences in the responses to suggest that they were the reason for the different development of (non) credibility in the police in the two countries.

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Residential development in the surroundings of golf courses in the Czech Republic

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Abstract: The article analyses the residential development in the surroundings of golf courses in the Czech Republic. This constantly evolving and dynamic area of residential construction reflects the current socio-economic aspects according to the purpose for which it is designed. The first part of the article analyses the actual data of the selected projects, for who the construction is intended and what it includes. Publicly available databases, internet resources and land use plans were chosen for this purpose. In the second part, the analysis concerns the development companies for selected projects, the financial aspects (the economic results of the development companies and an analysis of their ownership structure), and an evaluation of territorial and map documents. The study is supplemented by a qualitative survey (interview) from one of the locations. The question of the construction of luxury residential areas also arises. The impact on the regional economy (especially the municipalities concerned) and the tax yield are addressed in the selected case studies (this issue is closely related in the long term to whether the property owner is also a resident).

Keywords: Real estate, Municipal revenue, Urban planning, Leisure time, Public services

JEL classification: A140, R300, H000

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1. Introduction

The golf community attracts diverse groups of property buyers (Gibler et al., 2018). The authors of the study state that older residents living near a golf course positively assess the development of the infrastructure that has been impacted by construction or is newly built (e.g. water and sewerage). On the contrary, they negatively assess the high prices of real estate and land, the lack of comprehensive services (e.g. shops, medical accessibility, banking services, etc.) and increased road traffic. As many as one-third of golf courses in the USA are part of a wider residential construction (Crompton, 2004). This trend has been observed in the USA since 1990 and in the Czech Republic, in some aspects, during the post-2000 socioeconomic boom (Sláma et al., 2018a). An example is the Oaks Prague project in the Central Bohemian Region, which includes the construction of a residential network. The project involves the construction of villas (the most expensive of which were valued at 100 million CZK in 2015; Weberová, 2015), apartment houses (even with smaller housing units), a country club (equestrian), an 18-hole golf course, tennis courts and other sports and wellness activities. The project involved the construction of engineering and energy networks, its own transformer site and retention tanks with a volume of 30,000 m^3, communication networks, and the creation of running, cycling and riding routes (hippotourism). In terms of accessibility to transport, a motorway feeder was also designed for the project. The development, including that of the territory, depends on its socioeconomic characteristics (Postránecký, 2013). Macroeconomic and microeconomic characteristics are captured at the regional level. In addition, the development of leisure-related services brings lucrative jobs that benefit the regional economy (Peter, 2007). In the Czech Republic, unrestricted access to a large part of the landscape and open spaces is a specific feature (Sláma et al., 2020). This is not the case in Europe and

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the rest of the world, and a ban on entering an area of personal property can be perceived negatively (Sandberg et al., 2016 or Sláma et al., 2018b).

2. Materials and methods

This article aims to analyse the current residential constructions near golf courses in the Czech Republic. The reason for setting this goal is the rapidly developing trend of new residential housing in the vicinity of golf courses and the associated problems with infrastructure and civic amenities. Based on the set goal, two research questions were formulated:

- What is the trend of the current residential constructions near golf courses?
- Is the main target group of these residential constructions only luxury clients?

For this article, two localities that are the only places where completely new full-scale urban structures are currently under construction following the golf courses (the Oaks Prague and Zeleneč) were selected. The methods used to answer these questions provided a superior picture of the empirical reality. Factual data on projects published in freely accessible databases, financial statements, and websites were used as a basis, i.e. ownership, property and capital structure, balance sheets, audits, final reports, and the purpose and focus of the projects. Furthermore, map materials and the texts of the zoning plans for the municipalities of Popovičky and Zeleneč were used to analyse how the individual areas were used. The analysis was supplemented by a semi-structured interview with the construction manager of the Oaks Prague project (for Arendon) and the natives of the village of Nebřenice, where the project is located (the processed interview is incorporated into the descriptive part of the project in the form of a narrative and is in *italics*). The results were obtained based on a simple evaluation of the collected data and their qualitative evaluation without the use of statistical methods.

3. Results and discussion

<u>The first case study: the Oaks Prague</u>

The Oaks Prague project is currently being implemented northeast of Prague near the small village of Nebřenice and can be divided into two parts. The residential construction over an area of more than 120 hectares includes 480 luxury housing units (apartment and villa houses) and a prestigious golf course (certified by the PGA National) spread over approximately 140 hectares. The scope of the project in terms of the engineering of roads and networks is described in the introduction to the article. *The interview with the chief construction manager reveals that the construction of the bypass was a major investment. The backbone infrastructure consists of a water purifier and the golf course drainage system is integrated into the project. The project includes a retention reservoir, which will be used also to irrigate sports grounds or public greenery. Up to 3,000-5,000 trees should be planted. For irrigation, water can be drawn from a nearby quarry, from which up to 5,000-6,000 m^3 of collected rainwater can be pumped. The average amount of precipitation in the built-up area (including the sports grounds and adjacent fields) is approximately 12,000 m^3 of water, which is accumulated in a tank with a volume of 15,000 m^3.*

The interview also describes the construction of the sports fields and real estate and the project includes a golf course and an equestrian club. *In the Kellner Equestrian Academy, it will be possible to*

stabilise your horse and use the newly built local hippodromes (current trend in the Czech Republic, Peterková & Sláma, 2021).

The completion of the various construction stages was planned for 2021-2023 at the time of the interview (2018). *With the new development, the castle (Nebřenice), which was in a desolate state, was reconstructed. The construction company built the golf club in the chateau with a hotel and spa.*

In an interview, a representative of Arendon said that most of the current residents of Nebřenice approved the project plan for the Oaks Prague. The main benefits include gasification, introduction of high-speed internet, cultivation of the landscape and the repair of the castle. The biggest disadvantage is the loss of land. The most expensive land is located on the golf course, as confirmed by Napton & Laingen (2008). The benefits and disadvantages reported by the natives correspond to the findings of the study by Gibler et al. (2018). The performance of the Arendon Development Company, which manages the Oaks Prague project, can be seen in **Figure 1**.

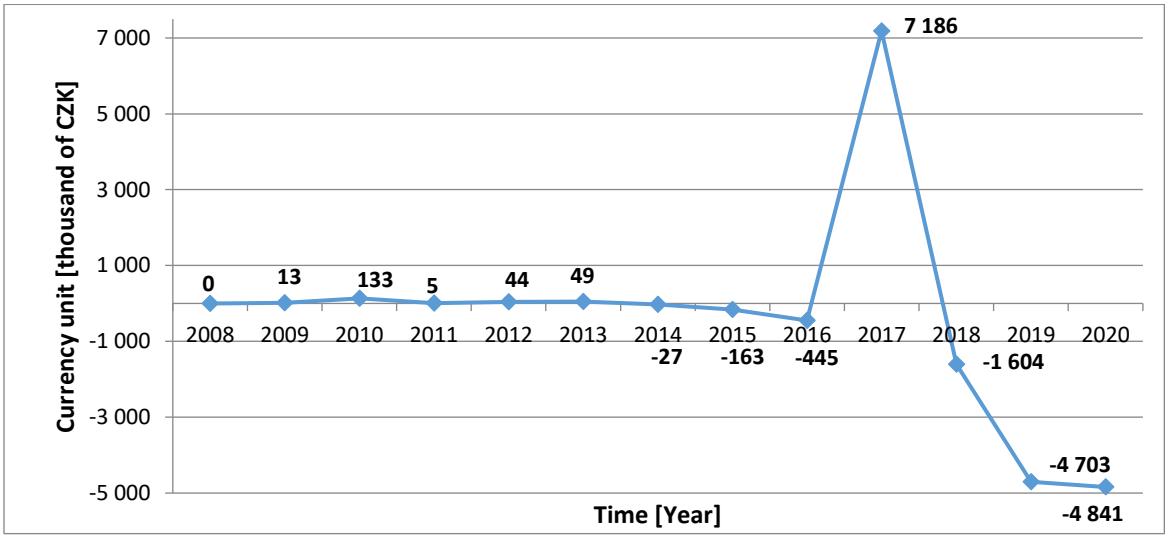

Figure 1: Economic results of the Arendon Development Company, joint stock company (2008-2020).

Compared to the more profitable development company LEXXUS, which is implementing the Nový Zeleneč project, the development company Arendon (the Oaks Prague) has not done so well in recent years. Since 2018, it has been making a loss that is far greater than in 2014-2016. Apart from 2008, when the company entered the market, it had an average profit of only 49,000 CZK. The company reached its only significant peak before the covid crisis, in 2017 with more than 7 million CZK. A closer look at the auditor's report shows that the Cypriot company Lormont Limited was a 100% shareholder. In the profitable year, the company acquired a website, accounting software, digital visualisation of the Oaks Prague project, and also moved into new rental premises. The largest commitment was a contract with the architectural firm Chapman Taylor for almost 4.7 million CZK. Until June 2022, the Russian oligarchs Alexandr Abramov (66.7%) and Alexandr Frolov (33.3%), according to Novák (2022a; 2022b), were the real owners behind the Oaks Prague project. A relatively complicated journey through direct connections to three other companies (Lormont – Cyprus, Vollin Holdings – British Virgin Islands, Whitecliff Enterprises – British Virgin Islands) and two consulting companies (Great Britain: Decimus Real Estate and Kew Capital) led to these two businessmen. The development company Arendon did not report to its final owners. Therefore, the change of owners took place under social

pressure. The lawyer and investor Bohumil Koutník became the new owner of Eurocapital SE in June 2022 (Novák, 2022b).

The second case study: the Nový Zeleneč project

The second residential construction project, Nový Zeleneč, is located northeast of Prague near the village of Mstětice, which is part of the municipality of Zeleneč. Since 2005, a complete 18-hole golf course and a new sports stadium have been built. The project includes the construction of residential, family and villa houses and a boulevard with shops and services. The development company declares that there will be no lack of civic amenities, such as a school, kindergarten, medical facilities and a new church. The green areas are also an integral part of the project and will cover approximately 42 hectares. Access to public transport is ensured by a repaired train station, which guarantees a connection to the centre of Prague in 26 minutes. The first residents who apply for housing from this project are offered a financial incentive of up to 0.5 million CZK. Looking at the performance of the LEXXUS development company (**Figure 2**), a relatively balanced rising trend (Ø ≈ 10.3 million CZK) can be seen in the period from 2012 to 2020. The company achieved a negative economic result only once, in 2001. In addition to the negative result for the first three years, the company had positive values below 1 million CZK. Values in units of millions of crowns with several peaks above 10 million CZK (2005, 2007, 2009, 2014, 2017 and 2020) have been stable since 2003. The decline in the economic result in 2008 corresponds to the global financial crisis when the global economy experienced a recession (Stiglitz, 2009).

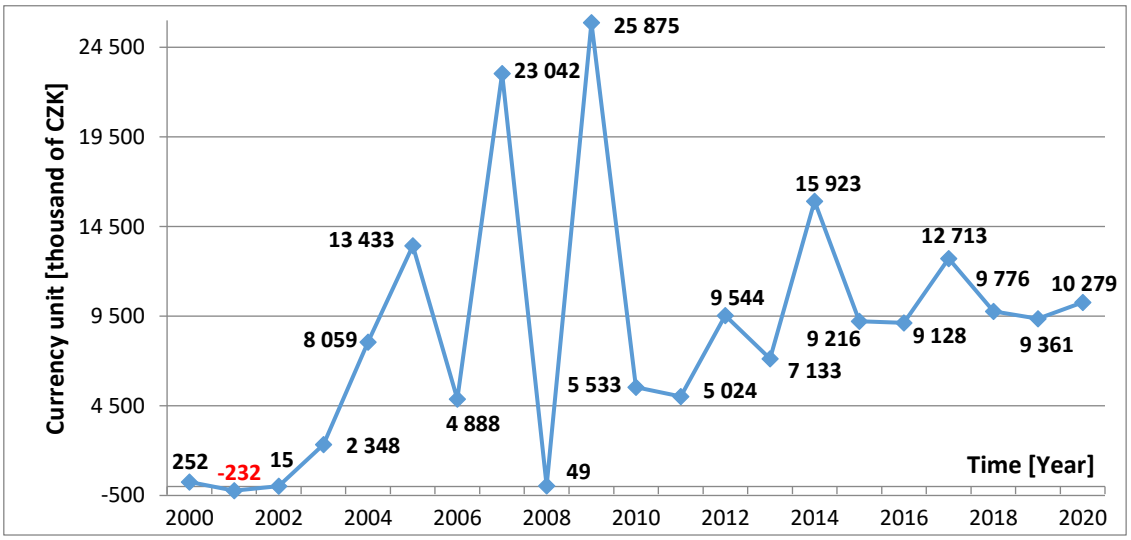

Figure 2: Economic results of LEXXUS, joint stock company (2000-2020)

Comparison of the development plans of the selected projects (the Oaks Prague and Nový Zeleneč)

Due to the planned development, the municipalities of Popovičky and Zeleneč have approved updated zoning plans for their municipalities, which fully reflect the planned construction. Both zoning plans were first approved more than ten years ago. However, in connection with the development of the municipalities, both plans underwent several substantial updates (the municipality of Popovičky approved the last update in 2020-2021 and the municipality of Zeleneč in 2021). In both areas, development areas related to the monitored activities are located only in part of the municipality, or in one of their cadastral areas. In the village of Popovičky, this is mainly the cadastral area of Nebřenice

and a small marginal part of the cadastral area of Chomutovice and Popovičky. In the case of the municipality of Zeleneč, significant development is planned only in the cadastral area of Mstětice. It should be added that the remaining parts of the monitored municipalities are undergoing a dynamic change in spatial planning although these changes are moving in a completely different direction than in the exposed parts associated with the Oaks Prague and the Nový Zeleneč development projects, as shown in **Figure 3**.

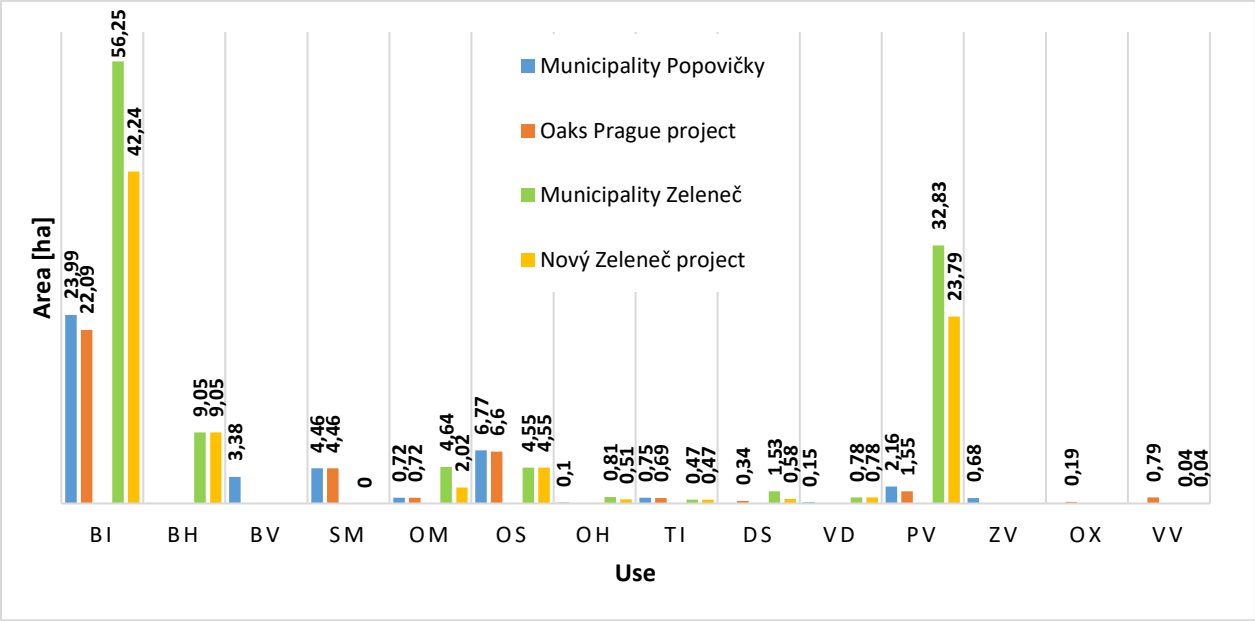

Figure 3: Utilisation of individual areas within the zoning plans of the Zeleneč and Popovičky municipalities (BI - individual housing, BH - collective housing, BV - rural housing, SM - mixed rural areas, OM - civic amenities, OS - sports areas, OH - cemetery, TI - technical infrastructure, DS - water areas, PV - public spaces, ZV - agricultural production, OX - civic equipment for recreation, VV - technical water facilities)

At first appearance, it is obvious that both municipalities are completely different in how the individual areas are used. A more detailed analysis shows that the municipalities mostly focus their development in the areas connected with the described development projects – in the municipality of Popovičky the development areas are connected with the project by 86%; in the municipality of Zeleneč by 75%. In one way, the remaining parts of municipalities pay for the presence of large projects through development, when it is almost impossible to define similar areas of use in other cadastral areas. The changes will thus focus on areas such as agricultural production, rural housing, etc. The exceptions are two development areas for the construction of new family houses near the original core development of the municipality of Zeleneč. The municipality of Popovičky is dedicated to the development of purely sports and recreational living in individual housing without significantly overlapping with the daily life and development of the village; the municipality of Zeleneč focuses on creating new residential housing in villas, semi-detached houses and the normal functioning of the population. The proof of this is a more detailed view of the use of nonresidential areas in both areas. In the Popovičky municipality, all other small areas for civic amenities are concentrated on sports and recreational facilities (although a detailed analysis of the situation shows these should be for a fitness centre, riding club, golf club or restaurant). However, in the Zeleneč municipality, these other small areas are for the needs of education, healthcare, sports, and, for example, a cemetery. A significant part of the

development of the Zeleneč municipality is also devoted to areas of public spaces, whether in the form of paved or green areas, which are very popular in the village.

4. Conclusion

Due to its ownership structure, the Oaks Prague project has recently caused embarrassment in its surroundings. At first appearance, it is clear that the real estate prices correspond more to luxury clients. A positive fact may be the promised remuneration for the municipality of Popovičky of 20 million CZK for each completed stage of the project and non-financial performance in the form of drinking water supplies. Drinking water is a long-term problem for the municipality of Popovičky and its surrounding areas in the summer months. This is why the criterion of water management was, and is, so crucial in the Oaks Prague project. Popovičky also contractually agreed with the developer that the surrounding roads will remain freely passable. On the contrary, the Nový Zeleneč construction is presented as more affordable housing, mainly due to the civic amenities and services such as a medical facility and school. The construction of a science and technology park as support for science and research can be included among the above-standard civic amenities. Various interested, but also competing, financial groups have declared their interest in the construction of residential development projects (Read et al., 2022).

A descriptive analysis of the two case studies of residential construction in the Czech Republic near golf courses can be used to document and simultaneously answer the two research questions formulated in Chapter 2 (Materials and methods):

- The current trend of this specific type of residential construction in the Czech Republic with regard to the location near golf courses can be divided into two branches. The first is focused more on luxury clients, the structure of services, the impact on transport, and how spending free time corresponds to this. The second can be characterised more as "affordable" housing with a characteristic portfolio of civic amenities and services (including access to public transport).
- Luxury clients are more likely to have another property for leisure time (analogy to cottages, etc.). However, families with children are more likely to choose a property from the Nový Zeleneč project for their housing.

Therefore, in any follow-up research, it would be interesting to focus on the residents of both projects when they are fully occupied and find out how many of them live there permanently (are residents) and how many have their real estate as a second home. In the case of permanent owners, there will be a different tax yield in the direction of the affected municipalities where the real estate is located. Residents are more likely to spend their income where they live. In the case of second homes (especially for luxury clients), local household spending will not be regular. The optimal income structure of the municipalities is essential for their development at the level of a sustainable regional economy (Martin-Utrillas et al., 2015).

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New Research Approaches to the Czech Historical Accounting Terminology

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Abstract: Czech accounting terms used in the territory of current Czech Republic before 1991 did not have a uniform and often not even clear meaning, which currently fundamentally complicates the reading of historical accounting records and their interpretation. The paper aims to present new research approaches to the investigation of Czech historical accounting terminology, on two levels: availability of original sources and the methods of their research. Their application has great potential to enable the processing of the glossary as a key tool facilitating archival search, which fundamentally improves the professional interpretation of historical accounting records.

Keywords: accounting; terminology; linguistics; history; Czech Republic

JEL classification: M4, N0

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1. Introduction

Czech accounting terms used in the territory of current Czech Republic before 1991 did not have a uniform and often not even clear meaning, which currently fundamentally complicates the reading of historical accounting records and their interpretation. Although the need for a dictionary of Czech historical accounting terminology is obvious, it never arose. The main reason is that research requires a huge amount of primary data on the one hand and the cooperation of experts from several different fields on the other. The aim of this paper is to present new research approaches to the investigation of Czech historical accounting terminology, on two levels: availability of original sources and the methods of their research. Their application has great potential to enable the processing of the glossary as a key tool facilitating archival search, which fundamentally improves the professional interpretation of historical accounting records.

2. Current state of research

Not only economic history, but also many other scientific disciplines build their knowledge on information from accounting records originated before 1991. However, accounting documents were very multifarious in past Czechia, and so were the accounting terms used by them and their meanings. (Slavíčková, 2020a) At present, the meaning of accounting terms in the Czechia is clear, given by the Accounting Act No. 563/1991 Coll. and related regulations. However, during the Austrian Monarchy (before 1918) well as the Czechoslovak Republic, the state approach to accounting was in many ways very liberal. (Janhuba, 2018, p. 18) Before 1946, there was no uniform law on accounting. In the system

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of dominantly market economy, it was at the discretion of the economic entities (owners of property, buyers, entrepreneurs, companies etc.) to choose the accounting system, decide on the methods and choose a data structure that would provide them with relevant information for the evaluation of activities and decision-making. (Slavíčková, 2016, p. 968) Over the course of time, we can see the relatively slow adoption of legislative rules by the state government with limited impact, regulating only selected segments of the economy such as banks, joint-stock and limited liability companies, associations, etc. (Slavíčková, 2016, p. 968) The quality of accounting practice was then clearly dependent on the entity´s knowledge of accounting theory, an important aspect being the available options of each company (owner, office etc.) to acquire the necessary knowledge, that is, especially the content of textbooks and education system. After 1945, the approach to accounting significantly changed in terms of new needs. Accounting newly became only one part of the unified system of socio-economic information, together with costing, budgeting and statistics. (Slavíčková, 2016, p. 969)

The origins of unification of accounting terminology date back to the 19th century (Slavíčková, 2020a, p. 19), but even then the terms were not used uniformly in all sectors of the economy. Before 1946, when the first Act on Accounting No. 116/1946 Coll. was released, the content of accounting terms depended among others on specific accounting techniques, such as single-entry accounting, double-entry accounting, cameral accounting and administrative accounting (Janhuba, 2010, pp. 12-19), and on the current represented by some of the leading figures of the then accounting theory, such as Antonín Skřivan, Josef Pazourek, Hugo Raulich etc. (Puchinger, Slavíčková, 2014, pp. 11-30). After 1946, new terms were adopted in connection with the planned economy (under the "company accountancy") and, specifically after 1971 (Act No. 21/1971 Coll.), the meaning of some existing accounting terms was shifted in relation to the new established unified system of socio-economic information. Act No. 21/1971 Coll. was supplemented on 14 November 1989 by Act No. 128/1989 Coll. and Government Order No. 136/1989 Coll. (in force till current Act No. 563/1991 Coll.) defining accounting only as one part of the system of national economic records. At this time, accounting was a mere tool for collecting data for the needs of central authorities in planned economy which fundamentally influenced its method as well as the meaning of the terms. (Slavíčková, 2016, p. 969) All these facts led to the accounting before 1991 being fragmented in its very nature and having no uniform accounting terminology which caused difficulties for accountants already of that time.

3. Sources

The research is based on several types of primary sources; however not all of them are digitalized and ready for the research. The research is based on a combination of different types of resources, described in detail along with the information on its availability for the computational/manual work in the following paragraphs (3.1—3.3). The chronology of accounting development in the Czechia has already been created within the previous research (Slavíčková, 2020b).

3.1. Accounting textbooks

From the very beginning, accounting has been taught at both secondary and higher education institutions; or at various continuing and retraining courses as part of lifelong learning. (Slavíčková, Dvořáková Kaněčková, Puchinger, 2016) However, the system of accounting education began to develop only after the issue of the Trade Code in 1859. (Order No. 227/1859) The textbooks had essential importance and strong influence on the development of accounting especially in the period when there was no accounting legislation or its content was not sufficient, i.e. before 1862, resp. 1946.

(Puchinger, Slavíčková, 2014, pp. 33-56) For the actual research, the availability of accounting textbooks in digital form for individual periods is described in Table 1:

Table 1: Availability of textbooks for the reseach

Year	1st period before 1862	2nd period: 1863-1945	3rd period: 1946-1970	4th period: 1971-1991
Number	3	21	17	36

3.2. Accounting legislation

The first law on accounting in Czechia was issued in 1946. Until then, accounting rules were part of other laws, with more or less overlap to accounting. After 1946, in addition to the laws, a number of other legal documents were issued; the following table (Table 2) informs about their availability for the research in digital form.

Table 2: Availability of legislation for the reseach

Year	1st period before 1862	2nd period: 1863-1945	3rd period: 1946-1970	4th period: 1971-1991
Number	0	9	21	15

3.3. Historical economic dictionaries, professions journals and original accounting records

The historical sources such as economic dictionaries, professions journals and original accounting records are only of a complementary importance for the research as their digital availability is limited. Much more than the two previously mentioned categories of sources, in this case a manual form of processing is needed. In the case of dictionaries, 6 out of 17 are available in digital form; in the case of professions journals none out of 14.

4. Research approaches

Although the topic is associated with historical research, interdisciplinary cooperation between historians and economists (accountants), and also linguists and economic statistics, has proved promising. This combination of different scientific methods and interdisciplinary cooperation in the processing of the obtained data and their interpretation ensures the highest quality of results. Especially the use of linguistic methods for the processing of historical accounting sources, has proved to be a completely new approach in the field of accounting history with great potential. Such methods, primarily aiming on supporting researchers on defining wanted accounting keywords (or detected automatically, Kováříková 2021), can be described in three steps (4.1—4.3):

4.1. Mapping of keyword semantics in contexts

This analytical step supplies all contexts where the keyword (accounting terms) is being found in the texts sources. Such contexts are sorted by the year of the documents and by the author of the document to enable researchers grasp the meaning of the keyword in given periods qualitatively (Schiebert, 2011; Beitlová et al. 2001). Such a practice may be demanding as some examined words have high expected frequencies and amounts of contexts to assess manually by the researches. To aid this situation a step of expression/semantic clustering of the contexts is used.

4.2 Mapping of keyword semantics by automatic context clustering

The keyword occurrences expectedly share a portion of their contexts (Harris 1954). E.g. the word *plat* is expected to have similar words around, implying existence of a number of occurrences in similar contexts. Matching expressions or semantics of such contexts (Mikolov 2013, Bojanowski et al. 2017) obtains clusters of the similar contexts, which reduces the amount of the work needed from the researchers to evaluate each occurrence individually.

4.3 Bloom cognitive taxonomy

An auxiliary analysis of the keyword semantics is based on context summarization by Blooms Cognitive Taxonomy method (Bloom 1956), which directly identifies in-sentence words that have assumingly the largest effect on the semantic of the analyzed keyword (Fellbaum 1998). This analysis is, for purpose, understood as auxiliary due to uncertain stemming from the a priori unknown quality of the automatic syntactic analysis of Czech texts from the studied period. This part of research also includes evaluation of the risks involved in this process by validating a random, representative sample of terms.

5. Results

In the case of accounting textbooks, only a part of all published ones is available in digital form. Exact ratio cannot be determined with regard to reprints, it is between 20 % (the fourth period) to 80 % (the first period). However, based on a qualitative analysis of sources, we can say that available for research are textbooks of all key figures for accounting development, including Antonín Skřivan, Josef Pazourek, Karel Petr Kheil, Josef Fiala, Jiří Klozar, Libuše Müllerová and others. As a surprise is the availability of some marginal text, such as textbooks written by Josef Ratolíska or Antonín Chachula, which significantly refines the results when compared. The availability of textbooks by the same author from various periods, such as those by Josef Fiala from 1939, 1947 and 1954 or Rudolf Schroll from 1960, 1968, 1987 and 1990, is also of great importance for research.

In the case of accounting legislation, the availability of sources after 1946 and 1971 is almost absolute, the same applies for legislation before 1862. Only in the second period (especially before 1918) is the availability limited. In such a case, however, they are sources of secondary importance, which does not fundamentally affect the value of the findings.

The combination of the methods described above provides unique set of information about accounting terms. The set of information is divided into these categories:

1) most common function/s of the term based on statistical findings

2) list of synonyms at that time or/and different forms of the word with related words or phrases

3) range of meanings, specific senses of the word and description of their chronological development

4) label for accounting technique (single-entry, double-entry, cameral accounting), leading figures of the then accounting theory, etc.

5) examples of the occurrence of the term in original sources

6. Conclusion

The pilot application of linguistic, statistical and data analytics methods originally developed for other purposes into historical research provides a tool for quantitative research to an extent that has not yet been implemented in accounting. However, the currently available data analytics methods must be modified to fit the purpose of the research and the specific characteristics of the data and, if needed, new analytical methods will be developed.

The screening of availability of sources shows, that there are enough sources available digitized and online, especially in the group of documents crucial for the research: textbooks and legislation. However, there are some sources, such as the dictionaries and professional journals, that are not yet available digitally for the computational examination; in these cases it is necessary to supplement the basic research with manual work. After all, the same approach is necessary when evaluating data.

The use of modern technologies for working with historical accounting sources is a pilot experiment in order to verify the potential for its further use.

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What do you think about those COVID-19 measures? On the extremity and uncertainty of attitudes in business research

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Abstract: In the paper we explore the link between the extremity of answers provided during the assessment of a specific concept using the semantic differential-type scales and their uncertainty. We investigate whether a more polarized attitude (operationalized by the relative share of extreme scale values in the set of semantic differential scale answers) is linked with less uncertainty present in the answers. The research further extends the applicability of semantic differential in economic and business research. Semantic differential is currently being reintroduced into economic research in the field of strategic management research, risk management, multiple-criteria evaluation and related fields. This paper returns back to the original use of semantic differential, applies its two-scale alternative proposed for the interval-valued semantic differential tool on the assessment of COVID-19 related measures and investigates whether polarization of attitudes seems to result in lower perceived uncertainty of the evaluations being provided. The fsQCA methodology is applied to analyze the data and to see whether polarized attitudes reduce perceived overall uncertainty of the answers and whether a similar effect manifests itself also with specific, more projective and less descriptive scales used in the semantic differential. Implications for the use of generalized versions of semantic differential in economic and business research are discussed.

Keywords: Semantic differential, Extremity, Uncertainty, fsQCA, COVID-19

JEL classification: C44, D81, D91

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1. Introduction

Attitudes play an important role in our everyday life and influence (or determine) our choices in many real-life situations. As such the ability to capture attitudes and to reflect them in managerial, economic and business research is of paramount importance. Particularly in those areas of business and social science research that focus on (managerial) decision-making and choice as such. Even though there are several tools for the reflection of attitudes (or their "measurement", as this process is frequently denoted), we apply the semantic differential (SD) introduced by Osgood et al. (1957) as a main research tool. The method has proven useful in social sciences including psychology (Kahneman, 1963), political sciences, economics and business research and even operations research (Stoklasa et al., 2016). The original method by Osgood et al. (1957) method is fully capable of representing the attitudes towards concepts in a three-dimensional semantic space defined by the Evaluation, Potency and Activity dimensions (factors). The partially projective character of SD stemming from the requirement of using scales that are not descriptive for the given concept, however, results in lower comfort of the respondents in the data input process. Stoklasa et al. (2019a) pointed out that the inability to connect the used bipolar-adjective scale with the evaluated concept can result in a random assignment of scale

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value (among other issues) and propose an interval-valued SD (IVSD) to deal with this issue and to allow the respondents to express potentially lower certainty of their evaluation and to still be able to use the evaluation in the process of attitudes assessment. The IVSD uses a two-scale input format, where each bipolar adjective scale score is accompanied with an "uncertainty" level reflecting how certain the respondent is concerning the provided value. This format is intended to allow for the distinction between really neutral values (middle point of the evaluation scale) and answers that represent the inability of the respondent to provide an answer/score (stemming from perceived incompatibility of the scale with the concept, a low level of understanding of the scale etc.). The applications of the IVSD method have been proposed for the management of design process (Stoklasa et al., 2019b), in the area of multi-expert evaluation and consensus reaching (Stoklasová et al., 2022) and recently, proposals for the adoption of the IVSD ideas in multiple-criteria decision-making have been made (Stoklasová, 2021).

The ability to reflect the attitudes as well as the uncertainty of the inputs provided by respondents in self-report scales well in our economic, business and social sciences models is important. IVSD provides the needed tools for the reflection of uncertainty in attitudes extraction. Deep understanding of the sources of the uncertainty and its link with other factors relevant in the decision-making and in the attitude expression is, however, also needed. This paper therefore aims on this very aspect of the use of IVSD scales. More specifically we intend to investigate whether extreme values of the scales are linked with low perceived uncertainty of these answers, or in other words whether an expression of an extreme value of the evaluation scale (very low or very high) can be considered an indicator of high level of certainty of the respondent. To be able to investigate this, we will apply the tools of fuzzy set Qualitative Comparative Analysis (fsQCA, see Ragin (2008) or Schneider & Wagemann (2012)). fsQCA is a set of tools that allows for the investigation of the compatibility of IF-THEN rules with the available data. Even though fsQCA can be also used for the theory building purpose (Schneider & Wagemann, 2012), our focus here will remain on the *consistency* of the postulated IF-THEN relationship with the available data and on its *coverage* of the data. More specifically we will apply the recently proposed fuzzified consistency and coverage measures for fsQCA (Stoklasa et al., 2017, 2018) to enable for the IF and THEN parts of the investigated relationships to be fuzzy. These measures have already been successfully applied in the area of strategic management (Kumbure et al., 2020), in academic success prediction capabilities assessment (Stoklasa et al., 2020), in the field of investment decision-making (Welling & Stoklasa, 2021) and others.

The purpose of this paper can thus be summarized in the following way. We will investigate whether extremity of an evaluation provided on a IVSD bipolar-adjective scale is connected with low uncertainty of such an evaluation as perceived by the given respondent. This allows us to conclude whether extreme answers can be considered to be low-uncertain. We will investigate this on a dataset obtained from university students of business programmes. In the dataset three COVID19-related issues were considered and the attitudes of the respondent towards these issues– the transition from face-to-face to on-line teaching, the restrictions on traveling and the COVID19 vaccination issue. The COVID19 context was chosen to context with affective content and the three topics were chosen to cover areas with which the students did have first-hand personal experience for sure (teaching transition, vaccinations) and also that might have not affected all of them directly (travel restrictions). The effect of different levels of personal experience with the concepts towards which the attitudes are being assessed will also be discussed in this paper.

2. Preliminaries

To be able to describe the results of our analysis and the methods applied to obtain them, we need to shortly recall the basic concepts of fuzzy set theory (see Klir and Yuan (1995) for more) and of the fsQCA (see Schneider and Wagemann (2012) or Stoklasa et al. (2017) for more details). Let U be a nonempty set representing the set of values of the given variable. A fuzzy set A on U is then defined by the mapping $A: U \rightarrow [0,1]$. For each $x \in U$ we call the value $A(x)$ a membership degree of the element x in the fuzzy set A and $A(.)$ denotes the membership function of the fuzzy set A. $\mathrm{Ker}(A) = x \in U | A(x) = 1$ denotes a kernel of A, $A_\alpha = x \in U | A(x) \geq \alpha$ denotes an α-cut of A for any $\alpha \in [0,1]$, $\mathrm{Supp}(A) = x \in U | A(x) > 0$ denotes a support of A. A fuzzy number is a fuzzy set A on the set of real numbers with 1) a nonempty kernel; 2) bounded support and 3) all α-cuts being closed intervals for all $\alpha \in (0,1]$. The real numbers $a_1 \leq a_2 \leq a_3 \leq a_4$ are called significant values of the fuzzy number A if $[a_1, a_4] = \mathrm{Cl}(\mathrm{Supp}(A))$ and $[a_2, a_3] = \mathrm{Ker}(A)$. The negation of a fuzzy set A on U is the fuzzy set A' on U such that $A'(x) = 1 - A(x)$ for all $x \in U$. The cardinality of a fuzzy set A defined on a discrete universe is computed as the sum of the membership degrees of all the members of the universe in A. In this paper we will assume that the membership function of the fuzzy numbers is linearly increasing between a_1 and a_2 and connects the points $(a_1, 0)$ and $(a_2, 1)$ and linearly decreasing between a_3 and a_4 and it connects the points $(a_3, 1)$ and $(a_4, 0)$. In this case we can represent the fuzzy number A by the quadruplet of its significant values and we can write $A \sim (a_1, a_2, a_3, a_4)$. Fuzzy numbers can be used as representatives of (characteristic) features of the elements of the given universe. If we consider that a fuzzy set is defined by a characteristic feature (or a set of characteristic features), then the membership degree of any element of the universe in the fuzzy set can be understood as the level to which the given element of the universe has the feature represented by the respective fuzzy set. Fuzzy sets (particularly fuzzy numbers) can also be used to represent the meanings of linguistic expressions.

Now let us assume that we have a universe U representing our n observations (for example the set of answers provided by our respondents, the set of respondents or any discrete set). Let us define two fuzzy sets A and B on U and let us assume that A represents a feature A of the elements of U and that B represents a different feature B of the elements of U. For any $x \in U$ we can say that $A(x)$ represents the level to which x has the feature A, similarly $B(x)$ represents the level to which x has the feature B. Let us now assume a hypothetical relationship considered to hold in the set of our observations (and technically in general) denoted $A \rightarrow B$ and meaning "the presence of feature A implies the presence of feature B in our observations (i.e. in the elements of U)". Now to assess the validity of such a relationship, we can apply the tools of fsQCA and calculate the so called *consistency* of $A \rightarrow B$ with our data; in other words to assess how large a part of our data support the claim of the existence and validity of this relationship. We can also calculate the coverage of this relationship, that is a value that tells us how much the relationship is relevant for the data (for how large part of the data it is applicable). See Ragin (2008) or Stoklasa et al. (2017) for more details on the fuzzified consistency and coverage measures. In this paper we are going to utilize the full output using all four consistency and coverage measures ($F_1, \ldots, F_4$) as suggested by Stoklasa et al. (2017). For better clarity, let us recall at least the basic measures starting with Ragin's original measures (2008):

$$\mathrm{consistency}_{F_1}(A \rightarrow B) = \frac{\sum_{i=1}^{n} \min(A(x_i), B(x_i))}{\sum_{i=1}^{n} A(x_i)}; \ \mathrm{coverage}_{F_1}(A \rightarrow B) = \frac{\sum_{i=1}^{n} \min(A(x_i), B(x_i))}{\sum_{i=1}^{n} B(x_i)} \quad (1)$$

For the other measures let us just recall the formulas for the consistencies. The F_2 measure that removes all ambivalent evidence in favour of the given relationship is calculated as:

$$\text{consistency}_{F_2}(A \to B) = \frac{\sum_{i=1}^{n} \min(A(x_i), B(x_i)) - \min\left(A(x_i), B(x_i), B'(x_i)\right)}{\sum_{i=1}^{n} A(x_i)}. \quad (2)$$

If we remove not only the ambivalent evidence, but also counterevidence, we get the F_3 consistency as a measure of excess support for the rule in the data:

$$\text{consistency}_{F_3}(A \to B) = \max\left\{0; \frac{\sum_{i=1}^{n} \min\left(A(x_i), B(x_i)\right) - \min\left(A(x_i), B'(x_i)\right)}{\sum_{i=1}^{n} A(x_i)}\right\}. \quad (3)$$

All of the above consistency measures have values within the $[0,1]$ interval and the closer the value is to 1, the stronger the support in favour of the given relationship is in the data, still due to the fuzzy nature of the method it is necessary to investigate also the consistency of $(A \to B')$. Stoklasa et al. (2018) also suggested the F_4 measure that has a threshold value of 0.5; values over 0.5 suggest more support for the $(A \to B)$ that for $(A \to B')$ while values below 0.5 indicate more support for $(A \to B')$ in the data.

$$\text{consistency}_{F_4}(A \to B) = \frac{1}{2}\left(1 + \frac{\sum_{i=1}^{n} \min\left(A(x_i), B(x_i)\right) - \min\left(A(x_i), B'(x_i)\right)}{\sum_{i=1}^{n} A(x_i)}\right). \quad (4)$$

3. Data and the operationalization of the investigated relationships

A 7-point bipolar-adjective based IVSD with 17 scales was administered to a group of 57 first-year students of business administration. The method follows the design by Stoklasa et al. (2017), that is each bipolar adjective scale was supplemented by an 11-point uncertainty assessment scale, where 0 meant no uncertainty in the answer and 10 represented 100% uncertainty. Out of the available data 14 questionnaires needed to be discarded because the respondents did not provide all 51 scale values and all 51 uncertainty values. The resulting sample is thus constituted by 43 respondents. Their answers are summarized in Figures 1 and 2 by the concepts the attitudes towards which were assessed, that is separately for “Transition from face-to-face to online teaching during the COVID19 pandemic”, “Government/Ministry issued restrictions on travel” and “COVID19 vaccinations”.

From Figure 1 we can see that for the teaching there seems to be a clear central tendency. We can also see that the vaccination concept resulted in the highest number of extreme answers (1 or 7), while the teaching concept seems to have resulted in the lowest number of these extreme answers. This can be explained by the perceived limitation stemming from the given concepts for the respondents. In terms of uncertainty, the most completely certain answers are reported for the vaccination issue (Figure 2, right subplot).

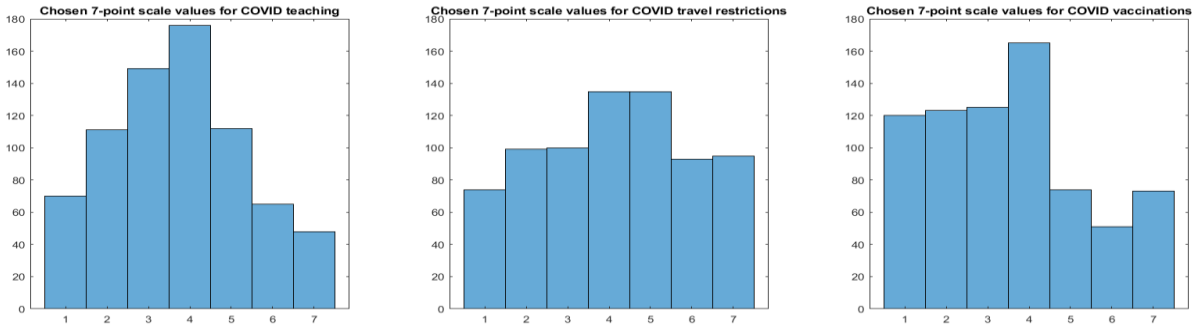

Figure 1: Frequencies of choice of the values of the 17 bipolar-adjective scales (7-point scales) by our 43 respondents by COVID-related topics.

Even though it seems that all three concepts differ slightly in the answering patterns, it is now necessary to define the features representing the relationship between the extremity of the answers

and their uncertainty, as it was outlined in the introduction of this paper. We can operationalize the investigated relationship into $A \rightarrow B$, where A represents "high extremity" and B represents "low uncertainty". For any value $x_i \in \{1,2,3,4,5,6,7\}$ the extremity value is calculated as $e(x_i) = |4 - x_i|$ and therefore $e(x_i) \in \{0,1,2,3\}$. High Extremity will therefore be, for the purpose of our analysis, defined as $A \sim (1,3,3,3)$, while Low Uncertainty will be defined as $B \sim (0,0,3,5)$.

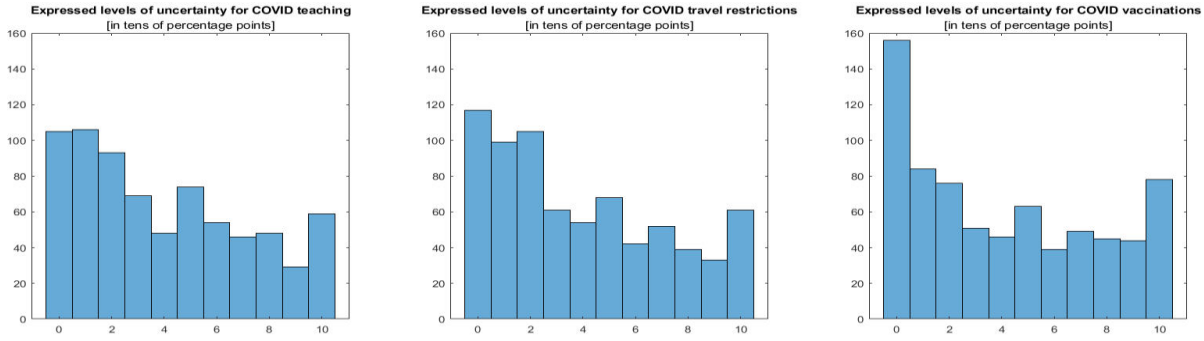

Figure 2: Frequencies of the perceived uncertainties of answers (in tens of percentage points) by our 43 respondents by COVID-related topics.

4. Results and their discussion

Given the definitions above, we have investigated the support for the relationships $A \rightarrow B$ and $A \rightarrow B'$ in our data. Note that A represents "high extremity of the answer" and B represents "low uncertainty of the answer" while B' stands for "not low uncertainty of the answer" (i.e. anything but low uncertainty of the answer). We have performed the fsQCA analysis for all the answers pooled together as well as for the answers grouped by the issues being assessed.

Overall (complete dataset)			
	A=>B		A=>notB
F1 consistency =	0.701065	F1 consistency =	0.318242
F1 coverage =	0.440217	F1 coverage =	0.239719
F2 consistency =	0.676431	F2 consistency =	0.293609
F2 coverage =	0.276756	F2 coverage =	0.149448
F3 consistency =	0.382823	F3 consistency =	0
F3 coverage =	0	F3 coverage =	0
F4 consistency =	0.691411	F4 consistency =	0.308589
F4 coverage =	0.434156	F4 coverage =	0.232447

F2F->online teaching due to COVID19			
	A=>B		A=>notB
F1 consistency =	0.609223	F1 consistency =	0.390777
F1 coverage =	0.300239	F1 coverage =	0.257188
F2 consistency =	0.609223	F2 consistency =	0.390777
F2 coverage =	0.167464	F2 coverage =	0.153355
F3 consistency =	0.218447	F3 consistency =	0
F3 coverage =	0	F3 coverage =	0
F4 consistency =	0.609223	F4 consistency =	0.390777
F4 coverage =	0.300239	F4 coverage =	0.257188

Government/Ministry issued travel restrictions			
	A=>B		A=>notB
F1 consistency =	0.466038	F1 consistency =	0.533962
F1 coverage =	0.362702	F1 coverage =	0.362356
F2 consistency =	0.466038	F2 consistency =	0.533962
F2 coverage =	0.217327	F2 coverage =	0.243278
F3 consistency =	0	F3 consistency =	0.067925
F3 coverage =	0	F3 coverage =	0
F4 consistency =	0.466038	F4 consistency =	0.533962
F4 coverage =	0.362702	F4 coverage =	0.362356

COVID19 Vaccinations			
	A=>B		A=>notB
F1 consistency =	0.648214	F1 consistency =	0.351786
F1 coverage =	0.402886	F1 coverage =	0.351159
F2 consistency =	0.648214	F2 consistency =	0.351786
F2 coverage =	0.266371	F2 coverage =	0.26025
F3 consistency =	0.296429	F3 consistency =	0
F3 coverage =	0	F3 coverage =	0
F4 consistency =	0.648214	F4 consistency =	0.351786
F4 coverage =	0.402886	F4 coverage =	0.351159

Figure 3: Consistencies and coverages of the investigated relationship and its negation in the whole dataset and also grouped by the issue being assessed.

Figure 3 shows that in the overall dataset (in all the answers) there seems to be much more evidence in favour of the relationship $A \rightarrow B$ than there is against it. This can be interpreted as evidence of the co-incidence of extreme answers and low uncertainty of these answers ($\text{consistency}_{F_1}(A \rightarrow B) = 0.701065$, also rather high F_2 and F_4 consistencies and nonzero F_3 consistency). Overall we can say

that when the respondent selects an extreme value of the IVSD bipolar-adjective scale, then this value is considered by the respondent to be low-uncertain. This is consistent with our expectations. It is, however, good to understand that this just point to a decent strength of the claim that extremity of the answer is a sufficient condition for low uncertainty of the answer. It is by no means a necessary condition for low uncertainty.

When we take a closer look at the results grouped by the assessed issues, we can see that the shift in the teaching approach and vaccinations follow the overall pattern rather closely, vaccinations having the strongest support for extremity of the answer leading to low uncertainty. On the other hand, the travel restriction issue does not seem to support the claim that extreme answers should be of low uncertainty. This can, however, be explained by the fact that first-year university students probably had first hand experience with the teaching shift and with the pressure to get vaccinated. In this case it is reasonable to assume that the main source of uncertainty of the answers was not necessarily the scale irrelevance, but also the lack of direct experience with the concept being assessed. For the teaching shift, that affected all the respondents, their own experience is available and thus the evaluations are not uncertain due to the lack of knowledge of (experience with) the concept being assessed but rather due to other reasons. The same can be claimed for the vaccination issue.

Even though this is one of the first insights into the link between extremity of answers and their uncertainty in the IVSD setting, it seems to confirm the reasonability of the IVSD data input format. However, several points of interest for future applications of the IVSD stand out – first the instruction for the respondents needs to be clear and more effort needs to be made to get full data without any missing values. It can be achieved, though. Also, our results suggest that while the assessment of well known concepts and the attitudes towards them works in the predicted way, where extreme answers can be assumed to be rather certain, when the concepts are less familiar, other sources of uncertainty can produce extreme answers with low certainty. There can be methodologically tricky to process.

5. Conclusions

We have set to investigate the relationship between the extremity of the answers in the IVSD setting and their perceived uncertainty. On our sample we have confirmed that the extreme answers tend to be perceived as low-uncertain ones, but we have also pointed to a potential exception from this rule. We hypothesize that the exception manifests itself when the lack of knowledge of the assessed concept becomes the main (or significant) source of uncertainty in semantic differentiation. The obtained results confirm the reasonability of the IVSD input method setup, and stress the need for more insights into the sources of uncertainty in semantic differentiation.

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Consumption vs. savings: how the pandemic changed us

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Abstract: The pandemic of COVID-19 created significant changes in people´s consumer behavior. One of its main aspects that significantly shifted towards a different extreme was savings. The distribution of household income between consumption and savings was examined on a sample of Slovak consumers. Correlation between this factor and income changes during the pandemic was proven with statistical significance.

Keywords: COVID-19 pandemic, consumer behavior, consumption, savings

JEL classification: D12, D14, E21

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1. Introduction

The COVID-19 pandemic, whose influence European countries have began to feel in 2020, has affected global and national economies as well as individual consumers. National and regional governments addressed the effects of the pandemic by introducing various measures to stop the spread of the virus such as lockdowns and later to support those who were negatively affected by the both the pandemic and those measures. The major changes brought about by the pandemic have resulted in an economic crisis. Both of these factors have significantly influenced consumer shopping behavior.

This paper examines how the COVID-19 pandemic has affected consumers' willingness to divide their income into consumption and savings. The main aim is to find out how these changes have affected the socio-economic characteristics of consumers. The survey was conducted through a questionnaire survey, which was conducted in 2021. A representative research sample consists of consumers from the Slovak Republic.

2. Literature review

A new virus was reported to the World Health Organization in China on 31 December 2019. As of 26 February 2020, the disease has been detected on all continents, except for Antarctica. Since then updates on COVID-19 situation have been a part of the news worldwide on a daily basis (McAleer, 2020; Danylyshyn, 2020). The COVID-19-related disruptions have the potential to significantly impact national economies. Even during the initial stages of the outbreak the impacts of COVID-19 on the businesses have already become massive. The historical records show that major crises including wars, famines, pandemics always bring significant changes in changes in human thinking and can have long-lasting effects on societies. Epidemic outbreaks are a particular example of risks which is

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uniquely characterized by a long-term disruption of continued existence and high uncertainty. Since an epidemic disease outbreak poses significant treats to human beings it always leads to a global crisis.

Consumer behavior is characterized as human behavior related to the acquisition, use and disposal of products. It is a summary of external manifestations, activities, actions and reactions of the organism divided according to their psychological nature into instinctive, addictive and intellectual (Vázquez-Martínez et al., 2021). Based on an understanding of consumer behavior, businesses can create their marketing offer and apply it to the market. Consumer behavior consists of several stages and includes complex human behavior from the awareness of the need, through the purchase of the product to its consumption and disposal. These stages can be characterized as a shopping behavior that involves visiting a particular store when one buys a particular product. Sometimes this stage can be separated from the others and the person buying the product will no longer use it, as he can donate it to someone or pass it on to the person who entrusted them with the purchase. The stage when a person consumes the already owning product can also be described as consumer behavior. Even in this case, it may be a separate stage of consumer behavior, as a person may use a product that someone else has decided to buy. Given the above, we cannot identify the given concepts and it is necessary to distinguish between consumer, shopping and consumer behavior. Consumer behavior is largely individual and hidden. It is influenced by a number of factors that are not usually directly measurable (Michon and Chebat, 2008; Kaufman-Scarborough and Cohen, 2004), as they affect the behavior only in the mind of the consumer. These variables can be measured and described, but it is not possible to measure or describe exactly how they affect the consumer's own behavior and his final decision to buy the product. Therefore, we understand the customer as a black box that we do not see into and we can only roughly estimate the result of the processes in it. But we know the basic variables we need to focus on if we want to understand consumer behavior as best we can.

These factors influencing the consumer and his purchasing decisions include the level of his income and its distribution between consumption and savings (Li et al., 2020). According to Alessie and Lusardi (1997) consumption depends not only on permanent income and income risk, but also on past consumption. Therefore, the habits of consumers are considered a strong factor influencing their behavior and consequently also their decisions. To break such habit a strong impulse is needed. A few research studies have already began to examine to assumption of pandemic being such factor (Boar, 2021; Li and Zheng, 2021; Gopal and Malliasamy, 2022; Immordino et al., 2022). However, the full extent of the change remains uncertain. This study aims to contribute to discoveries of pandemic influence on consumer behavior.

3. Methodology

This paper focuses on describing the impacts of the COVID-19 outbreak on consumers with the focus on changes in income distribution between consumption and savings. The main aim of the research was to explore how the changes in income distribution occurred during the pandemic of COVID-19. An empirical study was performed to collect data and examine the opinions of consumers in the Slovak republic. During spring 2020, Slovakia was among the least affected by the pandemic, however the measures taken by the government were considered to be strict in comparison to other countries. However, the situation changed drastically in 2021. The questionnaire used to collect the data from consumers was disseminated in 2021. Consumers were structured primarily by their age in

order to ensure the representativeness of sample file of Slovak population. Only customers above the age of 18 were considered since the majority of younger people do not regularly contribute to their household income. Table 1 shows the information on sample file in comparison to base file which consisted of all Slovak citizens above the age of 18 according to the Statistical office of the Slovak republic.

Table 1: Base file and sample file

Age	Base file		Sample file	
	Female	**Male**	**Female**	**Male**
18 – 25	231,761.00	243,391.00	17	19
26 – 45	828,505.00	871,910.50	66	68
46 – 65	736,705.00	705,587.00	59	54
over 66	499,118.50	321,201.50	38	26
Total	2,296,089.50	2,142,090.00	180	167
	4,438,179.50		347	
18 – 25	5.22%	5.48%	4.90%	5.48%
26 – 45	18.67%	19.65%	19.02%	19.60%
46 – 65	16.60%	15.90%	17.00%	15.56%
over 66	11.25%	7.24%	10.95%	7.49%
Total	51.73%	48.27%	51.87%	48.13%

The Chi-square test was used to verify the representativeness of the sample file according to the criterion of consumer's age. The null hypothesis was set with the assumption that the sample is representative. The alternative hypothesis is an assumption of non–representativeness of the sample. From the mathematic point of view, the hypotheses are formulated as: $H_0 = F(x) = G(x)$; $H_1 = F(x) \neq G(x)$. Statistic testing in SPSS software is based on the following formula (1):

$$X^2 = \sum_{j=1}^{r} \frac{(n_j - m_j)^2}{m_j} \approx X^2_{(r-1)} \quad (1)$$

where: X^2 - is Pearson statistics; r - is line; n - is overall frequency in the base file and m - is measured frequency.

Consequently, we find the critical value of X^2 distribution for (r-1) degrees of freedom and selected level of significance α from tables of critical values of chi square. The test in this research was performed at a significance level of 95 %. If the critical value is lower than the value of tested statistics, null hypothesis is rejected and an alternative hypothesis H_1 is accepted. The calculated Chi-square value for this sample was at level 0.844. This result can be interpreted as the confirmation of the null hypothesis. Therefore, it can be concluded that the research sample file is a representative sample of base file (Veselovská et al., 2021). The Pearson Chi square was also used to analyze the correlation between ordinal and nominal variables and complemented by Cramer´s V to identify the intensity of correlation. We also used the Spearman´s Rho to analyze the correlation between ordinal variables especially correlation between income changes and the age of the consumers. Spearman´s Rho is non-parametric test based on Pearson correlation coefficient and is used to measure the strength of correlation. It acquires the values between -1 (perfect negative correlation) and 1 (perfect positive correlation). Statistic testing in SPSS software is based on the following formula (2):

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)} \quad (2)$$

Where*: n – is* number of data points of the two variables; *di – is* difference in ranks of the "ith" element. Before we analyse the intensity of correlation we need to find out if the correlation between variables exists. We set the null hypothesis H_0 (variables are independent) and alternative hypothesis H_1 (variables are not independent). The evaluation was carried out on the basis of p-value. If the p-value is lower than alpha value (in our testing 99.95% significance or confidence) null hypothesis is rejected and an alternative hypothesis H_1 is accepted.

4. Results

During the time of COVID-19 pandemic in 2021 26.8% of Slovak consumers reported that the income of their household decreased from its pre-pandemic level in 2019. Only 19.6% of consumers experienced an increase in their incomes. The majority of Slovak people (53.6%) stated no change in income of their household during the pandemic. The situation was slightly worse for women since 27.78% of female consumers experienced a decrease in income and only 17.78% of female consumer´s incomes increased whereas the 21.56% of male consumers reported an increase and 25.75% a decrease. Table 2 shows how the income changes were experienced by different segments of consumers based on their age. According to the data the biggest perceptual increase was in youngest age segment. The highest portion of consumers who experienced no change in their incomes was discovered in the oldest age segment. The biggest portion of consumers who experienced a decrease in the income of their household was noted in age segment 26 – 45 year old consumers since nearly a third of them reported this negative outcome of the pandemic on their financial situation.

Table 2: Income changes of consumers

Age segment	Income change in 2021					
	Increase		Decrease		No change	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
18 – 25	15	41,67%	5	13,89%	16	44,44%
26 – 45	27	20,15%	44	32,84%	63	47,01%
46 – 65	16	14,16%	33	29,20%	64	56,64%
over 66	10	15,63%	11	17,19%	43	67,19%

Furthermore, the rate of consumption was examined as a percentage of consumer's income allocated for acquiring of goods and services. Consumers completing the questionnaire were provided with an explanation that they should provide the number that corresponds to dividing the income of their household into only parts – consumption and savings, leaving nothing else out. Table 3 provides detailed information. It was discovered that in 2021 only 3 consumers (0.86%) allocated for consumption less that 10% of their income, all of them being of younger age. The majority of consumers (46.69%) allocated between 71 to 90% of their income. More than a quarter of Slovak consumers (26.22%) used more than 90% of their income to buy goods and services. In comparison the situation was less complicated before the pandemic since only 14.45% of consumers spent more than 70% of their income.

Table 3: Income distribution of consumers

Portion of income allocated for consumption	Frequency	Percentage
up to 10%	3	0.86%
11 – 30%	10	2.88%
31 – 50%	23	6.63%
51 – 70%	58	16.71%
71 – 90%	162	46.69%
91% and more	91	26.22%

We examined an interesting correlation between distribution of household income between consumption and savings and the gender of the consumers. Since we analyzed two nominal variables, we used Pearson Chi square statistics and the results are shown in Table 4. Null hypothesis (H_0) is that these two variables are statistically independent and the alternative hypothesis (H_1) is that they are dependent on each other.

Table 4: Correlation between distribution of household income between consumption and savings and the gender of the consumers

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.442	5	.093
Likelihood Ratio	10.674	5	.058
Fisher's Exact Test	8.934		
Linear-by-Linear Association	2.258[c]	1	.133
N of Valid Cases	347		

As we can see, Pearson Chi-Square statistics is on level 9.442. Critical value of Chi square distribution with 5 degrees of freedom is 9.236 what means that null hypothesis is rejected and an alternative hypothesis H_1 is accepted, the variables are dependent on each other. Since, asymptotic significance is on level 0.093 we can claim it with 90% probability. To identify the intensity of the correlation we used Cramer´s V. The Cramer´s V value is on level 0.165 that means low but significant correlation.

Table 5: Intensity of correlation

		Value	Approximate Significance
Nominal by Nominal	Phi	.165	.093
	Cramer's V	.165	.093
N of Valid Cases		347	

Another interesting correlation is between distribution of household income between consumption and savings and the age of the consumers. We used Spearman´s Rho to identify the type and intensity of correlation. As we can see at Table 6 p-value (Sig.) is 0.010, that is lower than alpha (0.05) and we can reject the null hypothesis. Correlation Coefficient is on level 0.138 (correlation is significant at the 0.05 level) what means low and positive correlation. That means the older the consumer, the greater the proportion of consumption.

Table 6: Correlation between distribution of household income between consumption and savings and the age of the consumers

			Proportion of consumption	Age
Spearman's	Proportion of	Correlation Coefficient	1.000	.138*

rho	consumption	Sig. (2-tailed)	.	.010
		N	347	347
	Age	Correlation Coefficient	.138	1.000
		Sig. (2-tailed)	.010	.
		N	347	347

5. Conclusion and discussion

This research focused on consumers and possible changes in their behavior during the pandemic of COVID-19 virus. Its findings indicate some important new trends for the future. There are no similar research studies focused on Slovak consumers enabling a comparison of findings, however studies from other worlds regions indicate similar trends with few exceptions. Nig and Wang (2020) discovered increased rates of consumption in China. They also explore various reasons for this phenomenon such as rising unemployment rate, declining labour productivity, and worsening income stability. Li and Zheng (2021) also focused on examining the household consumption in China and concluded that it positively responds to changes in income similarly to the finding of this research study. Furthermore, Gopal and Malliasamy (2022) calculated a decrease in savings in India. On the other hand, Immordino et al. (2022) discovered that income uncertainty in Italy contributed to savings increase and consumption drop during. The pandemic situation in Italy was much worse than in Slovakia therefore, the levels of uncertainty could have been higher causing different response in consumers. In Singapore the COVID-19 pandemic reduced household consumption spending by almost one quarter at its peak according to Kim et al. (2022). Dang and Nguyen (2021) emphasized the differences in gender since they discovered that women tended to reduce their consumption and increase savings during the pandemic much more than men.

The findings of this research study indicate that the pandemic of COVID-19 significantly impacted the financial situation of Slovak people and consequently also their consumers behavior. Especially alarming is the discovery that more than a quarter of Slovak consumers spends more than 90% of their household income on buying goods and services, leaving less than 10% for savings. Considering the fact that the pandemic has already been followed by other adverse events in the region the growing inflation will make the bad financial situation even worse for these specific groups of Slovak consumers. Therefore, it would be beneficial to continue exploring this situation in the future research.

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Why do companies need satisfied employees? The role of positive self-assessments and basic psychological needs at work.

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Abstract: The paper presents a review of individual psychological determinants, linked with employee satisfaction. Under the assumptions of the happy-productive worker hypothesis(Wright & Cropanzano, 2007), the relationship between employee traits (like the five factor model of personality, (McCrae & Costa, 2008) and the core self-evaluations (Judge, 2009) are described. The subject is extended to include the basic psychological needs at work (Deci et al., 2017), which need to be fulfilled by organisations to create a positive workplace. The final aim of the paper is to present the psychological traits that should be expected from the employees, as they can lead to the company's greater effectiveness.

Keywords: working conditions, work satisfaction, core self-evaluations, basic psychological needs at work

JEL classification: M540 Personnel Economics: Labor Management; Job Satisfaction; Job Motivation Y800 Psychology – Personality & Individual differences

1. Introduction

The basic goal of most companies (with the partial exception of social enterprises) is to make a profit, by the means of coordinating the human effort in the process called work. It is then the amount and the quality of work, which has a decisive impact on the degree of success of any business (Van den Broeck et al., 2013). Yet nowadays it is no longer sufficient to simply exchange parts of the profits generated by the work for employees' wages. The decreasing unemployment rates (characteristic of the USA, central Europe including the Czech Republic, Poland and Germany, and most north-European countries) encourage employees to seek better working places (Sousa-Poza & Henneberger, 2004) or force changes on their current companies. The encouraged workers need more than just a wage, to stay (and qualitatively contribute) in a given organisation (Walczak, 2013, 2016). The current paper focuses on two, interconnected aspects of what employees need in their work. On the hand, it is the psychological basis of needs, derived from the self-determination theory (Deci et al., 2017). This is the hidden, internal reason why people put any demands on their employer or their work environment. The other aspect is who can voice their demands, or maybe to see what would be beneficial to him or her. This aspect is revealed by the degree of positive self-assessment, that is the perception of oneself as worthy of having the best (or at least better) job (Judge, 2009). Both perspectives will be reviewed to highlight their consequences for business owners and recruiters.

2. Employee characteristics at work

The fact that each employee is different can be easily recognised within every organisation. Even for the same position within a given company, there will be some obvious differences like gender, tenure, height or body weight, each of which has some impact on work performance. What is however more

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difficult to notice in workers, are the psychological differences, both in form of temporary personal characteristics (called attitudes) and permanent psychological traits (called dispositions; see Hulin & Judge, 2003). Work attitudes include all the feelings a person may have towards his organisation generally, or her post specifically (Woznyj et al., 2022). These include the commitment to the current organisation (Meyer et al., 1993), engagement in the work being done (Bakker & Leiter, 2012) and finally satisfaction with both the organisation and the specific work (Alarcon & Lyons, 2011; Jasiński et al., 2021). What is important to note, there is a confirmed relationship between the psychological dispositions a person has and the level of satisfaction she or he can get from the job (Loher et al., 1985). In the next chapter, the most important individual psychological traits relating to work satisfaction will be reviewed.

2.1 The five basic traits of personality and their role in organizations

The key principle for organisations is to have effective employees. There is a long-standing debate in psychology about the requirements for the most valuable trait of employees, with the happy-productive worker hypothesis being the most prominent assumption (Wright & Cropanzano, 2007; Zelenski et al., 2008). In brief words, the happy-productive worker hypothesis states that workers who are satisfied with their work are also more productive. Such an assumption allows for the focus on employee features, which are detrimental to work happiness. The majority of psychological research in organisations focuses on the best-established school of individual differences, that is the five factor model of personality (FFM, McCrae & Costa, 2008). It is noteworthy that this theory has a long tradition of application in the organisational context (Barrick & Mount, 1991). The FFM assumes that people differ on five unique and separate traits: Neuroticism (called also negative affectivity), Extraversion, Openness to Experience, Agreeableness and Conscientiousness. Interestingly, all (or at least the majority) of those traits can have a more or less direct effect on the workers' effectiveness. Neuroticism, which is the number of negative emotions experienced, can have a damaging effect first and foremost on interpersonal relations (McNulty, 2008). It can also increase the experience of daily stress (Gunthert et al., 1999). Looking at this trait from an organisational perspective, managers (and co-workers) may find it difficult to work with a person who is most of the time in a negative mood, struggles to pull herself together after unpleasant work events and is generally more gloomy than other workers (Sosnowska et al., 2020). As a consequence, they may prefer to work with (or hire) people with lower neuroticism. The second trait from the FFM, extraversion, is even more important in the working world. This trait determines if a person is enthusiastic and talkative in contact with others. Because organisations rely on relations to build successful teams, extraverts are significantly more valued in comparison with their counterparts, the introverts (Cain, 2016). The third FFM trait – Openness to experience - appears to be a little less related to organisations. At its core, it describes the number of new experiences, novelty and variation needed for a person to thrive. Yet as organisations strive to be more diverse, to utilise the power of inclusiveness to grow their competitiveness, openness can become an essential factor, enabling people to thrive in diverse, international corporate environments (Homan et al., 2008). The fourth trait – Agreeableness – also determines to a high extent the way people are perceived by others. It describes the degree to which people are independent in their opinions and preferences (low agreeableness) rather than being accepting and confirming towards the ideas (and dictates) of others (high agreeableness). It is therefore easy to see how highly agreeable individuals can succeed in organisations. They are the people which win their boss's hearts by being – in most cases – in line with the manager's opinions. The overwhelming majority of studies to date (metaanalysis: Wilmot & Ones, 2022) clearly indicates

that highly agreeable people are better team players and thus benefit their organisations, wherever team effort is required. The last FFM trait - Conscientiousness is also the most important from an organisational perspective. It is so because people with high levels of this trait tend to get the job done, being efficient and diligent. It is basically the trait deciding on work (and school) efficiency (Carter et al., 2014). The only problem may appear when the level of Conscientiousness gets too high, as then it may be equated with perfectionism (Stoeber et al., 2009), meaning a tendency to focus too much on details of the work being done, hampering the overall performance. Nevertheless, in the majority of cases employers should prefer and hire people with higher levels of conscientiousness.

To sum up, the five factor model of personality plays a tremendous role in determining individual differences in the traits relating to personnel performance. As described above, each trait has some impact on how people behave in the working world, which in turn allows them to assess how well will they fit in general to a given position. The only problem is that the model was not created with employee effectiveness in mind, which causes the variance between traits in their predictive ability, with conscientiousness being the most important, followed by neuroticism and then other traits having a lesser impact. Because the FFM model is usually assessed together for all the traits, and it does not cover the whole spectrum of human differences (see McAdams, 1992, for a critique of FFM), a more specific trait was needed. Something that would directly relate to employee performance, while still relying on psychological individual differences. Such an attempt was made by Judge et al., (1998), resulting in the description of Core Self-Evaluations, which will be described next.

2.2 Core self-evaluations as a strong determinant of work performance and satisfaction

Because personality traits included in the five factor model are not strictly related to work performance and satisfaction, Judge et al., (1998) reviewed the literature in search of the traits having the strongest relation with actual performance. They found five such traits, one of which (Neuroticism, or rather the low level thereof called positive emotionality) is a part of the FFM of personality. The remaining traits are generalised self-efficacy (the perception of oneself as being able to accomplish tasks), self-esteem (high self-worth) and internal locus of control (seeing oneself as the entity responsible for one's faith, as opposed to being influenced by luck or external forces). Judge noted that all those traits have a common underlying theme, which describes a person as an able, willing, positive and active agent, controlling his/her fate and making things happen (Judge et al., 2002). They named this meta-trait as *core self-evaluations* and were able to prove, that it is related to both job performance and satisfaction (Judge, 2009; Judge et al., 1998; Srivastava et al., 2010). Interestingly, their observations are shared by scholars from across the world (see for example Hsieh & Huang, 2017; Piccolo et al., 2005; Pujol-Cols, 2019; Walczak & Derbis, 2017), suggesting high usability of the construct. It is important to note that core self-evaluations may explain a greater portion of job satisfaction's variance as compared with wages for example (Walczak, 2016). This in turn allows for a conclusion that employees high in core self-evaluations, that is self-efficacious, internally driven, sure of their high worth and dominated by positive emotions, are more successful in the competitive world of today, both in work and outside of it (Hsieh & Huang, 2017). But on the other hand, people who understand their worth, and know what they are capable of, will also be more demanding towards their workplace. Therefore employees must know what their workers may need, to provide it. Those needs will be described in the next paragraph

2.3 Basic psychological needs at work

We could assume that all that a person needs from work is a decent wage. But just considering this assumption we would quickly notice that even in a position with the same wage some employees stay,

while others quit. The underlying distinction between them (assuming the same wage) may lie in the other things all employees need. Ryan & Deci (2018) proposed a theory, in which they identify three basic psychological needs, a workplace can fulfil. They are the needs for competence, autonomy and relations with others. It turns out that the workplace creates wonderful opportunities to fulfil those needs. Not only do we spend a lot of time at work (roughly assumed one-third of our adult lives), but it is also our work which can address the basic needs described by Ryan and Deci. Starting from competence, it is precisely the workplace, where most of us can show ability, proving successful at the tasks given and getting promoted (or at least praised) for them. The second basic need (autonomy) is more complicated. We all need to feel autonomous, that is independent of others. But in many cases work is just the opposite, where our bosses dictate to us what to do, leaving little or no choice in terms of liberty. But many studies show (Dysvik & Kuvaas, 2013; Kim & Stoner, 2008) that the degree of autonomy at work can be decisive in the fact if an employee stays or leaves, forcing employers to share some decisions with their workers. The third basic need – that for social contact (or in the words of Deci & Ryan – relatedness) appears to be shaped by the world outside of work. But when we look closer, we will note that most adult friendships form at work (Morrison & Cooper-Thomas, 2016) and that our relations with work colleagues also determines our work satisfaction (DiMeglio et al., 2005).

Summing up, all basic psychological needs can be fulfilled at work. They allow us to see the workplace as something more than just a source of money. But the question remains if all people have the same level of needs and the same chances to fulfil them at work. This will be discussed in the last paragraph.

2.4 The relation between positive self-assessments and basic psychological needs at work

Every person needs their basic needs to be satisfied to be happy (Ryan & Deci, 2018). Yet not every person perceives the same conditions as satisfying the needs similarly. For one person the position of assistant manager will be sufficient to fully cover his or her need for autonomy. For another person, only having their own company will give sufficient autonomy. What is however interesting, is that people higher in core-self evaluations will perceive the same working environment as more satisfying their needs as compared with people with lower levels of this trait (Walczak, 2018). It is related to the fact that people full of positive emotions and sure about themselves, will perceive ambiguous work situations (exchange of information with the manager, presentation to the client and his sparse feedback, new work tasks received) in a more positive light. For high core self-evaluation individuals, any return information from a manager is perceived as praise rather than a critique, lack of negative information is more often treated as good relation with the client and getting new tasks is proof of one's competence. In this way, high core self-evaluation is related to the fulfilment of the basic needs, creating together a good environment for personnel satisfaction and effectiveness.

3. Conclusion

The abovementioned arguments suggest that individual psychological differences can play a significant role in building up the satisfaction of employees, which is in turn related to their effectiveness. In consequence, HR departments and managers should care both for the fulfilment of the basic psychological needs at work and the selection or strengthening of employees' core self-evaluations. It is only when the employees are happy at a given work that they may try to give more of themselves to the company, further increasing their satisfaction but also building the prosperity of their workplace.

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An analysis of accounting and non-accounting information disclosed in the 2018-2021 financial statements of selected manufacturing companies with a focus on risk assessment

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Abstract: It is clear that the growth and development of many companies have been greatly affected by the COVID-19 pandemic. However, this pandemic is not the only risk affecting companies' operations today. This paper aims to analyse the published results of selected manufacturing companies across sectors, focusing on indicators from 2018, 2019, 2020 and, where available (data may not be published at the time of writing), also analyse data from 2021. 2018 has been chosen as the pre-COVID-19 period, while 2019 and 2020 are the periods affected by the COVID-19 pandemic. However, this is not just an analysis of accounting indicators, the paper also focuses on the analysis of non-accounting information disclosed in the notes to the financial statements and in the annual reports of companies. It seeks to locate the risks that company managements acknowledge and those that emerge from the analyses. Given the limitations of the available data, it is clear that some of the risks faced by companies in the 2022 period are not reflected in the analysis. These include the problems associated with the war in Ukraine, rising raw material and fuel prices, the rising cost of money (the article is set in a period when the Czech National Bank has raised the base interest rate many consecutive times), and declining household demand.

Keywords: Economic data, Financial statement, Annual report, Revenue, Equity, Profit analysis, Risk analysis

JEL classification: M21

1. Introduction

The current difficult macroeconomic situation is having a significant impact on companies across all sectors. No sector appears to be completely outside its influence. This paper mainly focuses on manufacturing companies and evaluates their results from 2018, 2019, 2020 and also uses data from 2021. The companies included in the analysis are compulsorily audited companies (Accounting Act, Section 20). In relation to the compulsory audit, there is also a deadline for the submission of tax returns (Tax Code, Section 136) and the publication of financial statements (Accounting Act, Section 21a). The paper does not focus only on economic indicators but tries to analyse non-accounting information presented in annual reports or annexes to financial statements. Based on the analysis, they try to answer the question of whether companies are aware of the risks and what solutions they propose for their elimination.

From the point of view of methodology, it was an analysis of data obtained from published statements, the analysis of non-account information was carried out on the basis of entered keywords (like workers, labour market, prices, row material, exchange rates, innovation, automation, digitalisation, recycling).

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2. Companies included in the analysis

After consideration, five companies were included in the analysis, namely:

Bosch Diesel Ltd., ID No.: 46995129

Strojmetal Aluminium Forging, ID No.: 25037684

Foxconn Technology CZ Ltd., ID No.: 27516032

Třinecké železárny, ID No.: 18050646

Continental Barum Ltd., ID No.: 45788235

These are some of the most important companies in the Czech Republic.

3. Selected financial data

Results for 2018, 2019, 2020 and 2021 were analysed from the published data in the commercial register. Specifically, the data used for this analysis include the sales revenue indicator (lines 1 and 2 of the profit and loss account), profit before tax, and equity.

The data are illustrated in charts and shown in thousands of CZK.

3.1. Sales revenue analysis

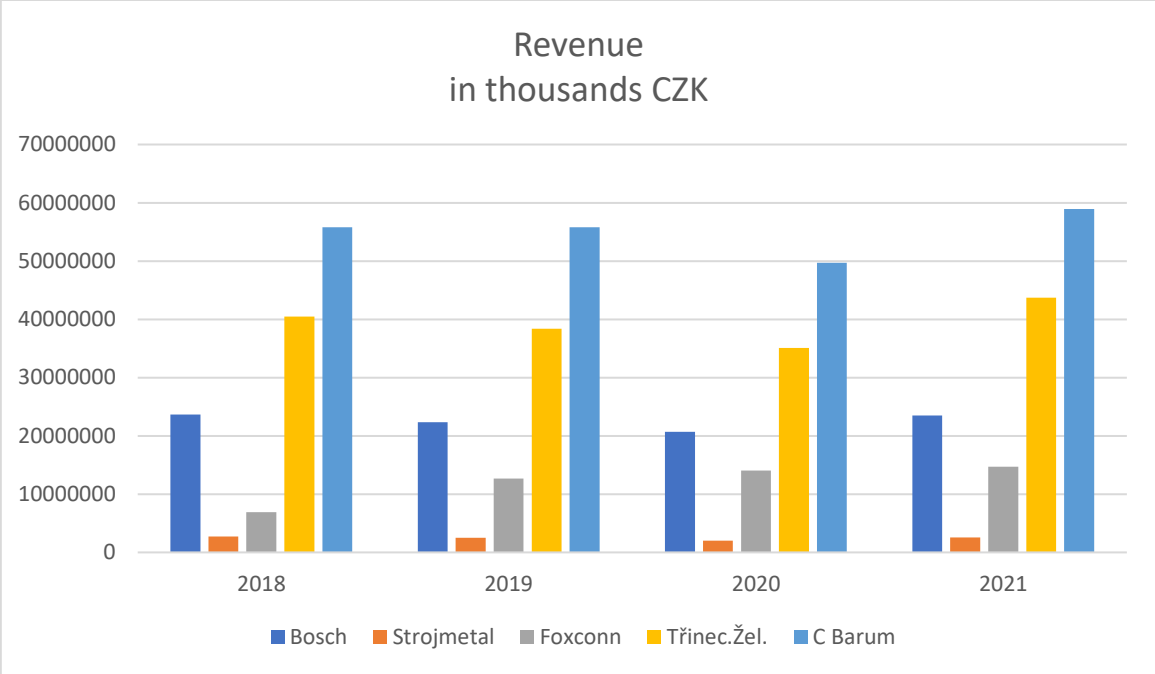

Figure 1: Sales revenue analysis

The pandemic and worsening economic situation had a significant impact (as can be seen in Figure 1) on the analysed companies in years 2019 and 2020. We take 2018 as a pre-pandemic year. In virtually all cases, except for Foxconn Technology CZ Ltd., there was a decline in sales in the periods under review; the trend is similar for all the analysed firms. Sales in 2019 decreased compared to sales in 2018, followed by a decrease in 2020 compared to 2019. We can say that the impact of the pandemic

and other threats is clearly visible in the reported sales of most of these companies, except for Foxconn Technology CZ Ltd. Year 2021 (as can be seen in Figure 1 as well) has a different trend.

If we look at the results of the largest of the analysed companies, which is Continental Barum Ltd., the sales for 2018 were 55 798 969 thousand CZK. There was a decrease in 2019, which meant sales of 55 782 386 thousand CZK, followed by a decline in 2020 when sales were reported at 49 696 756 thousand CZK. These numbers show a drop of more than six billion Czech crowns between 2018 and 2020. In contrast, the figure for 2021 shows the opposite trend, i.e., an increase compared to the two previous periods. Revenue for the period 2021 was reported in the amount of 58 955 993 thousand CZK. This fact might be the result of optimism in anticipation of a post-COVID-19 recovery of the markets, where the effects of the following period, i.e., 2022, have not yet been recorded. These influences are thought to be the military conflict in Ukraine, the rise in prices of inputs (raw materials, fuels, energy), high inflation rates, and high interest rates.

3.2. Profit before tax analysis

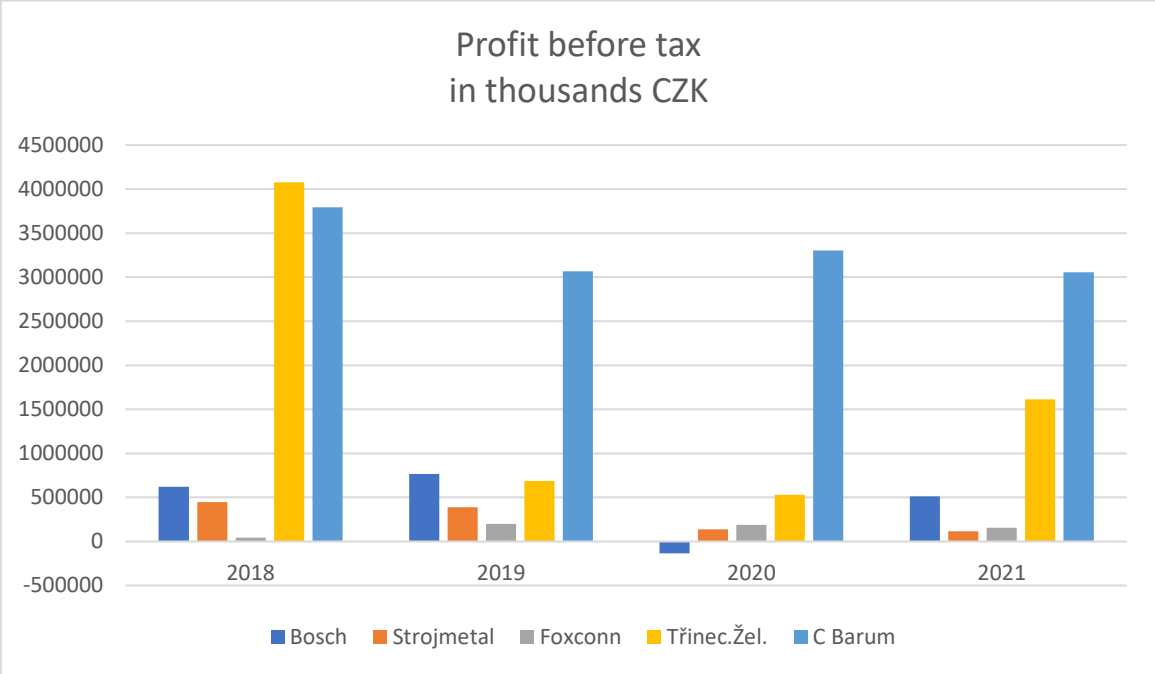

Figure 2: Profit before tax analysis

The analysis of profit before tax (as can be seen in Figure 2) does not give us such unequivocal results as the sales revenue analysis. It is clear that the total profit before tax is affected not only by sales for the period under review but also by many other factors, in particular the prices of inputs (materials, human resources, services) and the volatility of exchange rates. Therefore, it cannot be stated conclusively that the pandemic (and other threats) have a direct impact on the decline in profits of the analysed companies. This reality is evident, for example, in the case of Continental Barum Ltd., where the profit for 2021 was reported at almost the same level as the profit for 2019, although these years differ in terms of sales.

3.3. Equity analysis

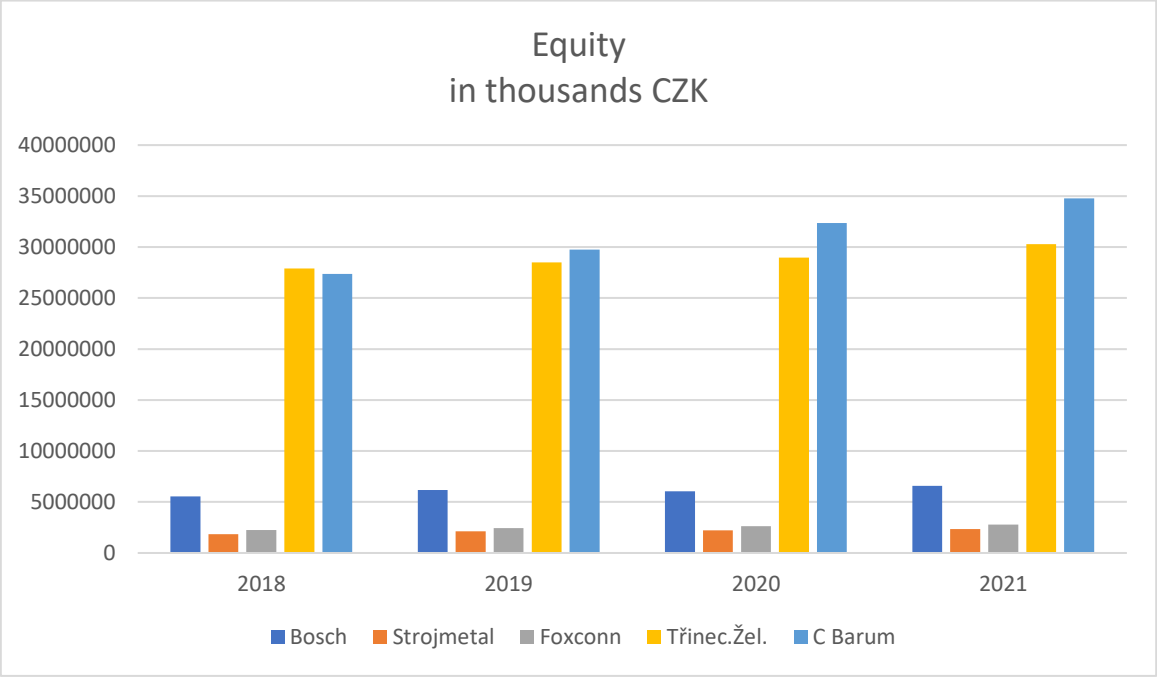

Figure 3: Equity analysis

Notably, the movement of the companies' equity, especially in years 2018 and 2020 (as can be seen in Figure 3 in comparison in Figure 1) was directionally opposite to the movement of sales. While sales (except for one company) have been annually declining between 2018 and 2020, the opposite trend can be observed for most companies in terms of equity. This trend is due to the fact that companies have tried to strengthen their equity (with the exception of Bosch Diesel Ltd., but even that was not a significant decline). It can, therefore, be concluded that companies strengthen their equity in difficult economic periods, as it is a stabilizing element.

4. Non-accounting information

The article also focuses on non-accounting information disclosed in annual reports or annexes to financial statements. It seeks to analyse all the risks that affect individual companies and describe the opportunities that companies are working with and considering. As the majority of companies selected for analysis are manufacturing companies across different sectors, not all macroeconomic influences may be equally relevant to individual companies and their operations.

Bosch Diesel Ltd. lists the COVID-19 pandemic as a threat. On the other hand, the company does not see a big problem with rising prices of raw materials, as the group has a transfer pricing mechanism (fixed prices within the group and contracts with the parent company). The company's response to the identified threats is to take anti-epidemic measures. Research and development are mentioned as an opportunity, and there is also an emphasis on environmental issues. (Ministry of Justice of the Czech Republic. Public Register and Collection of Documents. Bosch Diesel, 2022).

Strojmetal Aluminium Forging cites the COVID-19 pandemic and labour issues as a risk. It is trying to eliminate these risks by improving the working environment and the situation of its employees, also

with the help of modernisation of production facilities and automation. (Ministry of Justice of the Czech Republic. Public Register and Collection of Documents. Strojmetal Aluminium Forging, 2022).

Foxconn Technology CZ Ltd. mentions the availability of labour on the labour market as a threat as well as the COVID-19 pandemic. The response to these threats is the digitalization of management systems, development of technologies, automation, retraining of workers, and innovation. Areas cited by companies as important are environmental protection, recycling, employee health, occupational safety, and anti-discrimination policy. As Foxconn Technology CZ mentions in its annual report: "labour availability remains a challenge in the Czech Republic, which is why we continue to pursue our digitalization and automation strategies" (Ministry of Justice of the Czech Republic. Public Register and Collection of Documents. Foxconn Technology CZ Ltd., 2022).

Třinecké železárny mentions the uncertainty in the automotive industry, the UK's exit from the EU, the consequences of the trade war between the USA and China, the COVID-19 pandemic, and the rise in raw material prices as their identified threats. In response to these threats, the company identified opportunities such as improving the environment, greening production facilities, reducing waste production, and reducing the carbon footprint. The company states: "... we have taken strategic decisions that will contribute to reducing our Group's carbon footprint by 2030. This project will allow us to maintain the number of jobs at today's level, with our carbon footprint decreasing by more than 40% compared to 2019" (Ministry of Justice of the Czech Republic. Public Register and Collection of Documents. Třinecké železárny, 2022). The company also sees employee training, investment, modernisation, and research and development as vital. The company lists 22 research projects conducted in 2020.

Continental Barum Ltd. identified various threats, including the COVID-19 pandemic, tightening European emission regulations, and foreign exchange rate movements. The response to these threats is hygiene and safety measures, reorganization, and the transition to modern sustainable technologies. The company also cites training and retraining of employees, occupational safety and health protection, and cooperation with schools as important. Emphasis is also placed on environmental issues (take-back of usable products - tyres). In its annual report for 2021, published in June 2022, the company mentions additional threats that describe the situation in 2021 and 2022. It mentions rising energy and material prices as well as shortages of raw materials on world markets. The company identifies transportation difficulties in shipping as a threat, and last but not least, the war conflict in Ukraine and global economic and political changes. (Ministry of Justice of the Czech Republic. Public Register and Collection of Documents. Continental Barum Ltd., 2022).

4.1. Expected risks and threats

In general, the pandemic was an expected threat, especially in 2019 and 2020. Additionally, the availability or better the unavailability of labour in the labour market, the prices of raw materials, and the movement of exchange rates were also anticipated. The annual reports or annexes to the financial statements describe a range of responses to these risks. These include digitalisation and automation, an emphasis on recycling and the careful management of raw materials, and retraining of workers.

4.2. Actual risks and threats in 2022

At the time of writing, all companies published annual report for 2021. From the analysis of this reports, it is clear that the companies are fully aware of the risks and threats of the present, i.e., the war conflict in Ukraine, the change in the economic and political world setting, the rise in inflation, and the sharp rise in material prices. It can be realistically assumed. The identification of these risks is understandable. For example, if we look at the economic situation in the Czech Republic (Czech

National Bank, 2022), the inflation rate was in June 17,2%, in July 17,5%. The base interest rate in the Czech Republic was last increased on June 2022 and now stands at 7%.

5. Conclusion

The article attempts to analyse both economic and non-economic data of selected major manufacturing companies in the Czech Republic. The economic indicators demonstrate the problems faced by the companies due to the COVID-19 pandemic, which have manifested themselves in 2019 and 2020. At the same time, the non-economic data illustrate that the companies were trying to counter this situation. They were well aware of the threats and risks and implemented well-thought-out measures in an attempt to defeat the pandemic and push for a return to the pre-pandemic years. The companies' efforts to strengthen their own stability were more than evident in the increasing levels of reported equity. Companies (in their 2021 annual reports) saw the problematic political situation and hard economic situation. They mentioned rising energy and material prices. Labour issues were also highlighted. We can see that companies are aware of the risks and propose solutions for their elimination.

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