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Editors:

Ing. Petr Mikuš, Ph.D.

Ing. Martin Cenek

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Conference Theme:

2000 vs. 2020 – Reflecting on the Milestones of the Development of Scientific Knowledge

Aim of the Conference:

The aim of the conference is to share information and research results among experts from universities, research and consulting institutes and successful companies concerning topics related to reflecting on the milestones of the development of scientific knowledge in corporate management in the perspective of numerous conquered and upcoming opportunities and challenges in human resources, financing, processes and other business fields.

PREFACE

Dear readers,

I am pleased to present You the collection of papers from the 4th annual International Scientific Conference of Business Economics, Management and Marketing, best known as ISCOBEMM. The fourth year of our conference was held on September 5th and 6th, 2019 in Prušánky - Nechory, Czech Republic. The conference was organized by the Department of Corporate Economy of the Faculty of Economics and Administration of Masaryk University.

The proceedings include contributions in the field of business economics, management and marketing focused on modern trends, especially in the areas of business performance, customer satisfaction management, quality management, knowledge management, start-ups, SME innovation potential, social and digital media, competitiveness, strategic management, human resources management, science management and, last but not least, marketing, corporate governance and ICT in companies. These topics were covered within the theme of the conference "2000 vs. 2020 – Reflecting on the Development of Scientific Knowledge".

The conference was visited by participants from many countries (Czech Republic, Slovakia, Russia, India and others) and offered an interesting opportunity to meet in the heart of Moravia and share new knowledge across the corporate economy. The meeting was accompanied by a workshop and a rich complementary program.

As in previous years, the authors of the best contributions were awarded the best contribution award ISCOBEMM. In these proceedings you will find contributions of our participants based on their current research findings. I believe you will find these posts useful and inspiring.

*Ing. Petr Mikuš, Ph.D.
Organizing Committee Chairman*

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What are the drivers of business performance? A case of Slovakian metal casting industry

Aneta Bobenič Hintošová¹, Jaroslav Dugas²

¹ University of Economics in Bratislava
Faculty of Business Economics with seat in Košice, Department of Management
Tajovského 13, 041 30 Košice
E-mail: aneta.bobenic-hintosova@euke.sk

² University of Economics in Bratislava
Faculty of Business Economics with seat in Košice, Department of Information and Language Communication
Tajovského 13, 041 30 Košice
E-mail: jaroslav.dugas@euke.sk

Abstract: *The existing empirical literature brings ambiguous results about the drivers of business performance, distinguishing between industry-specific and firm-specific factors. The aim of the present paper is to evaluate the impact of selected external and internal factors on business performance in case of Slovakian metal casting industry for the period of 2009 – 2017. The results of regression analysis using OLS technique showed that both industry-specific factors in form of structural characteristics of industry as well as firm-specific factors in form of wage level can be considered as drivers of business performance measured by profitability indicators.*

Keywords: *business performance, metal casting industry, industry-specific factors, firm-specific factors*

JEL codes: *D40, L10, L61, M21*

Introduction

Within empirical literature there is a long-lasting and still continuing debate about the main factors that drive business performance. While industrial organization economists based on structure-conduct-performance (SCP) paradigm prioritize industry-specific factors (Bain, 1951; Scherer, 1980) including structural characteristics of an industry, the strategic management theorists based on resource-based view (RVB) emphasize importance firm-specific factors (Barney, 1991) in explaining variations of firm's profitability. However, the later stream of research pointed out to increasing integration of multiple theoretical paradigms creating a balance between internal and external factors (Hoskisson, et al., 1999) because both sets of factors can satisfactorily predict performance, each in different environment (Hawawini et al., 2003).

The present paper is focusing on brief overview of studies trying to integrate firm-specific and industry-specific factors in explaining business performance. In the light of the previous findings, it analysis impact of selected external and internal factors on business performance in case of Slovakian metal casting industry for the period of 2009 – 2017. The orientation on single industry is done by the effort to deal in more details with industry-specific characteristics. In this regard McGahan and Porter (1997) found that the importance of the effects differs substantially across broad economic sectors, hence every single-industry study can enrich the existing literature.

The rest of the paper is organized as follows: Part 1 brings brief overview of previous empirical findings, part 2 explains the dataset and methodology used within own research, part 3 presents own empirical findings and their discussion followed by conclusion.

1 Literature Review

The importance of firm-specific in parallel with industry-specific factors in influencing business performance was analyzed in the pioneer work by Schmalensee (1985) who showed that profit differences are attributable to strong industry effects, while corporate and market share effects being extremely weak. On the other hand, later study conducted by Rumelt (1991) revealed negligible corporate effects, small stable industry effects, and very large stable business-unit effects. These

two works with controversial results stimulated further waves of discussions and research in this field.

Significant works in this regard have been conducted by McGahan and Porter (1997, 2002) who on a broad cross-section of firms in the American economy analyzed the variance of accounting profitability and found that industry and corporate-parent effects are important and related to one another. However, as expected, business-specific effects, which arise from competitive positioning and other factors, have a larger influence on performance. Similarly, Spanos and Lioukas (2001) confirmed importance of both industry- as well as firm-specific effects, however they at the same time concluded that these effects explain different dimensions of performance. Where industry forces influence market performance and profitability, firm assets act upon accomplishments in the market arena (i.e. market performance), and via the latter, to profitability.

Unlike previous studies, Hawawini et al. (2003) used value-based measures of performance (economic profit and market-to-book value) instead of accounting ratios (such as return on assets). They also examined whether the findings of past research can be generalized across all firms in an industry or whether they apply to a particular class of firms within the same industry. They found that only for a few dominant market leaders and losers do firm-specific assets seem to matter significantly more than industry factors. For most other firms, however, the industry effect turns out to be more important for performance than firm-specific factors.

Huang et al. (2015) by integrating both industrial organization theory and resource-based view in the analysis of competitive advantage at the firm level explored how firms transform temporary competitive advantage into sustainable competitive advantage. Their results suggest that firms with a stronger market position can only attain a better outcome of temporary competitive advantage whereas firms possessing a superior position in technological resources or capabilities can attain a better outcome of sustainable competitive advantage. Moreover, firms can leverage a temporary competitive advantage as an outcome of market position to improve their technological resource and capability position, which in turn can enhance their sustainable competitive advantage.

In the recent study by Pervan et al. (2018) conducted on a sample of small Croatian firms operating in manufacturing sectors the authors proved statistically significant negative influence of industry effects on performance. On the other hand, larger, significant and positive influence of dynamic capabilities on firm performance confirmed the importance of sensing opportunities and threats and seizing opportunities in contributing to the firm's prosperity and success.

On the basis of the above overview, it is obvious that within the empirical literature there is a constant discussion on the importance of external or internal factors in relation to business performance, and this relationship seems to be sector/ market position specific. Hence, we consider it important to address the issue of factors determining business performance in single-industry conditions within this study.

2 Data and Methodology

Our main interest is to examine the drivers of business performance of casting industry in the Slovak Republic in the period of 2009 - 2017. According to the Statistical Classification of Economic Activities SK NACE Rev. 2 the casting industry belongs to the division 24 Manufacture of basic metals and based on 3-digit categories it is a group 24.5 – Casting of metals. The input data were collected from the Industry Yearbooks processed by the Statistical Office of the Slovak Republic, which publishes annual reports based on data submitted by firms with 20 or more employees, as well as firms with up to 19 employees, but whose yearly turnover exceeds 5 million Euros. Complementary data were gathered also upon individual request addressed to the Statistical office of the Slovak republic.

As the dependent variables within our study we used business performance of the casting industry evaluated through profitability indicators because they are most frequently used and popular for simplicity of their construction (Suchánek et al., 2013). In this paper, as the profitability measure, we used return on sales (*ROS*) computed as profit before depreciation, interest, and taxes as a ratio of sales and return on equity (*ROE*) computed as profit before depreciation, interest, and taxes as a

ratio of equity. Similar variables as dependent variables were used also in the study by Chong, Chan (2014) or Blažková, Dvouletý (2019).

As independent variables we used industry-specific indicators describing evaluation of market structure of the industry and firm-specific indicators connected with human resources. We assessed the market structure through indicators traditionally used within empirical literature (e.g. Setiawan et al., 2013; Chong, Chan, 2014). Since the market structure generally reflects number and size distribution of the firms operating within particular industry, we used number of enterprises operating within casting industry (*No*) and one of the most frequently used indicators for assessment of market structure, namely Herfindahl-Hirschman index (*HHI*). It is calculated as the sum of the squares of the market shares of all firms operating within particular industry. Additionally, we examined firm-specific factors as potential drivers of business performance through labour productivity (*LP*) counted as value added per employee and through average nominal monthly wage (*Wage*).

Table 1 presents simple statistics of studied variables followed by correlation matrix showing Pearson correlation coefficients between pairs of dependent and independent variables (table 2).

Table 1 Simple statistics of studied variables

Variable	Mean	Std Dev	Minimum	Maximum
ROS	0.05124	0.06720	-0.10991	0.13102
ROE	0.32269	0.39768	-0.56517	0.82591
HHI	1154	256.206	620.79	1374
No	27	1.93649	24	31
LP	25074	5257	17986	34702
Wage	920.6667	100.52612	735	1081

Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

Based on the values of correlation coefficients we expect business performance to be positively influenced by industry-specific factors, namely increased industry concentration accompanied with lowering of the number of firms operating within industry, as well as by firm-specific factors connected with human resource management.

Table 2 Correlation matrix

	HHI	No	LP	Wage
ROS	0.81601***	-0.95320***	0.52623	0.69428**
ROE	0.90629***	-0.83394***	0.85778***	0.92867***

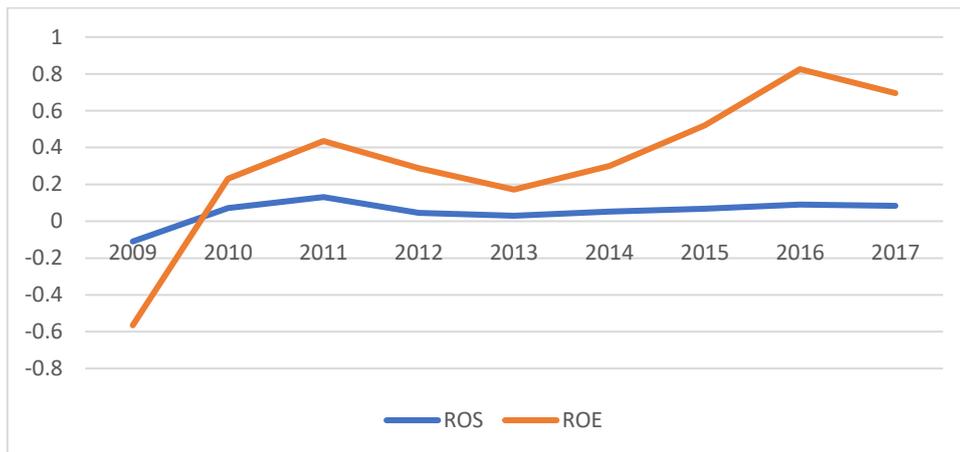
Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

Influence of industry-specific and firm-specific factors on business performance was further more deeply analysed by regression analysis using OLS technique. Four linear regression models were constructed in order to analyse separately the impact of the group of industry-specific and the group of firm-specific factors on both business performance indicators.

3 Results and Discussion

The development of the dependent variables within the observed period is shown in the figure 1. It is obvious that the return on equity increased significantly within observed period. On the other hand, the development of return on sales stagnated and it reached the average value of 5 cents of profit per 1 Euro of sales.

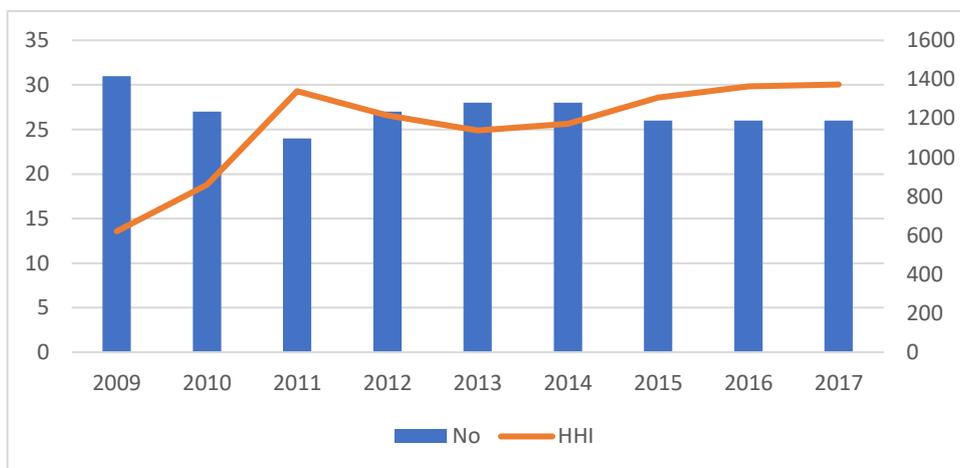
Figure 1 Development of return on sales and return on equity within metal casting industry



Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

Figure 2 shows development of industry specific variables, namely number of enterprises operating in the industry and Herfindahl-Hirschman index. Within Slovakian metal casting industry operate on average 27 firms with highest number of the firms especially at the beginning of the observed period. The development of industry concentration fluctuated between 620 and 1374 points. According to the *Horizontal Merger Guidelines* (2010) the Slovakian metal casting industry can be considered as fragmented industry.

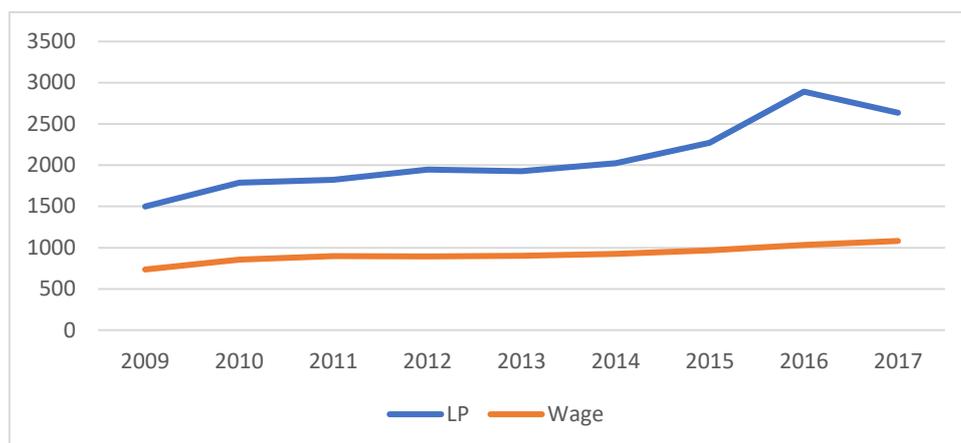
Figure 2 Development of number of enterprises and HHI within metal casting industry



Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

Figure 3 presents development of the labor productivity in connection with the development of the average monthly wage per employee. For better comparison purposes we expressed the labor productivity as average labor productivity per month. It is obvious that the labor productivity has exceeded significantly the average monthly wage, although it has declined slightly recently. The average monthly wage in this sector reached 920 Euro in the last reference year, which is slightly below the average monthly wage in the Slovak economy (in 2017 it was at the level of 954 Euro).

Figure 3 Development of labor productivity and average monthly wages within metal casting industry (in Euros)



Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

In order to analyze more deeply relationship between market structure and performance the regression analysis using OLS technique was conducted. We constructed two models where as dependent variables ROS and ROE were studied separately. Within both models we used the same independent variables describing the market structure, namely Herfindahl-Hirschman index and number of firms operating within the industry. The results are presented in the table 3.

Table 3 Impact of industry-specific factors on performance

	Dependent variable: ROS				Dependent variable: ROE			
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	0.842366	0.257208	3.275	0.0169**	0.603401	2.01455	0.2995	0.7746
HHI	2.48689e-05	5.62490e-05	0.4421	0.6739	0.00105973	0.000440564	2.405	0.0529*
No	-0.0303642	0.00744198	-4.080	0.0065** *	-0.0557055	0.0582885	-0.9557	0.3761

R-squared 0.911481 Adjusted R-squared 0.881975 R-squared 0.844962 Adjusted R-squared 0.793283

White's test for heteroscedasticity p-value 0.349

White's test for heteroscedasticity p-value 0.269

Test for normality p-value 0.723

Test for normality p-value 0.889

Durbin-Watson test 2.70915 p-value 0.702

Durbin-Watson test 2.23603 p-value 0.414

RESET test for specification p-value 0.075

RESET test for specification p-value 0.617

VIF no collinearity problem

VIF no collinearity problem

Source: own processing based on the data provided by the Statistical Office of the Slovak Republic

Results of regression analysis show statistically significant negative impact of the number of firms in the industry on the variable return on sales and statistically significant positive impact of HHI on the variable return on equity. The results are in line with the SCP paradigm that increased concentration within particular industry (i.e. increased values of HHI with decreasing number of firms operating within the industry) is connected with better performance. It seems that in case of Slovakian metal casting industry the traditional SCP hypothesis is valid, similarly as it has previously been proved by Yamawaki (1984) in conditions of Japanese iron and steel industry. Thus, as in case of fragmented Slovakian metal casting industry, Wu et al. (2008) concluded that low market concentration ratio and high industrial profit coexistence is one of the characters of Chinese steel industry, however contrary to our results they showed that firms' performance is negatively correlated with the industrial concentration ratio. It seems that the nature of structure-performance relationship and its development is industry-specific. On the other hand, the unidirectional causality assumption within traditional SCP hypothesis has been challenged by many empirical studies (e.g. Kalirajan, 1993) that presented a possibility of feedback from conduct and performance on structure. Testing this

alternative efficient structure hypothesis can form agenda of future research because it is reasonable to assume that there exist dual or even multi causalities among variables of market structure, business conduct and business performance.

Furthermore, we have specifically evaluated the impact of personnel-oriented variables, namely labor productivity and average monthly wage on performance. The results of regression analysis are shown in the table 4.

Table 4 Impact of firm-specific factors on performance

	Dependent variable: ROS				Dependent variable: ROE			
	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	-0.605330	0.242606	-2.495	0.0468**	-3.13984	0.831860	-3.774	0.0092** *
LP	-1.16012e-05	9.16082e-06	-1.266	0.2523	-4.05585e-06	3.14111e-05	-0.1291	0.9015
Wage	0.00102910	0.000479057	2.148	0.0753*	0.00387135	0.00164262	2.357	0.0565*

R-squared 0.591277 Adjusted R-squared 0.455037
squared 0.817073

White 's test for heteroscedasticity p-value 0.159
p-value 0.124

Test for normality p-value 0.904

Durbin-Watson test 1.75354 p-value 0.202

RESET test for specification p-value 0.202

VIF no collinearity problem

R-squared 0.862805 Adjusted R-

White 's test for heteroscedasticity p-

Test for normality p-value 0.765

Durbin-Watson test 1.64373 p-value 0.149

RESET test for specification p-value 0.124

VIF no collinearity problem

Source: own processing based on data provided by Statistical Office of the Slovak Republic

The results show statistically significant positive impact of the average monthly wage on both performance variables. We can conclude that higher wages of employees stimulate performance of the firm. However, the average wages in the industry within our study are lower than the national average, thus it is reasonable to assume that positive effect of wage increase on performance is obvious only in wage undersized industries. In our future research we would like to focus in more details on effects of wages on performance also in case of industries with higher level of remuneration. Surprisingly, the results have not supported our assumption about a positive relationship between the labor productivity and profitability as it has recently been shown by Blažková and Dvouletý (2019). In our study no statistically significant impact of labor productivity on performance has been detected. We assume that different results could be achieved in case of different construction of the labor productivity indicator (e.g. based on turnover) and performing analysis over a longer period of time.

Conclusions

Going out from the theoretical ambiguities about the drivers of business performance, the present study evaluated the impact of selected external and internal factors on business performance in conditions of Slovakian metal casting industry for the period of 2009 – 2017. Typical feature of this industry is its fragmented market structure despite slight tendency toward its concentration. Our results showed that increased concentration could in conditions of this industry lead to performance improvement measured by profitability indicators. Another feature of the metal casting industry is its relatively low wage level in comparison to national average. The results indicate that with increased level of wages the business performance should improve. On the other hand, labor productivity seems to have no significant impact on business performance. Thus, we can conclude that both industry-specific factors in form of structural characteristics of industry as well as firm-specific factors in form of wage level can be considered as drivers of business performance within Slovakian metal casting industry.

Acknowledgments

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E-learning 2.0, its potential for company education

Marek Botek¹, Lenka Adamová²

¹ University of Chemistry and Technology Prague
Department of Economics and Management
Technická 5, 166 28 Prague 6
E-mail: marek.botek@vscht.cz

² University of Chemistry and Technology Prague
Department of Economics and Management
Technická 5, 166 28 Prague 6
E-mail: le.adamova@gmail.com

Abstract: *E-learning 2.0 is the developing of standard e-learning by the possibility of sharing contents among the attendees. Therefore, it is not about interaction with the lecturer, but about the participant's mutual communication. This form of on-line education makes it more attractive, but also places more demands on education providers. The information whether such a product would be interesting for participants was tested on a sample of 1,179 respondents. All respondents were attended by regular sales education in the same company and had repeated the experience with both e-learning and face-to-face education. 81.5 percent of them prefer e-learning over printed materials and 46 percent would like to share their questions on a common platform. 28 percent of respondents were not able to decide if they would share their questions. Other aspects and more detailed data analysis are discussed in the paper. In general, it can be confirmed that participants in the research would positively accept e-learning 2.0.*

Keywords: *online education, e-learning 2.0, webinars, research*

JEL codes: *M53, I21, D83*

Introduction

Nowadays, modern technologies are applied almost everywhere and can be successfully used not only for information sharing but also for education. Gana (2017) states that today's businesses need to increase the numbers of "knowledge workers". Based on the definition that knowledge is information or skill that an individual can effectively use (Truneček, 2004, Collison and Parcel, 2005, Wu et al., 2013), it is possible to convey not only information but also knowledge using modern technology. It should be possible to replace the information given in the form of a lecture by a quality distance education. Students will be able to choose the time of the study, repeatedly return to difficult parts and, conversely, skip the known information. According to Gana (2017), the beginnings of distance education began during industrialization in England and other countries. Nocar (2004) claims that distance education has already entered a completely new era and, in conjunction with the development of information and communication technologies, creates a new form of education called e-learning.

There are a number of perspectives on what e-learning is. Abrami (2006) gives a brief definition that e-learning is the use of computer technology for education. A more detailed view is offered by Wu and Hwang (2010) and Damon (2016); e-learning is an education supported by modern technologies and implemented via intra or internet. Nocar (2004) and Hrastinski (2008) distinguish between synchronous methods in which a student can communicate on-line with classmates or tutors, and asynchronous methods, where this is not possible, but on the other hand, they can freely choose the time of study. Tîrziu (2015) points out that it is mainly the idea of interaction, which is a key element of e-learning. Rao (2011) writes that too much content causes information overload. Also, Abrami (2006) emphasizes that it is not just content, nor technology. In an overly complex environment, the user is lost and frustrated, while an overly simple environment is not a challenge for them and is not motivated to learn (Sirkemaa, 2006). Ming-Lang et al. (2011) also found that in order to increase e-learning efficiency, it is necessary to improve the e-learning system and attractiveness for learners, when quality means availability and response time of the system and attractiveness for the student is timeliness, design, and on-line communication possibility.

Newer trends in e-learning no longer see this kind of education as a self-study or a set of tools that support self-study but complement it with a social aspect. E-learning offers not only education management, ie adding assessment criteria, describing the sequence of activities, etc., but also a platform for direct interaction with other students or tutors or even a form of social network that allows a wide sharing of knowledge and experience (Frk, 2014). Goh et al. (2017) investigated students' e-learning experiences in association with learning outcomes and satisfaction in Malaysia. The authors considered three learning experiences – course design, interaction with the instructor, and interaction with peer students as determinants of learning outcome and satisfaction.

The advantage of flexibility is in the ability of the student to adapt learning to their lifestyle. Therefore, even the busiest workers can study in this form (Tîrziu, 2015, Sun, 2016, Gana, 2017). Another advantage of e-learning is the possibility of personalization. In connection with e-learning, Hamada (2013) mentions the possibility of the student to determine to a certain extent their own direction of the learning process and the related possibility of forming an individualized personality. Agarwal (2013) describes that, unlike traditional forms of education, e-learning materials are not selected by a teacher or institution. Thus, they provide the student with the opportunity to choose suitable materials with their specific study requirements.

Hamada (2013) states that it is clear that the new generation of e-learning requires some forms of shared learning. It is called e-learning 2.0. Damon (2016) defines e-learning 2.0 by comparison with traditional e-learning (e-learning 1.0). While e-learning 1.0 was a model of education where only certain information was prepared and delivered to the student, e-learning 2.0 also enables the student to communicate with the lecturer or other students.

An even more interactive form of education is a webinar. Lieser (2018) defines it as a practical technology that provides the student with the ability to interact with the teacher and his classmates in real-time through an enriched virtual medium. He adds that the webinar training records can then be used by students as learning material, which they can control at their own pace. This technology is also cost-effective by saving time and expense on travel. Webinars are presentations, lectures, workshops, or seminars transmitted over the World Wide Web and are usually live and interactive (Buxton et al., 2012).

In the present paper, based on a survey of a large industrial organization providing training to its business partners, we are focused on how satisfied students are with e-learning and whether they would appreciate a platform for sharing information and questions and teaching through a webinar. Webinars seem to be a very popular way to inform people. Buxton et al. (2012) found that more than 87 % of the respondents indicated they were likely or very likely to enroll in future webinars.

1 Methodology

Based on research on (Saunders et al., 2009) there were made following decisions. Philosophy was chosen to be Pragmatism. A deductive approach was selected. The used Choice is Mono method and the Time horizon cross-sectional. Web of Science, Proquest, and Ebsco databases were used to find relevant articles for Literature review.

For the detailed analyses was used a questionnaire search. The questionnaires were distributed via iPads during product training in April 2019. The answers were collected in MS Excel program. The total number of respondents was 1208 individuals in a product training. 1 182 respondents answered, three of them send inadequately fulfilled questionnaires. Therefore 1 179 questionnaires were analyzed.

The respondents answered on a 1-5 Likert scale from completely agree to completely disagree (excluding the demographic questions). Hypotheses were statistically verified in program R Studio, version 1.2.1335 by using a binary logistics regression model.

1.1 Model Specification

The dependent variables were:

- Share – if the respondent appreciates the possibility of a platform for sharing information with other students,
- Webi – if they appreciate webinar,
- Satis – satisfaction with realized e-learnings.

The independent variables were:

- Sex,
- Age,
- Edu – the highest received education,
- Vykon – the agreement with the statement “e-learning was useful for my work performance”,
- Pref - the agreement with the statement “ I prefer e-learning from another kind of education”,
- Zmat - the agreement with the statement “I am often confused during the study of the e-learning”,
- Tisk - the agreement with the statement “I prefer more printed materials than e-learning”,
- Konc - the agreement with the statement “I am not able to be fully concentrated during the e-learning study”,
- Neuro2 – the item focused on neuroticism rate based on BF-10,
- Extra – the item focused on extraversion rate based on BF-10,
- Open - the item focused on openness rate based on BF-10.

Each variable is represented by one questionnaire item. The dependent variables had to be transformed from the Likert scale in accordance with binomial separation into two categories. The first one (1) were answers strongly agree and agree, the second one (0) were the other answers. The independent variables were also transformed. In the Sex, the 1 were women and the 0 were men. In the Age, the 0 were respondents younger than 20, the 1 were respondents between 21 and 30, etc. In the Edu were 4 categories from the 0 (basic) to the 4 (university degree). The variables Vykon, Pref, Zmat, Tisk, Konc, Extra, and Open were modified into 5 categories from 2 strongly agree to -2 strongly disagree. The variable Neuro2 were modified into opposite five categories from 2 strongly disagree to -2 strongly agree. Table 1 shows the descriptive statistics.

Table 1 Descriptive statistics

Statistic	N	Mean	St. dev.	Min	Pct (25)	Pct (75)	Max
Satis	1,182	0.816	0.387	0	1	1	1
Share	1,181	0.596	0.491	0	0	1	1
Webi	1,182	0.464	0.499	0	0	1	1
Sex	1,182	0.218	0.413	0	0	0	1
Age	1,182	2.264	1.030	0	1	3	6
Edu	1,181	2.287	0.857	0	2	2	4
Vykon	1,182	1.113	0.956	-2	1	2	2
Pref	1,181	0.541	1.116	-2	0	1	2
Zmat	1,181	-1.025	0.976	-2	-2	-1	2
Tisk	1,182	-1.256	1.031	-2	-2	-1	2
Konc	1,182	-0.647	1.241	-2	-2	0	2
Neuro2	1,182	0.749	0.938	-2	0	1	2
Extra	1,182	0.940	0.929	-2	1	2	2
Open	1,182	1.112	0.888	-2	1	2	2

Source: Own research

2 Data

The majority of respondents is satisfied with e-learning (38.5 % strongly agree, 43.2 % agree). 81.5 % of respondents prefer e-learning over printed materials (55.4 % strongly agree, 26.1 % agree). 59 % of respondents would appreciate the new sharing platform (18.8 % strongly agree, 40.8 % agree). 46.6 % of respondents would like to share their comments while studying e-learning (12.6 % strongly agree, 34 % agree). 78.2 % of respondents disagree with the statement “I am confused during study e-learning” (35.4 % strongly disagree, 42.8 % disagree).

There are no significant differences between women and man in these items. Also, there is no significant trend in these items in accordance with age.

To realize a deeper analysis three regression models (for e-learning satisfaction, for sharing platform satisfaction, and for willingness to attend webinars) were created. Coefficients are included in Table 2.

Table 2 Logistic regression

Statistic	Satis	Share	Webi
Sex	0.409 (0.250)	0.315** (0.153)	0.302** (0.145)
Age	-0.001 (0.095)	-0.014 (0.059)	0.101* (0.058)
Edu	0.027 (0.106)	0.283*** (0.074)	0.122* (0.070)
Vykon	1.115*** (0.104)		
Pref	0.325*** (0.089)		
Zmat	-0.375*** (0.102)		
Tisk	-0.170* (0.090)		
Konc	-0.238*** (0.082)		
Neuro2	0.065 (0.113)	0.090 (0.073)	-0.013 (0.071)
Extra	0.185* (0.112)	0.197*** (0.074)	0.170** (0.074)
Open	-0.062 (0.113)	0.131* (0.075)	0.178** (0.076)
Constant	-0.301 (0.402)	-0.545** (0.249)	-1.090*** (0.247)
Observations	1,179	1,179	1,179
Log Likelihood	-384.110	-775.928	-798.722
Akaike Inf. Crit.	792.220	1,565.856	1,611.445
Note	*p<0.1; **p<0.05; ***p<0.01		

Source: Own research

3 Discussion

Satis: Statistically significant predictors for the satisfaction of the recipient of education via e-learning appear Vykon, Pref, Zmat, Tisk, and Konc. In this case, the regression coefficients say that with the increasing conviction of the benefits of knowledge receiving by e-learning, the respondent's satisfaction with e-learning increases, just as if the recipient prefers e-learning over other forms of education, their satisfaction with e-learning increases. These findings are in line with the assumptions. Bray et al. (2008) in his study of e-learning in Japan concluded that students' online skill predicted perceived satisfaction with e-learning. Also, Jung (2014) and Rahman et al. (2015) agreed that perceived value and enjoyment influence of e-learning satisfaction. Other statistically significant predictors Zmat and Tisk suggest that if a respondent feels confused while studying e-learning, his satisfaction with e-learning will decrease. The ease of using e-learning as a predictor of success is also confirmed by Zhang et al. (2011) and Rahman et al. (2015). The last independent variable that has been shown to be significant is Konc. It says that the less the respondent can concentrate on studying e-learning, the less their satisfaction with e-learning will be.

Share: Based on the created regression model, Sex, Edu, and Extra are considered statistically significant predictors for the appreciation of the platform for sharing questions, comments, and observations from the working environment. Women will appreciate space for sharing their queries more than men. The higher education a respondent achieves, the more they will appreciate the query sharing platform. As the rate of extraversion increases, the rate of valuation of the space for query sharing increases. The relationship between the appreciation of sharing platforms and extraversion is logical. However, the literature does not prove that women are more extraverted than men, although they are generally considered to be more communicative. This also indicates the result of the model. Miller et al. (1990) found that men are more active in questioning in learning than women, but Glendhill and Van der Merwe (1989) did not find it. It would be interesting to find out why the willingness to share information with the level of education is growing. The questionnaire did not make it possible to determine whether the respondent would be interested in sharing their questions or, conversely, their "discoveries" or answers to questions from other students. It is possible that with increasing education people are more aware of their shortcomings and feel the need for

platforms for self-support. It is also possible that they have a need to communicate the environment, how clever they are, and use the platform as a form of self-presentation.

Webi: Based on the created regression model, Sex, Extra, and Open, appear to be statistically significant predictors for webinar appreciation. While openness to new experiences is logically predicted, the other two factors are surprising. As the respondent's degree of openness increases, the respondent's webinar appreciation is increased. It is not easy to explain why women appreciate webinars more than men. In this form of instruction, the core is formed by a live stream of the lecture, the questions of the participants are only a marginal contribution. Also, Severiens and Dam (1994) found no significant differences between learning styles preferred by men and women. Miller et al. (1990) even claim that men prefer active questioning in learning more than women.

Conclusions

In accordance of received data, course attendants in this organization are prepared to accept e-learning 2.0. Their satisfaction with realized e-learnings is extremely high (82 %), they feel them useful for their work and prefer them in comparison of printed materials. These attendants also appreciate a platform to share their queries based on e-learning and also the platform for work problems sharing. Although most of them do not have experience with webinars, the majority of respondents appreciate this form of education.

Due to a large number of respondents, the results of the statistical analysis are sufficiently representative. Partial conclusions are given in the discussion. An interesting finding is a fact that women and more educated trainees more appreciate the opportunity to share their questions and comments. A webinar would also appreciate women more than men. In further research, it would be appropriate to verify this conclusion and identify the reasons.

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Cooperative Strategy with Regard to Business Deficit in Companies under Domestic and Foreign Control

Martin Cenek¹, Martin Štěřba²

¹ Masaryk University
Faculty of Economics and Administration, Department of Corporate Economy
Lipová 507/41a, 602 00 Brno
E-mail: martin.cenek@mail.muni.cz

² Masaryk University
Faculty of Economics and Administration, Department of Corporate Economy
Lipová 507/41a, 602 00 Brno
E-mail: martin.sterba@mail.muni.cz

Abstract: *Intra-firm routines, people and structures, those are all firm components of company composition, which are derived from the chosen strategy. Hence, they are essential for creation of company value. In traditional strategic management practice, however, relationships with stakeholders are often neglected, while a good strategy has to ensure a proper support in day-to-day company routine in terms of strategically determined approach to key stakeholders. The subject of this paper is a basic introduction of the ideas that form the foundations of the new methodology. Subsequently the influence of business deficit (as a potential expression of partial competitive strategy within the dominantly cooperative strategy in company-supplier relationships) on the performance of the company, measured by return on equity, is studied, comparing companies under domestic and foreign control.*

Keywords: *Strategic management, cooperative strategies, stakeholder theory, game theory.*

JEL codes: *D21, D22, D23, D43, D47*

Introduction

The following paper offers a new approach to strategic corporate management in the context of cooperative and competitive strategies, with the creation of cohesive coalitions seen as the key to the success of a company. Strategic corporate management essentially requires the consideration of many factors and their mutual interconnections to choose the most beneficial solution from all the available alternatives. The decision-making process in the conditions of uncertainty prevents clear knowledge of the consequences of the decision and what positive or negative externalities it might cause. In these conditions of uncertainty, the mutual beneficiality of a relationship represents an imaginary fixed point, which is a necessary condition to ensure cooperation at any level. Understanding the mutually exchanged values as a determinant of the beneficiality of the relationship is, in this context, the key moment of the strategic decision-making process.

This cooperativeness of relationships represents a certain simplification – it is an umbrella characteristic and the dominant element of the relationship, which, upon further analysis, can also entail some competitive elements. This is a typical phenomenon common to all stakeholder groups. A state wants prosperous companies to reside on its soil, but at the same time takes away a significant part of that prosperity for itself, and, in the form of taxes, seeks a compromise as an optimum strategic setting of the relationship.

In a company-supplier chain, companies strive to sell their products on the market and to ensure the necessary input resources. These resources should ideally be of as high quality as possible and as cheap as possible, which is a typical wish of the purchasers. From the financial point of view, it is recommended to keep a long-term negative business deficit, which can be seen as a violation of the above-mentioned dominant cooperation, aiming to gain a financial advantage. This raises the inevitable question of whether there is a demonstrable influence of business deficit on the performance of a company and whether, as a consequence, the partial competitive relationship deserves consideration in corporate strategic decision-making. This paper answers the question and also compares approaches to the optimization of the company-supplier chain from the point of view of the given average collection period and receivables turnover ratio of companies under domestic and foreign control.

1 New methodology for strategic management

Strategic management is the highest level of management, which requires consideration of highly complex conditions of the entrepreneurial environment and decision-making which determines future survival of the company. Research on strategic management represents a crucial and demanding activity with long-term relevance of the subject of research. And there is a question; a simple, but crucial question: What have we learned in the last 30 years of strategy research? First of all, tools used previously in strategic management of a company were developed for contemporary conditions and are incompatible with current conditions of the entrepreneurial environment.

The SWOT analysis is, contrary to its name, a simple and subjective description of the past (even when the extrapolation of trends is applied). Unequivocally classified opportunities and threats lead to a strategy of maximizing the opportunities and minimizing the threats and so on (Solomon, Marshall and Stuart 2006, 102).

In reality, however, the opportunities and threats (as well as weaknesses and strengths) are two sides of the same coin, and only the company itself decides how to handle the individual factors. "It is common knowledge that every crisis left many failed companies behind, but there was always a number of companies that emerged from the crisis much stronger, and thus victorious" (Bartes 2012, 11).

The use of the SWOT analysis negates, to a certain extent, the potential room for work with identified decisive factors of the environment and restricts the use of the strategist's own creativity and the innovation potential of the company. The output includes only the generation of a random list of factors, which, as Johnson (2014, 511) states, "... are rarely probed and refined, little substantive analysis is done to investigate them and they are often not followed up systematically in subsequent strategic discussions".

Michael E. Porter (1994, 3-4), a vocal critic of the SWOT analysis, has reacted to it by creating the Five Forces Analysis, which is based on structuring the industry in such a way as to determine competitive influences as a way to find the best position of a company in relation to the five forces (applying a single, reactive, strategy).

Nevertheless, this model is not suitable for current strategic management either, as all it offers is a relatively static view of current situation. As the outside world changes, so does the industry, and at the same time the boundaries between industries become increasingly blurrier. Moreover, it is not only the five forces that influence the company, and besides the competitive relationships, cooperative relationships are even more important to consider.

With regard to traditional tools of strategic management, the problems are not limited to Porter's five forces analysis or the SWOT analysis, nor are all the flaws of the two tools mentioned here exhaustively. However, those that are mentioned suffice to illustrate the necessity of a new approach to strategic management

The above-mentioned facts illustrate the increasingly pressing need for a strategic management methodology which would take into account the highly competitive market conditions, the struggle for resources, and the benefits of cooperative relationships between market players, which a company can establish to ensure competitiveness and growth. It is necessary to adopt and implement a new type of thinking about alliances and the cooperative strategies these alliances are based on.

This need can be met by using the proposed methodology of strategic management, which sees a company as a set of relationships, and, taking into consideration all relevant aspects, shows that it depends on the company's decision whether the strategy will be taking place within a win-win situation (for cooperative/collaborative relationships) or a win-lose one (for competitive relationships). Through stakeholders, companies can effectively compete with rivals, and at the same time maximize the potential of these win-win strategies.

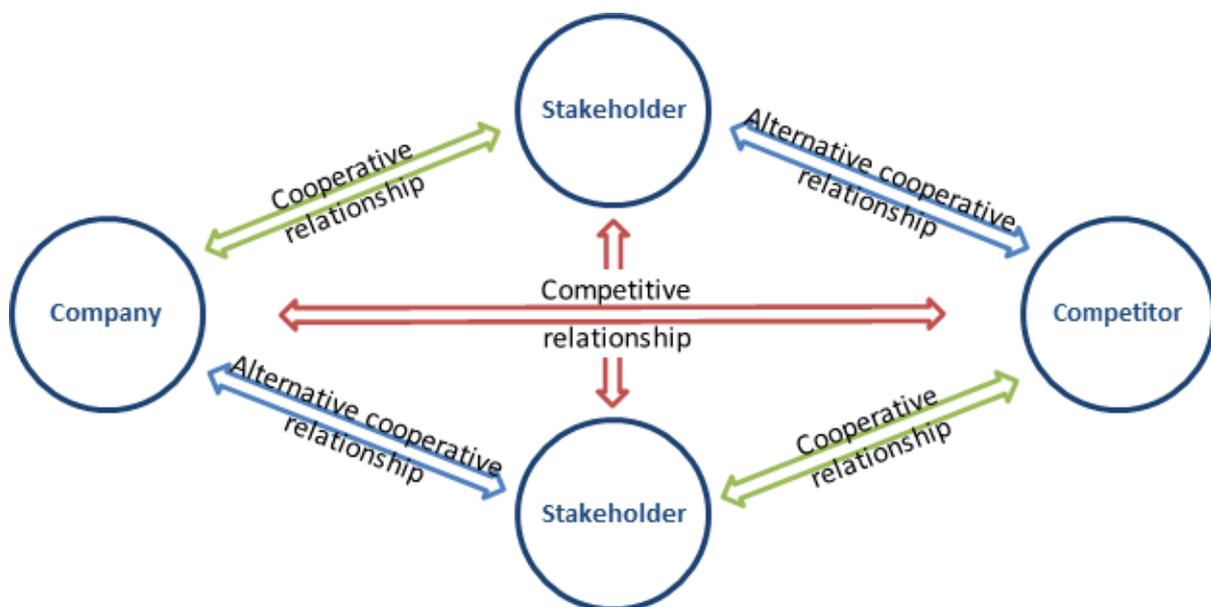
A company creates alliances on six different markets determined by the individual stakeholder groups, which are essential for ensuring its survival and efficiency. Stakeholders „provide ... a stake

in 'a game' because they want the company to use it, but at the same time they become dependent on the company operations, while simultaneously having the potential to be taken into account by the company (i.e. they are important, indispensable, or threatening for the company)" (Blažek, 2005, 9).

Sachs and Rühli (2011) state that the quality of each stakeholder's contribution affects the overall value created in a company. De Bussy and Suprawan (2012, 179-338) have proven by empirical research that application of stakeholder management influences the performance of the company positively, which is a result identical with other studies (for example Rais and Goedegebuure 2009, 62-75).

In accordance with Clarkson (1995, 95-117), who notes the often vague definition of stakeholders, six categories are used (investors, creditors, employees, purchasers, suppliers, the government), according to the given classification criteria by Blažek (2016, 51). These are: holding a stake in the company based on a contractual or legislative relationship, and contribution of the individual stakeholder to profit creation (the existence of the six groups was proven through linear regression in Cenek 2018, 175-180).

Figure 1: Basic model of cooperative and competitive strategies between stakeholders and company



Source: Authors

The methodology is based on creation of strategies dealing with individual, further structured groups of identified stakeholders with the ability to exploit the relationship as well as possible and to capitalize on the ongoing exchange of values. As a result, a satisfied stakeholder is loyal to the company (just like a satisfied company is loyal to the stakeholder) and the company can compete with rivals using the quality of the relationships (for example, a loyal purchaser will continue buying products and services from the company, since there is no motivation to switch to a competitor).

This strategic management methodology offers a better understanding of real processes, activities, and structures which form the basis of the successful realization of cooperative relationships inside the company and between companies. Cooperation between subjects ensures a synergy resulting from win-win situations, which are typical for cooperative strategies. Implementing this methodology opens new possibilities for development of cooperative strategies in the context of current real corporate conditions.

The presented basic model of cooperative and competitive relationships is being gradually developed in connection with individual identified stakeholders. Thus, the core of successful strategic

interactions between companies with their specific dynamics is progressively being uncovered. A company competes with its rivals through stakeholders and alliances created with them. (Cenek 2016, 108-116)

While the validity of the complex model being created here is being gradually verified, attention will be paid to the stakeholder group of suppliers, so that a deeper understanding of real processes, activities, and structures, which form the essence of successful alliances between companies and suppliers, is gained.

1.1 Strategic management of the company-supplier relationship

At the heart of this model lies value exchange. The relationship between the companies has to be advantageous for both subjects. Subjectively, they each receive more than they provide to their counterpart. Subject A gives object X in exchange for object Y, which is of higher value to A than it is to subject B and vice versa. Thus, suppliers usually provide the company with factors of production, for which they receive specified payments that are determined by an adequate sum decided on by both sides and a payment period. In the company-supplier relationship, the most strategically important factors for the suppliers, and thus the measure of the quality of the relationship which in turn determines the firmness of the alliance, are especially the following:

- Adequate contractual payments for the factors of production provided by the supplier.
- Payment on time.

If a company accepts a reasonable payment amount and pays its liabilities on time, it ensures suitable conditions for further development of the cooperative relationship in the alliance, and at the same time, through mutual benefits, defends the relationship against competitors (scarcity of input resources means the necessity of competing for their availability in the particular supplier market).

1.2 Historical approach to supplier relationship management

It is the payment period that is a long-term controversial process, for which a clear standpoint based on general optimising recommendations at the level of economic criteria, or the S2P model, which is determined by the relation of two formulas – days sales outstanding and days payables outstanding.

Days sales outstanding is the length of time when purchasers delay paying the suppliers, or the average period of time in which they pay the company for received goods and services.

$$\text{Days sales outstanding} = \frac{\text{Accounts receivable}}{\text{Credit sales}/365}$$

Days payables outstanding represents the period during which the company delays paying its suppliers for factors of production they provided. In general, in the context of the model, it is recommended as an optimising criterion to maintain the days sales outstanding result higher than that of days payables outstanding (Marinič 2008, 60).

$$\text{Days payables outstanding} = \frac{\text{Accounts payable}}{\text{Credit purchases}/365}$$

Adhering to the above-mentioned optimising criterion of S2P should provide a company with the advantage of holding short-term no-interest capital from suppliers, which can be used to finance company operations. Both indicators are always expressed together, in the form of business deficit, which should ideally be positive.

$$\text{Business deficit} = \frac{\text{Accounts receivable}}{\text{Credit sales}/365} - \frac{\text{Accounts payable}}{\text{Credit purchases}/365}$$

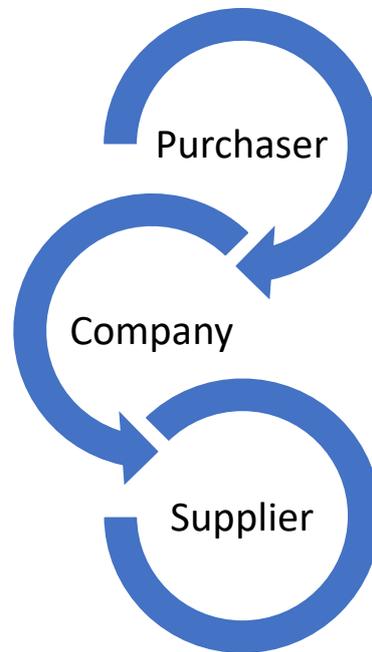
Business deficit shows whether a company provides credit to its purchasers (taking on a role of a creditor in addition to being a supplier), or the other way around, uses capital in the form of temporarily delayed payments to suppliers as a source of short-term financing (Čížinská a Marinič 2010, 167).

1.3 The impact of payment delays

The new thinking about alliances based on strong cooperative relationships presented above is not compatible with the traditional understanding of the S2P rule. A supplier is used as a short-term creditor, which is not a generally classifiable interest of any company, which needs to generate

revenues, the only source of which, out of all stakeholders, are purchasers. When the S2P recommendation is applied, the following causal chain is gradually becoming an endless circle of infinite regression (fig. 2).

Figure 2: The impact of payment delays on the supplier



Source: Authors

Suppliers function in their point of view as companies that supply their clients, and at the same time they have their own suppliers. If all companies adhered strictly to the above-mentioned rule, then, with no defence measures, a situation of infinite delays of payments would arise, and the strategic alliance would fail due to the inability to facilitate elementary purchaser-supplier relationships. Similarly, there would be no sufficient motivation for the suppliers to maintain and develop the relationship.

In the context of the win-win strategies mentioned above, the new approach presented here rests on a principle which is in opposition to the traditional understanding, focusing on relationships, which have to be maintained, as being the main value of a company. If a company's payment period to suppliers continues to be prolonged, despite contractual penalties and other defence measures, an opportunity to establish a relationship that would be more beneficial for the supplier arises naturally. This opportunity can be seized by a rival company, which also needs to purchase input resources in the context of the particular market.

2 Model testing

Following up on the above-mentioned facts, three research questions, which relate to the examination of payment discipline in the context of the influence of domestic and foreign control, are formulated. In addition, the relationship between business deficit and performance is tested, while assessing the effect of payment discipline on the performance of companies.

- Research question 1: What is the payment discipline of companies under domestic and foreign control, determined by the relation between average collection period and receivables turnover ratio?
 - o Measure 1: average collection period, receivables turnover ratio (in relation to domestic and foreign control)
- Research question 2: Which types of companies (under domestic or foreign control) use suppliers simultaneously as short-term creditors to be able to make use of non-interest bearing short-term capital more frequently?

- o Measure 2: business deficit value (in relation to domestic and foreign control)
- Research question 3: Is there a connection between the value of business deficit and performance of the company measured by the return on equity (ROE) indicator?
- o Measure 3: return on equity and business deficit value

2.1 Research design

To answer the research questions, a sample of 8058 Czech companies from various industries which employed at least 50 employees in the research period was gathered. During data processing it emerged that 216 of them included incomplete financial information, which

- was not published although it was supposed to be, or was not published in sufficient quality,
- belonged to companies which did not operate for at least three years in the given period.

Furthermore, additional 1686 companies were excluded, as they were not possible to be clearly categorized into institutional sectors (according to IS2015 methodology) or they belonged to the public or financial sector. The final research sample thus includes 6588 companies, out of which 4044 are private domestic companies (61.38%) and 2544 belong to the private companies under foreign control category (38.62%).

Table 1: Average collection period in the research period

Type of companies	Number of companies	2009	2010	2011	2012	2013	2014	2015
private domestic	4044	58.1	71.8	69.5	71.3	72.8	69.4	61.3
private under foreign control	2544	66.4	77.7	82.0	77.8	76.8	78.9	73.5
Total	6588	61.3	74.1	74.3	73.8	74.4	73.1	66.0

Source: Authors

2.2 Results

Average collection period measuring the payment discipline of purchasers clearly indicates a longer collection period in private companies under foreign control throughout the whole period of 2009 – 2015. Clients pay a company under foreign control on average 19.9% later than a domestic company (difference in 2015). In terms of the development trend, for domestic companies the development is less volatile (in the range of 14.7 days), while for companies under foreign control the trend fluctuates within a slightly wider range (15.6 days, i.e. from 66.4 to 82 days).

Needless to say, the results do not provide information about the strict differentiation of the institutional sector from the point of view of the clients, who would use this information as a decisive factor when determining the payment period. Many other potentially relevant factors, such as the setting of the payment period by a specific company in the role of a supplier, or common business practices in a specific area, can also play a role. However, it is not this paper's aim to examine these additional factors.

Table 2: Receivables turnover ratio in the research period

Type of companies	Number of companies	2009	2010	2011	2012	2013	2014	2015
Private domestic	4044	63.6	81.9	79.2	76.0	74.3	71.6	63.1
Private under foreign control	2544	80.8	89.0	91.7	86.8	84.5	81.7	75.6

Total	6588	70.3	84.7	84.0	80.2	78.2	75.5	67.9
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Source: Authors

Receivables turnover ratio is, similarly to average collection period, higher for companies under foreign control throughout the whole period. The maximum value was reached in 2011, when on average it took almost three months for companies to pay the suppliers for the provided input resources. The differences according to institutional control are even more significant (19.8% in 2015) than in the case of average collection period.

As a result, it can be stated (as is clear from the commentary on Tables 1 and 2) that both average collection period and receivables turnover ratio are considerably longer in foreign companies. It is also obvious that both indicators differ significantly in individual years, by as much as 20 days year on year. Especially in the case of domestic companies the indicators clearly show the onset of the financial crisis between the years 2009 and 2010. Similarly, the economic upturn after 2013 is visible from the data.

The findings presented above provide an answer to the first research question. Using the average collection period and receivables turnover ratio indicators in relation to domestic and foreign control of companies in the research sample it was proven that domestic companies have a stronger payment discipline at the supplier-company relationship level (on average an 11.4857 days longer payment period for companies under foreign control) as well as at the company-client level (on average an 8.4143 days longer payment period for companies under foreign control).

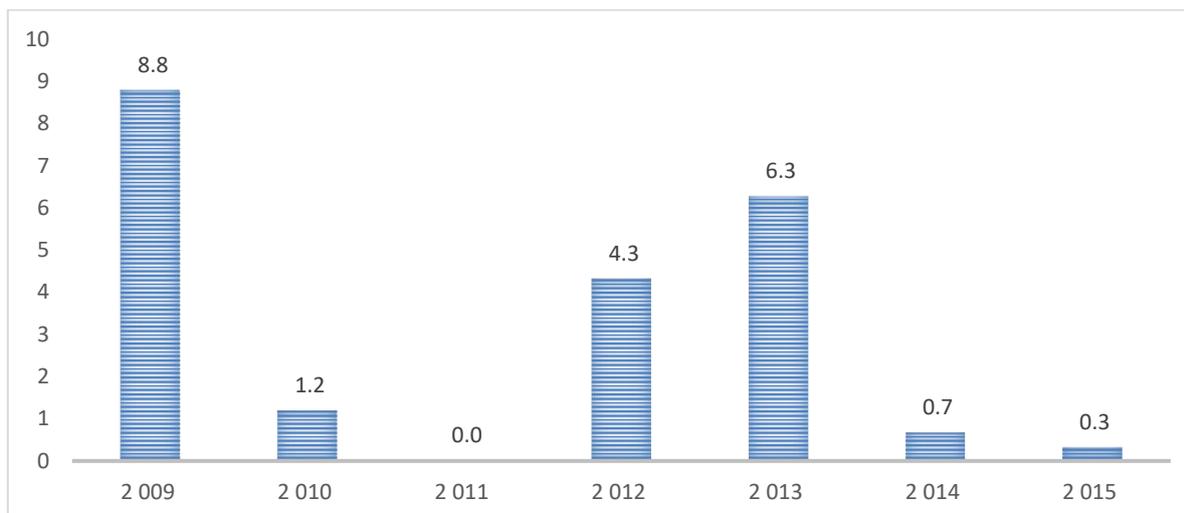
Table 3: Business deficit in individual years

Business deficit (in days)		2 009	2 010	2 011	2 012	2 013	2 014	2 015
Non-financial private domestic companies		-5.6	-10.1	-9.7	-4.7	-1.4	-2.2	-1.8
Non-financial private companies under foreign control		-14.4	-11.3	-9.7	-9.0	-7.7	-2.8	-2.2
Average		-9.0	-10.6	-9.7	-6.3	-3.8	-2.4	-2.0

Source: Authors

Business deficit as the difference between average collection period and receivables turnover ratio presents a clear conclusion that companies with foreign owners exploit the advantage of the ability to use non-interest bearing short-term capital from suppliers more often and maintain a higher business deficit in all years of the research period. In its maximum in the year 2009, the difference is 8.8 days higher.

Graph 1: Delay in payments (in days) based on business deficit of foreign-owned companies



Source: Authors

This answers the second research question. Companies under foreign control use suppliers as short-term creditors to be able to use non-interest bearing short-term capital with an average business deficit in the given period higher by 3.0857 days in comparison with domestically-owned companies.

The last table analyses the possibility to use business deficit as a measure of company performance. By comparing the two indicators, an interconnection between business deficit and ROE can be studied. The table shows the correspondence of companies which have higher ROE and better business deficit at the same time, or have a lower ROE and below-average business deficit at the same time (the table shows ROE and business deficit > average or ROE and business deficit < average in individual years). Thus, the percentage of companies with negative ROE and above-average business deficit as well as the percentage of all companies that have above-average business deficit are shown.

Table 4: Performance – correspondence of companies with positive ROE and above-average business deficit (BD)

Ratio of companies with ROE > 4%	Number of companies	2009 ROE	2010 ROE	2011 ROE	2012 ROE	2013 ROE	2014 ROE	2015 ROE
Non-financial private domestic companies	4043	54.04%	69.48%	72.47%	72.52%	74.70%	77.39%	73.71%
Non-financial private companies under foreign control	2544	51.69%	68.24%	70.13%	69.93%	74.53%	77.59%	72.29%
Total	6587	53.13%	69.00%	71.57%	71.52%	74.63%	77.47%	73.16%
Type of companies	Number of companies	2009 Correspondence between ROE and BD	2010 Correspondence between ROE and BD	2011 Correspondence between ROE and BD	2012 Correspondence between ROE and BD	2013 Correspondence between ROE and BD	2014 Correspondence between ROE and BD	2015 Correspondence between ROE and BD
Non-financial private domestic companies	4043	51.20%	55.43%	55.87%	56.39%	57.21%	55.92%	57.63%
Non-financial private companies under foreign control	2544	48.23%	52.44%	52.20%	52.20%	54.25%	55.35%	54.95%
Total	6587	50.05%	54.27%	54.46%	54.77%	56.06%	55.70%	56.60%

Source: Authors

The average ROE in the industry amounts to 4%. Companies that reach this, or higher, profitability are rated as above average, and companies with lower performance as below average. A further finding showed that average business deficit is -4 days (companies pay their liabilities later than they receive payments owed to them). Companies whose result was higher were rated as above average, the rest were rated below average. It is interesting that with growing performance of companies in time the number of above-average companies decreases, which follows from the fact that in the group of companies with negative ROE there is a higher ratio of companies with above-average business deficit.

Based on the results of the research, it can be said that there is a 67-70% probability that when ROE is above average, business deficit is above average as well, and vice versa. Thus, the third research question can be answered in the positive, as it was proven that the value of business deficit has a bearing on the performance of the company, measured by the ROE indicator.

Conclusions

It is generally believed that companies under foreign control deliver a higher return on capital, which has also been proven by many empirical studies. In an attempt to find the reason for this fact, this paper brings valuable findings related to the optimization of the company-supplier chain.

Foreign-owned companies demonstrate a weaker payment discipline in terms of receivables turnover ratio (simultaneously, their clients have a weaker payment discipline toward them) in comparison with companies under domestic control. Keeping a business deficit that is on average 3.0857 days lower (for receivables turnover ratio 11.4857 days lower and for average collection period 8.4143 days lower) than is the case for domestic companies is justified by the identified 67-70% probability of achieving an above-average ROE if business deficit is above average too.

In terms of a dominantly cooperative relationship within the company-supplier chain, it is beneficial for the company to maintain a subordinate competitive line with optimization of business deficit (impacting receivables turnover ratio and average collection period), which influences the final profitability (which indirectly increases the value generated for all stakeholders).

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Ethical Fashion Consumption in the Czech Republic

Ondřej Částek¹, Lucia Červáková²

¹ Masaryk University
Faculty of Economics and Administration, Department of Corporate Economics
Lipova 41a, 602 00 Brno, Czech Republic
E-mail: castek@econ.muni.cz

² E-mail: lucia.cervakova@gmail.com

Abstract: *The main objective of our paper is to confirm key determinants of ethical fashion consumption in the Czech Republic. To investigate the influence of various determinants a model of planned behavior theory (TPB) has been used as a framework. The model was tailored to the specificities of ethical clothing. We base the ethical clothing on the concept of triple responsibility and further develop and operationalize on the basis of foreign research proposals. The results based on a sample of Czech respondents are similar to those from foreign studies, show that women have higher behavioral intention to buy ethical clothes, buyers of ethical fashion are much more capable of recognizing it and do not consider its availability as a challenge. Subjective norms are by far most important predictor of behavioral intention, but attitude and perceived behavioral control are significant too.*

Keywords: *Ethical fashion, ethical consumption, consumer behaviour, Theory of Planned Behaviour, empirical research, Czech Republic.*

JEL codes: *I14, M21, M31*

Introduction

Long ago, buying clothes was a festive matter. It was also considered normal to refashion clothes upon various requirements. Nowadays, the fashion industry is dominated by fast fashion, which has revolutionized the perception of clothing. Affordability of clothing and frequent changes in fashion trends constantly prompt consumers to frequent purchase of clothing.

In this respect, there is no doubt that the fashion industry makes a significant contribution to the global economy through trade and employment growth. Unfortunately, negative consequences of this model are manifested in several areas. The clothing industry contributes to the deterioration of the environment through the pollution it generates and the amount of natural resources it consumes. In addition, the negative effects also concern people's working conditions in the clothing production and animal welfare.

In order to create alternatives to fast fashion clothing, new fashion movements have been developed referred to as slow fashion, sustainable fashion, eco-fashion, ethical fashion, etc. Although these fashion movements are based on the shortcomings of fast fashion and their definitions often overlap, they have different labels. The question is, however, how this issue annoys consumers themselves and whether they are willing to buy this type of assortment. Therefore, the paper focuses on identifying key determinants that influence consumers' purchasing decisions in the ethical clothing market.

1 Literature review

Ethical purchasing occurs when ethical preferences and consumer concerns are taken into consideration in the purchasing decision-making process (Cooper-Martin & Holbrook, 1993). According to Jobber (2006), a consumer's purchasing decision is subject not only to personal interests, but also to the interests of society and the environment. Ethical purchasing is thus affected by the consumer's interest in the environmental, human and ecological costs of their consumption (Ganglmair-Wooliscroft & Wooliscroft, 2017). Romu (2009) perceives ethical purchasing through the purchase of fair trade products, environmentally friendly products, evaluation of corporate social responsibility and the company's business practices; which also include the issues of human rights, workers' fair wages and animal welfare (Carrigan et al., 2004).

The concept of purchasing ethical clothing is rather difficult to define as it includes terms such as fair trade, sustainable, ecological, organic, slow fashion and so on (Carey & Cervellon, 2014; Dickenbrok & Martinez, 2018). These terms are often interchanged in literature, which proves the complexity of the term ethical fashion (Davies et al., 2012; Bly et al., 2015). A frequently cited definition is that by Joergens (2006, p. 361), who defined ethical fashion as "fashionable clothes that were produced under fair trade conditions and principles, i.e. in factories where workers' rights are not repressed, the production is environmentally friendly, and the workers use biodegradable substances and organic cotton" (cited in Niinimäki, 2010; Goworek et al., 2012; Shen et al., 2012; Lundblad & Davies, 2016).

Several authors agree on the obstacles to purchases of ethical clothing. Among the most frequent ones are limited knowledge on the part of consumers, their scepticism towards ethical clothing, low motivation to buy, perceived limited supply of ethical garments, negative attitudes towards sustainable clothes in terms of cut and style, higher prices, and the fact that such purchase is time-consuming.

Kozar and Connell (2017) divided the barriers to purchasing ethical clothes into internal and external ones according to their impact. The main feature of internal barriers is that they vary among consumers. Internal barriers include limited consumer knowledge, scepticism, low motivation or negative attitudes. On the other hand, external barriers limit ethical consumption and, at the same time, the consumer cannot influence them. They are, for example, a limited supply of ethical clothing, their prices and style (Dickson et al., 2009; Kozar and Connell, 2010).

Unlike barriers to the ethical shopping, professional literature is considerably limited in identifying the motivators to buy ethical clothing. One of the more complex research studies was carried out by Lundblad & Davies through qualitative research in 2016. In literature, the most frequently mentioned motivators are consumer altruism and self-expression.

Although ethical clothing has been on the market for some time, it is more difficult for such goods to attract consumers than for other ethical consumption commodities (Jacobs et al., 2018). For this reason, the paper aims to identify key determinants that influence the consumer decision-making when buying ethical clothing. The conclusions of the research should be especially useful for entities operating on the Czech ethical clothing market. The entities might profit from the findings of the research by obtaining information on the basis of which they could adjust their marketing activities in order to better reach Czech consumers.

The aim of the research is the following: "To identify the key determinants of purchasing ethical clothing which influence the consumer's purchasing decision". In order to achieve the above mentioned objective, the research is based on the modified conceptual framework of the Theory of Planned Behaviour.

2 Methodology

The conceptual framework of the research is based on the Theory of Planned Behaviour, which considers attitudes, subjective norms and perceived behavioural control to be precursors to the purchasing intention and, consequently, the purchasing decision itself. This research model is often used to identify key factors that influence consumer behaviour. Moreover, this theoretical framework has also been successfully applied in the field of sustainable (Chang & Watchravesringkan, 2018) and environmentally responsible clothing (Cowan & Kinley, 2014; Taljaard et al., 2018).

For the purposes of this research, the original TPB model has been modified upon recommendations of authors who have already explored the issue. The determinant of subjective norm has been extended to the determinant of subjective norms, which includes both social pressure and the guilt about buying unethical clothing (Cowan & Kinley, 2014). At the same time, the determinant of perceived behavioural control focuses mainly on external barriers that most often prevent the purchase of ethical clothing, which is the perceived availability of ethical garments, the perceived time effort of procuring them and the perceived cost of these garments (see above).

2.1 Survey questions

SQ1: What impact do consumer attitudes have on purchasing ethical clothing? The first survey question should make it clear what attitudes Czech consumers have towards ethical clothing. As Koudelka (2018) observed, when exploring attitudes we are interested in their direction, i.e. whether consumers have a positive or negative attitude towards ethical clothing, and, at the same time, what is their intensity.

SQ2: What impact do subjective norms have on the consumer decision-making process to purchase ethical clothing? This question should help determine whether or not subjective norms go beyond the consumer decision-making process to buy ethical clothing. According to Cowan and Kinley (2014), the question was operationalized into two specific questions. SSQ2.1: What impact does social pressure have on the consumer decision-making to buy ethical clothing? In this regard, social pressure refers to perceived pressure from the near surroundings that shapes consumer behaviour (Montano & Kasprzyk, 2015).

Since subjective norms include not only social pressure but also avoidance of negative feelings or punishment (Breckler, Olson & Wiggins, 2005), another specific survey question is: SSQ2.2: *What impact does a consumer's feeling of guilt have on their decision to buy ethical clothing?* According to Lundblad and Davies (2016), consumers may benefit from buying ethical clothing by not feeling guilty about their purchasing decisions.

SQ3: How does the perceived behavioral control of the consumer affect their decision-making to purchase ethical clothing? Answering this question might clarify whether or not Czech consumers perceive any external barriers to purchasing ethical clothing. The general survey question aims to find out about how difficult, under the given abilities and circumstances, consumers think it is to achieve desired behaviour, i.e. the purchase of ethical clothing (Cestac, Paran & Delhomme, 2011).

2.2 Data

The data were collected over 14 days at the turn of March and April 2019. In order to achieve a representative sample, the distribution of the questionnaire was quite diverse. The questionnaire was disseminated through social networks in various interest groups, direct mail communication and personal interviews with random passers-by. On social networks, groups dealing with fashion or sustainable fashion were approached, i.e. numerous groups of Czech regional cities. The questionnaire was also sent by email to potential respondents who live in the Czech Republic, who were in turn asked to further share the questionnaire. Concerning personal inquiry, collection of data took place at the Main Railway Station in Brno and at the bus station in Liberec.

Out of 337 respondents who participated in the survey, 229 filled in all mandatory questions. After the data had been cleaned, a sample of 213 respondents was obtained. In terms of the distribution of respondents by sex, women have a higher proportion (N = 179; 84%) compared to men (N = 34; 16%). The unequal gender distribution of the respondents may be due to the topic of the questionnaire itself. Regarding the age distribution of the respondents, more respondents aged 20-29 years participated in the survey compared to the data of the Czech Statistical Office. On the other hand, people over the age of 50 are underrepresented in the sample compared to the population. In terms of economically active and employed population, employed respondents are the most numerous (N = 101; 59%). Working students (N = 41; 24%) and women on maternity leave (N = 24; 14%) are represented in the sample more than they are in the population. It should be noted that respondents from the economically inactive population were not represented in the distribution. However, the sample also includes students who are not employed (N = 42), which represents 19% of the entire sample.

2.3 Method

We do not assume that relationships exist between individual independent variables in the conceptual model of the research, so we construct a descriptive model of multiple regression. The model consists of three independent variables (consumer attitude, perceived behavioural control, subjective norms) and one dependent variable (consumer purchasing intention). In other words, only those variables enter the analysis that have been proved to be relevant to the problem in other authors' research. For example, the research on environmentally responsible clothing carried out by Cowan and Kinley (2014) or the research on sustainable clothing by Chang and Watchravesringkan (2018).

Before the regression analysis itself, the latent variables (consumer attitude, perceived behavioural control, subjective norms, and purchasing intention) that enter the regression analysis need to be introduced. All latent variables were operationalized into questionnaire questions, which respondents answered using a 7-degree Likert scale, while meeting the conditions of internal data consistency. For this reason, latent variables (consumer attitude, perceived behavioural control, subjective norms) may reach values of 1 to 7 on the scale, including decimal numbers. Internal consistency of the latent variables was checked by means of the Cronbach's alpha. Only the item of perceived price of the latent variable of perceived behavioural control variable had to be left out in order to bring the Cronbach's alpha value to an acceptable level (resulting $\alpha = 0.71$).

3 Findings

3.1 General regression model

In this case, when three independent variables are tested by the enter method, the model explains 34% (adj. $R^2 = 0.343$). At the same time, the overall F-test and its significance ($p < 0.001$) claim that the observed R^2 may also be expected in the population.

Table 1 General regression model

	b	SE B	β	p
Constant	-0.421	0.542		0.438
Subjective norms	0.238	0.091	0.163	0.009
Attitudes	0.698	0.095	0.464	0.001
Perceived behavioural control	0.125	0.053	0.134	0.020

Note: Dependent variable: Purchasing intention. $R = 0.594$, $R^2 = 0.353$, adj. $R^2 = 0.343$, $F = 37.203$, $df = 208$, $p = 0.001$.

It follows from the table above that all the three independent variables tested - attitude, subjective norms, perceived behavioural control ($p < 0.05$) are relevant to the explanation of consumer purchasing intention. Regarding the relative impact, the independent variable of attitude (Beta = 0.464) is the strongest, followed by subjective norms (Beta = 0.163) and by perceived behavioural control (Beta = 0.134). Since all the beta coefficients are positive, there is a positive relationship between the independent variables and the dependent variable.

3.2 Attitudes

Based on the results of the regression analysis, consumer attitudes have the strongest impact on their purchasing intention. At the same time, the non-standardized regression coefficient claims that if the consumer attitude increases by one, consumer purchasing intention will increase by 0.698. Since this independent variable consists of several areas, it is possible to examine their impact separately.

It is important to note in this context that the physical attribute variable should not be included in the latent attitude variable and therefore the regression analysis does not take this variable into account. The main reason for the omission was the results of the internal data consistency performed using the Cronbach's alpha test. The original value of Cronbach's alpha increased from 0.75 to 0.77. Mareš et al. (2015) claim that Cronbach's alpha must be higher than 0.7 and should not exceed 0.9. Another condition for the internal consistency of latent variable data is the tightness of all paired correlations, which should be within the range from 0.3 to 0.8; this condition is also not met by the physical attribute variable. Although Magnuson et al. (2017) identified physical attributes as the strongest, they acknowledge the difficulty of operationalizing this variable.

3.3 Perceived behavioural control

The regression analysis also demonstrates that even the perceived behavioural control affects (p -value = 0.02) consumer purchasing intention. Based on the non-standardized regression coefficient, we may claim that consumer purchasing intention will rise by 0.125 if the perceived behavioural control rises by one. With regard to this effect, it must be emphasized that the latent variable of perceived behavioural control is perceived positively. In other words, the more purchasing ethical clothing is perceived as less demanding, the higher the value of the variables and vice versa.

Table 2 Regression of Perceived behavioural control

	b	SE B	β	p
Constant	0.436	0.297		0.144
Perceived time effort	0.485	0.063	0.521	0.001
Perceived availability	0.114	0.052	0.149	0.029
Perceived limited offer	0.172	0.065	0.176	0.009
Perceived style	0.049	0.075	0.047	0.519

Note: Dependent variable: Perceived behavioural control. $R = 0.698$, $R^2 = 0.487$, adj. $R^2 = 0.473$, $F = 35.297$, $df = 153$, $p = 0.001$.

Initially, the perceived behavioural control variable, in our case perceived difficulty of the purchase, was operationalized through the perception of the overall strenuousness of buying ethical clothes by perceiving: the time effort, affordability, supply, and style of ethical clothing. However, based on the results of the internal data consistency ($\alpha = 0.69$) and correlation coefficients lower than 0.3, the perceived purchase price variable should be excluded from the regression analysis. Having eliminated this variable, we arrived at a satisfactory level of internal data consistency, and the Cronbach's alpha coefficient increased to $\alpha = 0.71$. Therefore, the affordability of clothing needs to be analysed separately and it does not enter the regression model through a variable of perceived behavioural control directly.

Regression of Perceived behavioural control

Taking a closer look at the regression analysis of the overall perceived behavioural control, the model explains 47.3% ($R^2 = 0.473$). Statistically significant variables ($p < 0.05$) are the following: perceived time effort, perceived availability, and the perceived offer of ethical clothing. The perceived style of ethical clothing is identified as a statistically insignificant variable ($p > 0.05$), which may be related to Dickenbrook's and Martinez's (2018) proposition that ethical clothing is becoming increasingly fashionable thanks to new start-ups that have entered the market.

We also tested the mean difference in individual items between the group of consumers who buy ethical fashion and the consumers who do not buy it. Based on the Mann-Whitney U tests we can claim that those who buy ethical fashion, do perceive the difficulty of the purchase to be lower in general ($N = 191$, $Z = -4.471$, $p = 0.001$, $r = -0.324$), in terms of the time effort ($N = 192$, $Z = -3.283$, $p = 0.001$, $r = -0.237$), perceived availability ($N = 207$, $Z = -5.787$, $p = 0.001$, $r = -0.402$) or perceived style ($N = 182$, $Z = -5.170$, $p = 0.001$, $r = -0.383$) than do those who do not buy ethical fashion. The only item for which we are not able to identify the difference between the two groups is the perceived offer ($N = 181$, $Z = -0.118$, $p = 0.112$, $r = -0.118$).

3.4 Subjective norm

Subjective norms consist of two variables - social pressure and the feeling of guilt about buying other than ethical fashion. Since both of these variables are latent variables, they cover several questions in the questionnaire. The Cronbach's alpha for social pressure reached the value of $\alpha = 0.77$. However, if data from one question were removed, Cronbach's alpha would increase to 0.83. As the particular question was substantiated by the theory and, at the same time, the internal data consistency is not significantly violated, this question is included in the analyses. The internal data consistency is also acceptable for the variable of social pressure ($\alpha = 0.76$).

3.5 Gender

More women ($N = 179$, 84%) than men ($N = 34$; 16%) participated in the questionnaire survey. We would like to find out if the frequency of buying ethical clothes differs between sexes; therefore, we formulate a null hypothesis that claims "Gender is not related to the frequency of buying ethical clothing". At a significance level of $\alpha = 0.05$, the Mann-Whitney U test showed a possible relationship between the gender and the frequency of purchase ($Z = -2.322$, $p = 0.02$). This difference represents $r = 0.16$, which is a weak effect. Upon closer examination (Pearson's chi-squared test, adjusted residuals), we can see that men responded more often that they never buy ethical fashion.

4 Discussion

This paper, based on the model of the Theory of Planned Behaviour (TPB model), sought to identify the key determinants of purchasing ethical clothing. Based on the findings, it can be argued that the proposed relationships between the TPB model constructs were supported by this research.

Purchasing intention, which later affects the consumer purchasing behaviour itself, is significantly influenced by attitudes towards ethical clothing, subjective norms and perceived behavioural control. Cowan and Kinley (2014) reached the same conclusion on a sample of adult American respondents. Research performed by Chang and Watchravesringkan (2018) also pointed out attitudes which have a very significant impact on the purchasing intention of buying ethical clothing.

This finding is in contrast to the proposition made by Jacobs et al. (2018), who favour an extended hierarchical VAB model to investigate consumer behaviour on the ethical clothing market. It follows from our findings that the TPB model can also be successfully applied to ethical clothing. In this context, it is important to further operationalize attitudes towards ethical clothing (Magnuson et al., 2017) and to extend the subjective standard to subjective norms (Cowan & Kinley, 2014).

4.1 Attitude

Based on recommendations from Magnus et al. (2017), the influence of attitudes was represented through what ethical clothing represents. Specifically, these are environmentally responsible attributes of ethical clothing, employee wellbeing attributes, animal welfare attributes, intangible attributes, and physical attributes. Unfortunately, the results of the internal consistency of the data indicated omission of physical attributes of ethical clothing and were not, therefore, included in the regression analysis. On the other hand, the results of the Australian research by Magnuson et al. (2017) highlighted especially the conventional attributes of ethical clothing, which also included physical attributes of clothing. More precisely, ethical clothing should be comfortable and should be sold through reputable stores. In this respect, it should be emphasized that consumers who buy ethical clothing perceive as important the reputation of their retailer or the chain selling ethical clothing. Furthermore, the consumers who buy ethical clothing, concern themselves with the welfare of workers and animals, or an environmentally responsible attitude in the clothes production, which is in line with the results provided by Reimers et al. (2016).

On the other hand, information on the durability of clothing is important to consumers, regardless of whether or not they buy ethical clothing. Reimers et al. (2016) explain this phenomenon by the fact that consumers do not necessarily associate the attributes of slow fashion with ethical clothing, and thus do not realize the consequences of slow fashion on the environment and workers in the production (Jacobs et al., 2018). We may conclude by stating that the durability of clothing is important for all consumers, whether or not they buy ethical clothing.

4.2 Perceived behavioural control

Perceived behavioural control describes how consumers perceive the difficulty of purchasing the ethical clothing. This latent variable enters the analysis through purchasing barriers, and we focused primarily on the perceived availability, offer, and style of ethical clothing, financial costs and the time effort of procuring them. Given our findings, we can agree with Cowan and Kinley (2014) that the perceived availability of ethical clothing is a significant obstacle to purchasing. The consumer's perception of the availability of ethical clothing has an impact on their purchasing intention. Not surprisingly, consumers who have already purchased ethical clothing do not perceive their availability as critical. On the other hand, those who have no experience in buying ethical clothing are not aware of where to buy such clothes either. In this respect, we agree with the statement by Lundblad and Davies (2016) who claim that consumers consider ethical fashion more difficult to access and they add that it is difficult to find ethical fashion brands. It should also be noted that ethical clothing in the Czech Republic is available mainly through online shops.

Similarly, the perceived time effort related to buying ethical clothing has a significant impact on the overall perceived difficulty of the purchase. At the same time, the perception of the time it takes to buy ethical clothing varies among consumers according to their previous experience with purchasing ethical clothes. Assuming that buyers of ethical clothing are aware of the issue, the time and effort they devote to buying ethical clothing does not differ from buying regular clothing (Kozar & Connell, 2017).

According to Niinimäki (2010), consumers regard ethical clothing as expensive compared to clothing that has not been produced ethically. As far as our survey is concerned, the second most frequent recurring reason (the first is unfamiliarity with the place of purchase) in the open question why the respondents do not buy ethical clothing is a perceived high price of these clothes. In this respect, we share the proposition made by Shaw et al. (2006) that the price of ethical clothing is an obstacle to purchase. Our survey further pointed out the difference in consumers' willingness to pay a premium price according to their purchasing activity on the ethical clothing market. It is more likely that the consumers who have already purchased ethical clothing will not be discouraged by higher price of such clothing. When asked whether they are willing to pay more for ethical clothing, as many as 89% of the respondents replied positively. In research carried out by Ha-Brookshire and Norum (2011),

this figure is different, claiming that more than 50 % of the American respondents would be willing to pay a premium price for ethical clothing. However, we must bear in mind the proposition made by Niinimäki (2010) that respondents may not always respond honestly what they really think. They may state what is desirable instead.

It follows from the findings that consumers who do not have any experience in purchasing ethical clothing may perceive the offer of ethical clothing as limited compared to those who buy these clothes. A similar difference also applies to the perceived style of ethical clothing. Although Dickenbrok and Martinez (2018) argue that ethical clothing is becoming increasingly more fashionable thanks to new start-ups that have entered the market; those who do not buy this assortment continue to consider ethical clothing as unfashionable. Wiederhold and Martinez (2018) add that these consumers may worry that they might not be able to maintain their dressing style if they started buying ethically.

4.3 Subjective norm

Another factor that affects consumer purchasing intention and, consequently, their purchasing decision is subjective norms. The findings of this survey were supported by a statement by Cowan and Kinley (2014), who examined this factor in relation to environmentally friendly clothing. The normative influence variable is further made up of variables - the social pressure and the feeling of guilt about any other but ethical purchasing.

Consumers who tend to buy ethical clothing feel more guilty about buying non-ethical clothing than consumers who do not buy ethical clothing. This distinction is particularly significant in case of purchasing clothes from a company with the reputation of oppressing workers in the production and purchasing clothes from environmentally hazardous materials. Our finding is therefore in line with Bray et al. (2011), who on a sample of British adults observed that many participants in their study felt guilty being aware that they had not made an ethically optimal purchase. An interesting finding is that consumers who buy ethical clothing consider this purchase desirable from the social point of view. Cowan and Kinley (2014) also identified social pressure as a significant determinant influencing future purchases of environmentally responsible clothing.

Conclusions

The aim of the paper was to identify the key determinants of purchasing ethical clothing. The survey was conducted on a sample of 213 Czech respondents, 79 of whom considered themselves at least occasional buyers of ethical clothing; the remaining 134 respondents had no experience with this type of purchase. Given the available sources and in good faith, the authors may say that the issue of purchasing ethical clothing has not been dealt with yet in the Czech Republic. Therefore, the survey was inspired by foreign research. Based on the findings of the survey, it can be argued that consumer decision concerning buying ethical clothing is significantly influenced by their personal attitudes, perceived behavioural control and subjective norms. In this respect, we can state that the Czech consumer is not particularly different from respondents participating in foreign surveys. However, it is important to note that women are more likely to purchase ethical clothing at least sometimes compared to men.

Czech consumers who buy ethical clothing are less sensitive to clothes' prices than those who are not so concerned about the ethical aspect of clothing. At the same time, they take a more positive attitude towards environmentally responsible clothing attributes (natural and sustainable textile materials), employee welfare (they prefer clothing made by companies that do not exploit their employees), animal welfare (they refuse testing of textile dyes and chemicals on animals, or fur on clothing). Furthermore, these consumers have a higher ability to recognize ethical clothing and do not consider their availability as a challenge, either in terms of time effort or money. On the other hand, if they make a purchase that is beyond their belief, they are more prone to feeling guilty.

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The impact of quantitative easing on the bank liquidity and development of small U.S. banks' asset composition

Lenka Čuperová¹, Roman Brauner²

^{1,2} Brno University of Technology
Faculty of Business and Management
Kolejní 4, 612 00 Brno

E-mail: ¹ xpcuper00@vutbr.cz, ² brauner@fbm.vutbr.cz

Abstract: *Using the method of quantitative easing as the part of central bank's monetary measures to support the economy meant significant shifts in the value of bank assets and their composition. This paper examines the effects of quantitative easing on the US small and medium-sized banks, examining a total of 11 variables from the years 2010 to 2015 for banks with assets below \$ 20 trillion. The aim of this article was to explore if there is increasing or decreasing trend of the individual variables and find out what possibilities of maneuvering the bank has in adverse development of its situation. Trends are results of correlation matrices. So if a variable is not favorable to it, eg. profit, the resulting model gives an answer, what variables need to be changed and in what direction to change to another scenario and the result of this change. Individual heuristic variables were evaluated from the correlation matrix by a computer algorithm and evaluated their increasing or decreasing trends with interdependence. The result of this research is a figure with 7 scenarios. Each of them describes all 11 variables and their trends. It is thus possible to evaluate the change in behavior of the remaining variables - increase or decrease - when one variable decreases. The possibilities of individual transitions between scenarios are also defined. In order to shift between scenarios, it is necessary to change the dependent variables that the bank can specifically influence as well as the independent variables over which it has no influence. Small and medium-sized banks have been found to have very little maneuverability to move between scenarios and the total number of scenarios in which they may find themselves is relatively small. At the same time, they argue that, given the low number of variables a small bank is able to influence itself, the very possibilities of switching between scenarios are very limited, some of which become terminals - it is no longer possible to move to another scenario without outside intervention. Therefore, they are strongly dependent on the overall development of the financial sector and there is a significantly higher risk of failure than banks with assets of \$ 20 trillion and more.*

Keywords: Monetary policy, heuristic trend, loans, quantitative easing.

JEL codes: C58, E44, G17.

Introduction

Since the end of 2008, some central banks have begun to use quantitative easing (QE) to reduce interest rates and improve cash liquidity of the banking market. The aim of the quantitative easing policy (QE) was to ease monetary policy. This intervention should stimulate the economy by supporting investments during the economic slowdown. The effects of quantitative easing had a significant impact on the liquidity of banks, which resulted in changes in the global financial system and affect its stability. QE is considered to be a means of unconventional monetary policy and for the Fed included extensive asset purchases (LSAP), in particular government and agency bonds, as well as mortgage-backed securities (MBS). (Thornton, 2017).

The impact of quantitative easing was reflected in a change in stock prices, higher corporate bond issues and an increase in inflation risk following interest rates. A lower interest rate on government bonds at the time of monetary policy easing allows a higher government debt to be managed. However, after raising interest rates, debt management costs are becoming unbearable. Interest rates have reached zero lower bound. In the case of Japan, interest rates are negative. This level no longer allows the central bank to respond to other events and is called a liquidity trap. Stawska (2017) identifies the liquidity trap as a situation in which monetary policy is no longer able to stimulate demand further because it is no longer possible to lower the interest rate. It is necessary to accept low positive inflation and to suppress deflationary expectations.

In the United States, the quantitative easing policy lasted about six years and included three waves of major asset purchases. According to Avino (2018), it was a \$ 3.5 billion purchase of securities, which led to the expansion of excess bank reserves, which reached \$ 2.4 billion.

The reason for QE was the bank credit channel, where QE was supposed to increase the availability of deposits as a cheap source of bank financing and thus encourage banks to provide more loans

(Mamaysky, 2018). Chakraborty et al. (2017) found in their study that purchases of mortgage backed security (MBS) caused unintended effects. Treasures purchases did not cause major economic stimulus in the form of investment through the banking channel. According to Rodnyansky, Darmouni (2017), banks with multiple securities secured by mortgages have increased their loans mainly in response to the first and third QE waves. According to Lo Duca et al. (2016) MBS purchases by the US FED have a large impact on the amount of corporate bonds issued across both developed and emerging economies, and also that corporate bonds are replacing market-withdrawn assets with previous purchases. Veronesi and Zingales (2010) understand economic benefits in that government intervention has prevented banks from rushing. Huerta et al (2011) analyzed the effect of US FED rescue programs, including the Trouble Asset Relief Program (TARP), which was to stabilize the financial market through financial injections into troubled businesses. Another objective of TARP was to stabilize the banking system and stimulate the supply of credit in the economy through banks that raised their capital fund before the start of new bank loans. A comparison of the Tier1.1 change in banks that have used TARP capital confirms that banks held around two-thirds of this capital to strengthen their capital base (Li, 2013). Bayazitova, Shivdasani (2011), Duchin, Sosyura (2012) were also devoted to TARP capital and its influence on banks.

The use of QE has been widely criticized by some politicians and economists. Brazilian President Rousseff commented on QE as a "monetary tsunami" in 2012, and foreign policy promoters criticized the US Fed's policy and claimed that QE caused excessive global liquidity. This capital is financially unbalanced in terms of asset prices, credit growth and the threat of economies overheating (Fratzscher et al., 2018). High liquidity at constant productivity increases the risk of creating financial bubbles, especially in the stock and real estate markets.

1 Methodology

The starting point for this work is the correlation matrix given in the article by Egly, P., Escobari, D., & Johnk, D. (2016). The impact of government intervention on the stabilization of domestic financial markets and on U.S. banks' asset composition. This study used quarterly data from five emerging and five developed countries in 2010-2015. A sample of banks includes 4982 U.S. small banks. This correlation matrix includes variables, of which 10 are individual types of banking assets and the last variable is QE (12). The rate of individual correlations is not decisive for the following calculation. What matters is whether the correlation is positive or negative. If the correlation is positive, it is adjusted for calculation by SUP, the correlation is negative by the designation RED (2). Based on this information, the computer algorithm evaluates the effect of individual heuristics among themselves and determines the direction of their trends.

Trend Models

This paper is based on qualitative / trend reasoning which is described in detail e.g. in (Dohnal and Kocmanova, 2016). Direct and indirect trend proportionalities are used in this paper:

SUP if X is going up (down) then Y is going up (down) as well; generalized supporting effects

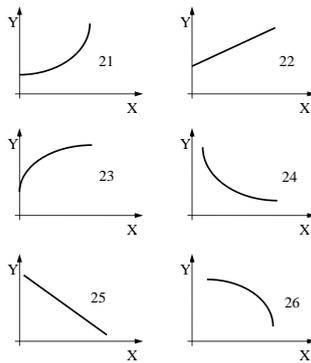
RED if X is going down (up) then Y is going up (down) as well; generalized reducing effects (1)

The relations (1) are heuristic trends heuristic specified by experts or extracted from NL based knowledge. The relevant computer instructions used to develop a formal model are

SUPPORT (SUP)	X	Y	
REDUCE (RED)	X	Y	(2)

The trend relations (1) are the least information intensive and are based on the first derivative quantified by trends. If trend of trend is known then the following trend relations/ heuristic trend can be used:

Figure 1 Trend relations.



Source: Dohnal, Kocmanová, 2016

For example, the shape 21, Fig. 1, is not based on any quantifiers, e.g. numerical. It indicates just trend information items:

The first derivative dY/dX is positive
 The second derivative d^2Y/dX^2 is positive
 If $X = 0$ then Y is positive (3)

A computer instruction, which represents the shape No. 21 Fig. 1, is

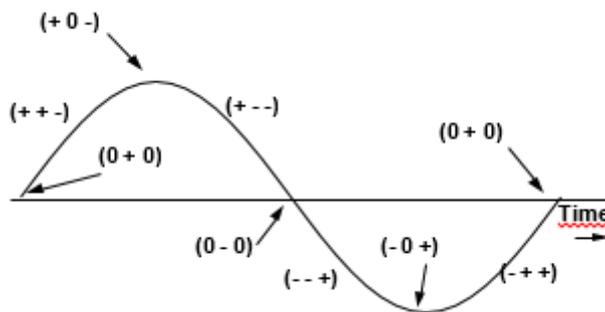
Shape No. 21 X Y (4)

For example, if it is known that

- Y is increasing if X is increasing and vice versa
- There is an upper limit for Y

then the trend relation $Y = f(X)$ is described by the following computer instruction 23 X Y (5)

Figure 2 Qualitative description of a harmonic oscillation.



Source: Dohnal, Kocmanová, 2016

A computer n dimensional trend model M is a set of computer instructions, see e.g. (2)–(4)

$M(X_1, X_2, \dots, X_n)$ (6)

1.1 Trend Analysis

The trend analysis is based on four values only, see e.g. (Vicha and Dohnal, 2008):

Trend Values:	Positive +	Zero 0	Negative -	Anything *	
Trend Derivations:	Increasing	Constant	Decreasing	Any trend	(7)

The model (6) is solved and the set of n-dimensional scenarios is obtained $S(n, m)$. There are m scenarios:

$$S(n, m) = \{(X_1, DX_1, DDX_1), (X_2, DX_2, DDX_2), \dots, (X_n, DX_n, DDX_n)\}, \quad (8)$$

$$j = 1, 2, \dots, m$$

where, DX is the first and DDX is the second time trend derivatives. For example, the following three-dimensional scenario, $n = 3$ (9)

$$\begin{array}{ccc} X_1 & X_2 & X_3 \\ (+ + +) & (+ - 0) & (+ - -) \end{array} \quad (10)$$

indicates that X1 is increasing more and more rapidly, X2 decreases linearly, X3 is decreasing more and more rapidly.

Description of Unsteady State Behaviours - Transitional Graph

The triplets given in Fig. 2 describe a qualitative oscillation. A simple common sense analysis of the harmonic oscillator in classical mechanics indicates that a spring which is currently moving downwards must stop first and then it can move upwards. Individual links of variables determining their interconnection and the resulting trend are given by the following triplets, among which there are only certain types of possible development captured in Table 1. It is not a prerequisite that trends must follow each other in the same way as in the following figure, how they can evolve.

It means that the following transition between two one-dimensional triplets is not possible:

$$(+ + +) \rightarrow (+ - -) \quad (11)$$

A complete set of all possible one-dimensional transitions is given in Tab. 1.

Table 1 A complete set of one dimensional transitions.

	From		To		a	b	c	d	e	F
					Or	Or	Or	Or	Or	Or
1	+++	→	++0							
2	++0	→	+++	++-						
3	++-	→	++0	+0-	+00					
4	+0+	→	+++							
5	+00	→	+++	+-						
6	+0-	→	+-							
7	+-+	→	+0	+0+	+00	0+-	00+	000	0-0	
8	+0	→	+-	+-	0-0					
9	+-	→	+0	0-	0-0					

Source: Dohnal, Kocmanová, 2016

2 Case Study

The used variables are:

LTA	Bank Total Assets	
LOA	Loans	
NOP	Net Operating Income	
PCO	Deposit Cost	(12)
DE1	Deposit I.	
DE2	Deposit II.	
LCA	Commercial Letters of Credit	
NPL	Non-performing Loans	

CAP Tier 1 Risk-based Capital
 REP the REPO spread variable was computed by subtracting the overnight index swap series from the 90-day REPO rate for a given bond class collateralized by mortgage-backed securities
 QEA a dummy variable assigned a value of one during the Fed's initial round of quantitative easing from 2008Q4 to 2010Q1 and zero otherwise.

The correlation matrix, is given in Egly, P., Escobari, D., & Johnk, D. (2016). The impact of government intervention on the stabilization of domestic financial markets and on U.S. banks' asset composition. Can be easily transferred into the following set as computer instructions (1), for example:

```
1 SUP QEA    LTA
2 RED QEA    LOA
3 RED QEA    NOP
4 RED QEA    CAP
5 RED QEA    DE1
6 RED QEA    DE2
7 RED QEA    PCO
8 RED QEA    LCA
9 SUP QEA    NPL    etc.
```

The model gives the following solution. According to this solution, there are too many constraints in the model and the algorithm decides which can be removed without consequences for the final validity of the constraints in the model, thus distinguishing the significant constraints that need to be left unimportant.

```
    LTA    LOA    NOP    CAP    DE1    DE2    PCO    LCA    NPL    REP    QEA
1 +00    +00    +00    +00    +00    +00    +00    +00    +00    +00    +00 (13)
```

All trends / derivatives are 0. It means that the scenario (13) is a steady state solution. It is a well known fact that there are more scenarios. Therefore some instructions of the model have been eliminated.

```
2 RED PGA    MRS
3 RED PGA    MSG
4 SUP PGA    DGA
5 SUPPGA    TBA
9 SUP TBA    DGA
11 RED DGA    MRS
12 RED DGA    MSG
14 SUPMSG    MRS (14)
```

The solution of the modified model gives three scenarios.

```
    LTA    LOA    NOP    CAP    DE1    DE2    PCO    LCA    NPL    REP    QEA
1 +++*    +-*    +-*    +-*    +-*    +-*    +-*    +-*    ++*    ++*    ++*
2 +0*     +0*    +0*    +0*    +0*    +0*    +0*    +0*    +0*    +0*    +0* (15)
3 +-*     ++*    ++*    ++*    ++*    ++*    ++*    ++*    +-*    +-*    +-*
```

The second scenario is the steady state scenario, see (15).

There is one instruction, see instruction No. 1 which indicates that the trend of trend is known for relation of the variables QEA, LTA. The relation has the shape No. 23, see Fig. 1. The modified model is with the change in the number 1. For example:

```
1 23 QEA    LTA    see Fig. 1
2 RED QEA    LOA
3 RED QEA    NOP
4 RED QEA    CAP
5 RED QEA    DE1
6 RED QEA    DE2
7 RED QEA    PCO
8 RED QEA    LCA
9 SUP QEA    NPL (16)
```

10 SUP QEA REP
 11 SUP REP LTA
 13 RED REP NOP
 14 RED REP CAP etc.

The solution of the model (16) gives 7 scenarios.

Is solved and the following set of 7 scenarios is the result.

	LTA	LOA	NOP	CAP	DE1	DE2	PCO	LCA	NPL	REP	QEA		
1	+++	+-	+-	+-	+-	+-	+-	+-	+++	+++	+++		
2	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-		
3	+0+	+0-	+0-	+0-	+0-	+0-	+0-	+0-	+0+	+0+	+0+		
4	+00	+00	+00	+00	+00	+00	+00	+00	+00	+00	+00	Equilibrium	(17)
5	+0-	+0+	+0+	+0+	+0+	+0+	+0+	+0+	+0-	+0-	+0-		
6	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-	+-		
7	+-	+++	+++	+++	+++	+++	+++	+++	+-	+-	+-		

Scenario No 4 is the equilibrium state of the economy. In the graph, see Fig. 3 shows 8 different motion options (T) between scenarios. The ideal scenario is the steady state, i.e., scenario No. 4. It is the goal scenario. The worst-case scenario is number 3, which can result from shocks or unpredictable events.

The scenarios 1 and 7 (17) are the terminals and the scenarios 2 and 6 are sources. Possible transitions occur between the following scenarios.

6 → 3 → 1
 6 → 4 → 1
 6 → 4 → 7
 4 → 1

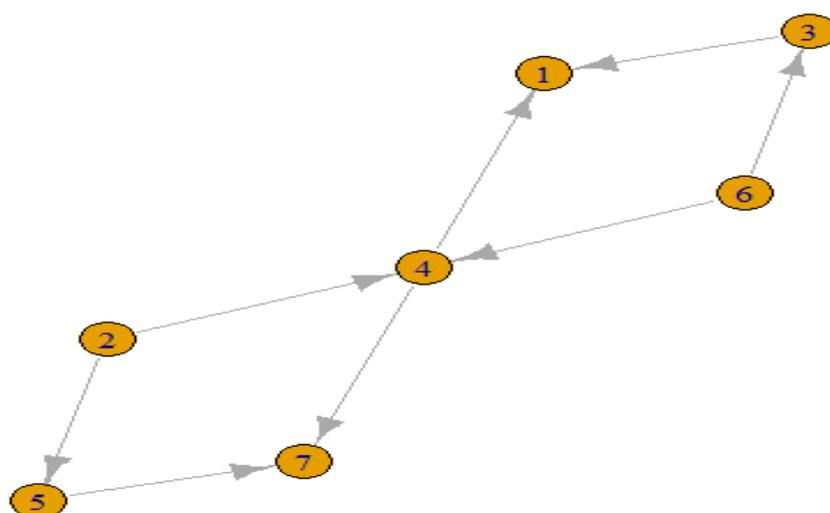
or

2 → 5 → 7
 2 → 4 → 7
 2 → 4 → 1
 4 → 7

Banks can influence these follow variables: bank total assets, loans, net operating income, commercial letters of credit, Tier1 risk-based capital and deposit cost. Out of their control are deposit I., deposit II., non –performing loans, REPO spread and quantitative easing.

Movement between scenarios occurs when the variables that the bank has under control and those it does not have under control. If there is no interplay, the movement does not occur or, on the other hand, independent variables can affect others and move in an undesirable way (for example, from scenario 4 due to free monetary policy and a quantitative easing wave, moving to scenario 1 when net operating income falls. Conversely, it is desirable to move to scenario number 7, where this indicator is rising (a decrease in quantitative easing), only 8 different transitions between different scenarios are possible, of which 2 are terminals (cannot be accessed).

Figure3 Transitional graph



Source: own processing

Conclusion

The 7 scenario model was described using 11 variables, describing 11 interdependent variables. Some dependent variables may be affected by the bank and others may not. The interplay of all variables is necessary to move between scenarios. This model explains that the banks analyzed have very little maneuverability to change their situation during the period of implementation of the monetary quantitative easing policy. Banks are therefore more prone to bankruptcy in the event of adverse economic developments. For the state, the big banks (too big to fail) rank first, including JPMorgan Chase, Citibank, Goldman Sachs, Bank of America, Morgan Stanley and Wells Fargo. Most of these loans are in these banks in the USA, and therefore, state policy is mainly focused on them. This model is borne out by the fact that in the case of small savers having their savings deposited in small local banks, there is a high risk of losing their savings in the event of a banking crisis. The state will only intervene with banks so large that their collapse would mean the collapse of the entire banking system and the ensuing nationwide financial crisis, which would then result in a very significant deterioration of the state's position at international level. Small banks will be disregarded from the position of the FED and the government, because they are not essential for the functioning of the whole system, so they are dispensable. In the EU, private deposits are automatically insured up to EUR 100 000 per bank. In the US, deposit insurance is conducted through the Federal Deposit Insurance Corporation Guarantee Scheme, which does not apply to all banks. Insurance is automatic only in the case of opening an account in a bank that is a FDIC partner up to the amount of the insurance limit for the given category of ownership at each bank. Given the small maneuverability of small banks during the crisis period, it is strongly recommended to maintain an account with banks that have FDI insurance, which ensures that the deposited money will not be completely lost.

In a completely different position, banks are large with assets between \$ 20 and \$ 90 trillion and money centers banks with assets of over \$ 90 trillion. These banks already have 9 possible scenarios and 16 possible transitions, and there is a higher probability of interplay between exogenous and endogenous factors. A detailed analysis of this model is no longer the subject of this article but is subject to further research.

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Cafes and their brand communication on Facebook: Case study from the Czech Republic

Ludvík Eger¹

¹ University of West Bohemia
Faculty of Economics, Marketing, Trade and Services
Univerzitní 8, 301 00 Plzeň
E-mail: leger@kmo.zcu.cz

Abstract: *In recent years social media has provided new ways for organizations to communicate with the public. Organizations need to interact with existing and potential customers using social media such as Facebook, which is a very popular social network in the Czech Republic. The purpose of this study is to explore the communication of selected cafes with the public focusing on company communication that facilitates consumer sociability behavior on Facebook. This case study uses a mixed methods research approach and integrates a quantitative data analysis in the first phase, using the Netvizz tool, with a qualitative content analysis of company posts in the second phase. The qualitative part analyses the content of the published posts and assesses types of call to action. Data were obtained from four different Facebook profiles which were selected to represent this industry. The findings provide evidence of how cafes used Facebook for company–customer communication in the Czech Republic in the year 2018. The findings also indicate how different posts generated different customer behavior on social media. The study contributes to a better understanding of marketing on social media in selected parts of the restaurant industry.*

Keywords: Cafes, Social media, Facebook, Brand communication, Engagement

JEL codes: M31, Z39

Introduction

Current company websites and social media give companies a greater opportunity to provide content that matters to existing and potential customers and other members of the public. Social networks are user-friendly technologies that allow people to rapidly update, analyze, and share information and ideas. Market leader Facebook was the first social network to surpass 1 billion registered accounts and currently has 2.32 billion monthly active users (Statista, 2019). As many organizations invest in social media, it is important to identify the factors that are associated with the successful adoption of these technologies for marketing targets.

1 Social media and marketing

Social media plays an important role in consumers' everyday lives. Companies and brands increasingly interact with their audiences using brand communities on social networking sites. "Social media is a term used to describe the type of media that is based on conversation and interaction between people online" (Strauss & Frost, 2012, p. 306). Organizational use of social media is changing the way organizations communicate with their existing and potential customers. A growing number of companies have established and maintain an interactive online presence via social media to engage with existing and potential customers and other members of the public (Hudson et al., 2016; Vendemia, 2017; Williams & Hausman, 2017). Social media platforms have emerged as a dominant digital communication channel via which consumers learn about, share information on, and interact with brands they consider, purchase, and evaluate (Hudson et al., 2016).

Strauss and Frost (2012) argue that where customers go, organizations follow. Successful company–consumer interactions foster customer loyalty, a willingness to try new offerings, and resistance to negative information about the company (Bhattacharya & Sen, 2003). In the context of social media, literature claims that it can have a positive impact on organizations in digital advertising and promotion, in creating electronic word of mouth, in customer relationship management, in building the brand, in mining data about customer behavior, etc. (Alalwan et al., 2017, Kahar et al. 2012). On the other hand, there are also business risks arising from the use of social media (Williams & Hausman, 2017).

Focusing on using electronic word of mouth is considered the most effective strategy in the interactive nature of communication. Electronic word of mouth is considered a reach influencer on customers. Some studies have reported that social media platforms increase the impact and prevalence of word of mouth relative to traditional tools (Alalwan et al., 2017; Hudson et al., 2016; Vendemia, 2017). Social media enables open communication, which helps organizations to understand customer needs and motivates them to respond proactively and efficiently to those needs (Tajudeen, Jaafar, & Ainin, 2018).

1.1 Social networking sites and brand communities

Currently, the popularity of social networking sites provides virtual brands with new platforms, such as brand pages on Facebook or accounts on Instagram or Twitter (De Vierman et al., 2017). Brand pages on social networking sites can be considered a new form of brand community. Individuals join a brand page by simply clicking on the "Like" button on Facebook or "Follow" on Instagram.

These sites and virtual communities offer brands new opportunities to interact with their customers. For example, using Facebook, brands acquire the capacity to support activities, such as providing customer service, product information, special offers, and various types of entertainment (Simon & Tossan, 2018). A brand community is based on a set of social relations among admirers of a brand. A virtual brand community connects people with a common interest in a brand and is unrestrained by time and space (De Vierman et al., 2017). Brand communities based on social media provide benefits to their members, facilitate information sharing and enhance customers' bonds to each other, and they cement customers' relationships with the brand, the product, the company and other customers (Laroche, Habibi, & Richard, 2013)

Several studies have consistently found a significant positive relationship between perceived interactivity and outcome variables, such as attitude and behavior (Alalwan et al., 2017; Vendemia, 2017). The relationship between product reviews and customer trust is one of the required research topics (Choi & Lee, 2017; Cheng, Fu, & de Vreede, 2017; Håkansson, & Witmer, 2015). Reaching existing and prospective clients through social media is considered to be the most promising field of marketing these days (Alalwan et al., 2017; Rutter, Roper & Lettice, 2016; Smith, 2011).

Previous research studies have analyzed various sectors, e.g., food / beverage brands, automotive companies, beauty, fashion design, etc. (Vaiciukynaite, Massara, & Gatautis, 2017). However, the restaurant industry is different from goods, therefore, it encompasses characteristics of service: intangibility, heterogeneity, inseparability, and perishability (Benoit (née Moeller), 2010). For instance, it was found that higher internet usage increased the impact on organizations in terms of increased revenue, enhanced relationships, and reductions in cost and time (Alalwan et al., 2017; Tajudeen, Jaafar, & Ainin, 2018). Thus, when companies use social media effectively for marketing purposes, it will likely have a positive impact on them. Therefore, this study investigates the impact of communication on Facebook on customer engagement, specifically in the restaurant industry (sub-area cafes), and the following research question is proposed:

RQ1: How do selected cafes use Facebook to communicate with customers?

The characteristics of company posts result in consumer behavior regarding likes, comments, shares and overall engagement on Facebook. It is possible to divide consumer responses to company and brand posts on Facebook into two main parts. The first group of consumers represents active users of this social network while the second group are passive users or people that do not use social media. From this point of view, the conducted research focused only on communication between active consumers and the company.

Consumer sociability behavior on Facebook may include various kinds of actions such as linking, commenting, sharing and emoji reactions. A company may engage consumers in different ways, such as linking, commenting or sharing. Emoji reactions also include several types. Linking behavior allows consumers to indicate their linking in one click for the posts. Commenting behavior enables consumers to express their opinions and feelings on a company's page and requires more consumer effort. Sharing behavior allows consumers to share a company's posts with their social networks on their Facebook page. Linking is a shorter reaction and is recognized as an affective consumer

response (Vaiciukynaite, Massara, & Gatautis, 2017). Different consumer actions may present diverse levels of consumer involvement. The following research question is proposed:

RQ2: What type of consumer reaction produces communication of selected cafes on Facebook?

Generally, in digital marketing experts use the expression "content is king" (Evans, 2017). Content attracts people rather than disturb them. Recent findings have shown that useful information related to the company generates customer engagement according to the types of published posts. In this area, the case study follows research by Vaiciukynaite, Massara, and Gatautis (2017) focused also on the type of content of company posts. Concurrently, attention is paid to a call to action. This term is used extensively in advertising and selling and is an instruction to the audience designed to provoke an immediate response. The following research question is proposed:

RQ3: What kinds of call to action are used by selected cafes to attract consumers on Facebook?

2 Research methodology

An explanatory sequential mixed methods design is used. It involves a two-phase project in which quantitative data are collected in the first phase, the results analyzed, and then these data are used for the qualitative phase (Creswell, 2014). The quantitative phase used Facebook API to gather data and then followed a qualitative analysis of selected posts with the aim to explain communication with customers on Facebook in detail.

This study analyzed the company communication on Facebook of four selected cafes. The case study used data mining using the Netvizz tool to analyze how selected cafes communicated on Facebook in the year 2018. In the next step, using Netvizz, the best posts of each selected cafe were selected and then a qualitative analysis focused on the content of the published posts and types of call to action was conducted. A total of 453 (Netvizz) records of posts from 4 cafes with Facebook profiles for the year 2018 were selected for investigation (Links, Photos, Status, Videos).

1.2 Sample

The sample consists of four Czech cafes that differ but have a functional Facebook profile. A brief description of the selected entities follows:

- CrossCafe = Czech (coffee shops) chain originally based in Pilsen. The first cafe was opened in 2007 and currently 25 cafes in 10 Czech towns and cities are in operation. CrossCafe is a Czech Franchisor brand. Cafes (coffee shops) of CrossCafe have their own specific atmosphere, offer their own desserts and other beverages, etc. The firm created its Facebook page in 2008.
- Lagarto café. This concept of cafe has branches in several towns and cities in North Bohemia and was founded in 2009. Lagarto café is based not only on quality coffee, but also on its own desserts, which are made in its own "Cakefactory". The number of cafes is still expanding and the firm created its Facebook page in 2012.
- Ólala Café. The firm has only one branch, located in the center of the city of Pilsen. This cafe has its own specific design and offers visitors not only coffee and cakes, but also pancakes and sandwiches. The firm created its Facebook page in 2011.
- Le Frenchie café. The firm has only one branch, located in the city of Pilsen. The firm offers French-style coffee and cakes. The firm created its Facebook page in 2014.

On the one hand, the selected cafes represent the successfully developing concepts in this area in the Czech Republic, and, on the other hand, two subjects represent well-functioning cafes with their own concepts. They have all used the social network Facebook for more than five years to support their marketing communication.

3 Results

To answer RQ1 and 2, the engagement was calculated for the four selected cafes. Engagement rate is a metric that measures the level (degree) of engagement received from the audience by a specific part of the published content. Engagement rate is a (old) metric that measures the level of

engagement that a piece of created content (message) receives from an audience. It shows how much people interact with the content. Engagement rate is a metric that is used namely in analyzing social media. This metric is continually refined by other parameters that enter into the calculation. Because the engagement rate is calculated relative to the number of followers a firm has on social media, the rate for both small and large firms can be compared equally.

The calculated engagement rate (1) for selected cafes and their communication on Facebook for the year 2018 is presented in Table 1.

$$\text{Engagement rate} = \frac{\text{Comments} + \text{Reactions} + \text{Shares}}{\text{Followers}} \quad (1)$$

Reduced engagement rate (2) was calculated according to a recommendation by Kim and Yang (2017). In this case, a share weighs as much as 2 comments, and a like weighs as much as 1/10 comments.

$$\text{Reduced engagement rate} = \frac{\text{Comments} + 1/10 \text{ Reactions} + (\text{Shares} * 2)}{\text{Followers}} \quad (2)$$

Table 1 provides descriptive statistics of different measures from the first quantitative phase of the conducted case study. The table displays basic data outputs from the Facebook profiles of the analyzed cafes for the year 2018 as obtained via Netvizz.

Table 1 Engagement rate and modified engagement rate for selected cafes

Year 2018 Cafe (firm)	Likes	Comments	Reactions	Shares	Followers	Engagement rate	Reduced Engagement rate
CrossCafe	2312	826	2535	573	24849	0.16	0.09
Lagarto café	37955	2531	43277	3124	12921	3.79	1.01
Ólala Café	378	18	413	15	1406	0.32	0.06
Le Frenchie café	4485	97	5022	115	4664	1.12	0.18

Source: own processing

The above presented results are surprising. CrossCafe, a successful franchise and network of coffee shops, is not as successful as its relevant competitors, Lagarto café, on Facebook. The number of followers who shared posts on Facebook is proof of this fact. As shown in Table 1, Lagarto café is also successful in managing communication on Facebook.

To answer the second research question, an overview of types of messages and of engagement was also produced. The ratio of messages / engagement gives us basic information on how effective partial types of messages are from this point of view. A qualitative analysis follows and represents a detailed view of this topic.

$$\text{Ratio of Link / Photo / Status / Video} = \frac{\text{Links or Photos or Status or Videos}}{\text{Comments} + \text{Reactions} + \text{Shares}} \quad (3)$$

Table 2 Ratio, type of messages / engagement

Indicators Cafes	Links	Link ratio	Photos	Photo ratio	Status	Status ratio	Videos	Video ratio
CrossCafe	11	11.0	44	80.6	2	2.0	2	33.5
Lagarto café	18	18.0	214	222.6	11	11.0	3	134.3

Ólala Café	1	1.0	55	7.5	14	14.0	1	1.0
Le Frenchie café	0		74	67.7	0		3	75.3

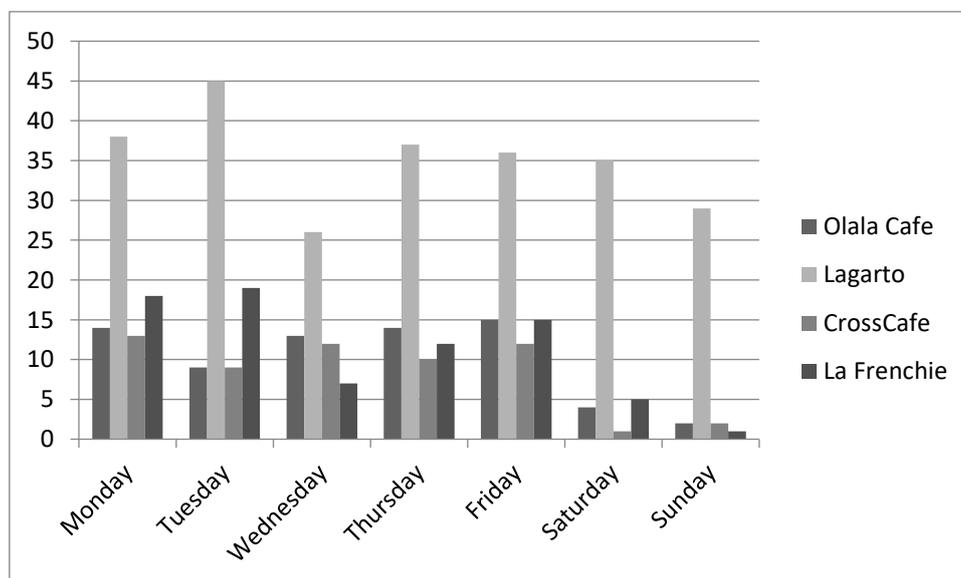
Source: own processing

Note. Status and Links had fewer records because some of the selected cafes did not use these types of posts on Facebook in 2018.

As can be seen from Table 2, the best engagement was achieved by types of posts created by Lagarto café. Overall, the highest engagement was achieved by photos followed by videos. The best engagement was achieved by Photos posted by Lagarto café. It should be noted that the type photo is usually not only a photo, but there is attached text that communicates with the target group and plays an important role from the marketing point of view.

Effective brand-related activities need to also maintain communication with the target group over time, for example, during the week. And cafes are open not only during the week but also at weekends. Figure 1 shows an analysis of the distribution of Facebook posts.

Figure 1: Distribution of posts on Facebook (selected cafes, 2018)



Source: own processing

It is evident that Lagarto café is the best not only in active communication on Facebook overall, but it is the only one that successfully interacts with customers at weekends. It should be noted that Facebook offers marketers tools for managing communication over time.

In the following qualitative phase, the best messages with a high engagement score were evaluated. The purpose of this part of the presented research was to find and, from a marketing point of view, assess the content of the most successful posts on Facebook. Posts with the highest engagement were selected again using the Netvizz tool. In the content analysis, the type of post, target group, used appeals, and call to action were monitored.

Table 3 The best posts, engagement and call to action

Cafe	Type of post	Likes	Shares	Comments	Target groups	Call to action
CrossCafe	Photo	167	44	329	C + P	Contest to attract new customers
CrossCafe	Photo	118	244	5	All people	CSR activity
CrossCafe	Photo	19	11	32	C + P	Opening a new cafe

CrossCafe	Photo	116	16	248	C + P	Contest to attract customers
Lagarto café	Photo	836	13	78	C + P	New product
Lagarto café	Photo	681	46	87	C + P	Product presentation
Lagarto café	Photo	552	33	98	C + P	Product presentation
Lagarto café	Photo	526	34	20	C + P	New product
Ólala Café	Photo	15	0	5	C + P	Product presentation
Le Frenchie café	Photo	197	0	3	C + P	Christmas mode on
Le Frenchie café	Photo	154	1	9	C + P	Product presentation

Source: own processing

Note. C = customers, P = potential customers. Table 3 shows only selected posts with top engagement.

Concerning the posts with the highest engagement (top messages), we identified the following. All the top messages were created by Lagarto café. All the top posts are photos with positive information about products. CrossCafe also successfully used sales support and CSR activities. As is obvious from Table 3, different posts lead Facebook brand page users to different reactions.

As we mentioned above, call to action is a marketing term used extensively in advertising and selling. It is obvious that in this case top messages are focused on product presentation (call for new product = to taste and also to test new products) and on CSR activities that were also connected with contest to attract namely new customers.

CSR activity leads to high engagement through sharing and contest triggers reactions through comments. Individuals engage in organizational communication on Facebook through three behaviors: like, comment, and share. Each social media behavior needs a different amount of cognitive effort from the other. Marketers should consider that likes are an affective response to posts, whereas comment is a cognitive one. Shares then consist of both types of reactions (Kim & Yang, 2017). For example, the results (Table 3) show that the highest popularity received messages focused on new product and product presentation (the highest number of likes), better commitment produce both messages with contest (the highest number of comments), cf. Bonsón and Ratkai (2012).

Discussion and conclusion

Internet users engage with brands on social networks in much the same way they interact with other content distributed via social media. Consumers actively engage in brand-related activities on social networks such as Facebook if the company-driven communication meets their needs and expectations towards the brand (Mutinga et al., 2017; Sabate et al., 2014). The presented empirical case study has a number of managerial implications. First of all, brand communities on social networks are an interesting communication tool and positive brand-related posts may enhance consumers' commitment to the brand (cafes). Second, members of a brand community on Facebook can engage with the community in a passive or active way and properly prepared posts lead customers to action. Third, brand pages should be interesting and fun for users.

Successful company-consumer interactions using social media support brand awareness, increase customer satisfaction and loyalty, and boost sales (Vendemia, 2017; Wang & Kim, 2017, De Veirman et al., 2017). The conducted case study brings information from this area for the restaurant (cafes) industry in the context of the Czech Republic and presents knowledge important for researchers and practitioners alike, because little is known about communication with customers in this area on Facebook.

Some limitations of the research survey must be considered. First, we conducted only a case study and further research by increasing the size of the sample pool is needed. Second, the data were obtained through convenience sampling, which is acceptable for an explanatory study. Third, data

were obtained from Facebook using Netvizz and the analysis is focused on posts created by four selected cafes in 2018. Future research can be improved not only by increasing the size of the sample pool but also by focusing on company websites and on social media marketing and PPC advertising.

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Comparative analysis of employee training in the Czech enterprises

Dana Egerová¹, Monika Volfová²

¹ University of West Bohemia
Faculty of Economics
Univerzitní 22, 300 01 Pilsen
E-mail: egerova@kpm.zcu.cz

² University of West Bohemia
Faculty of Economics
Univerzitní 22, 300 01 Pilsen
E-mail: mvolfova@kpv.zcu.cz

Abstract: *Due to fast global and technological changes the importance of developing and improving workforce skills and knowledge is rapidly growing. Therefore, the employee training has become a necessity in the workplace and greater urgency for the enterprises. The paper aims to give an overview of the evolutions in continuing vocational training in the Czech enterprises by comparing the results from European Continuing Vocational Training Survey (CVTS) with reference years 2005, 2010 and 2015. The CVTS is a survey of enterprises aiming to collect information about the training provided to employees by private enterprises across EU. In general, the results of the present study show positive tendency concerning employee training in the Czech enterprises. On the other hand, the findings suggest that there still exists gap between small and large enterprises in providing employee training. The enterprise size and the economic conditions appear to be two important determinants for the investment in employee training in the Czech enterprises.*

Keywords: *enterprises, employee training, European Continuing Vocational Training Survey*

JEL codes: *M12, M53, O15*

Introduction

Globalization, demographic changes, technological advances, economic changes and new competitors are several of the factors affecting enterprises in all industries and sizes. To address these factors the importance of a suitably qualified and prepared employees has become increasingly obvious for today's enterprises. Employees positively affects firms' performance, productivity and growth (Makkonen and Li, 2012) and represent a potential source of competitive advantage for the enterprises (Barney, 2001). It is also evident, that organizational development is conditioned by human knowledge and skills. In other words, employees with their knowledge and competencies represent strategic resource of the enterprise. Therefore, training and development of employee knowledge, skills and abilities should be considered as a crucial issue for any company. As stated Elnaga and Imran (2013) without training, employees do not develop the skill and knowledge to successfully perform their job.

The previous studies show the positive effect of employee training on both employee and organization (Elnaga and Imran, 2013). According to Thassanabanjong et al. (2009) trained employees perform more effectively, are more motivated and make a greater contribution to performance. On the other hand, training enables the employees to widen their knowledge and skills and improving their career development (Hanaysha, 2016). Despite the importance of employee training and its benefits to both employers and employees is recognized the previous surveys indicate that especially SMEs are still reluctant to provide their staff with training (Antonioli and Torre, 2016; Doležalová a Holátová, 2015). Dessler (2017) defines employee training as the systematic process of planned activities to give employees the skills and knowledge they need to perform their jobs. In a similar vein, Noe and Kodwani (2018) define training as a planned effort by a company to facilitate learning of job-related knowledge, skills, and behaviors by employees. Also Hanaysha (2016) notes that training is a useful technique used by an organization to help employees enhance their knowledge and skills. Further, Vidal-Salazar et al. (2012) state that term employee training refers to formal training, that is structured and planned as opposed to informal training, which is considered as the transfer of

knowledge from the experienced employees to less experienced. Noe and Kodwani (2018) argue that companies have relied on formal training through courses, programs, and event.

For the purpose of the CVT survey the employee training has to meet the following characteristics. The training activities must be planned in advance and must be organized or supported with the special goal of learning. The primary objective of these activities must be the acquisition of new competencies or the development and improvement of existing competencies. Training measures or activities must be financed in total or at least partly by the enterprise (directly or indirectly). (Eurostat, 2016).

Understanding the complexity of provision employee training in enterprises is one of the necessary preconditions for adopting targeted policy measures with the aim to support enterprises and hence promote effective employee training (Egerová, 2015). Thus, the aim of this paper is to monitor progress and change in the delivery of continuing vocational training (CVT) supplied by enterprises in the Czech Republic. Specifically, this survey analyses enterprise performance on the following key dimensions The provision of employee training, The costs of training, and the Training policies and processes.

To compare enterprise performance over time, the study analyses data from the continuing vocational training surveys CVTS 3 (reference year 2005), CVTS 4 (reference year 2010) and CVTS 5 (reference year 2015). The primary aim of European Continuing Vocational Training Surveys (CVTS) is to collect data on continuing vocational training (CVT) in enterprises. The CVT survey is conducted every five years with reference period is the calendar year. The first survey (CVTS 1) was carried out in 1994 in the 12 Member States of the European Union. The Czech Republic participated in CVTS for the first time in 2001 as one of the candidate country. The most recent survey was carried out in 2016, providing data for the calendar year 2015 (CVTS 5) and for all EU Member States, Norway and North Macedonia (CEDEFOP, 2019). The CVT surveys are coordinated by the Statistical Office of the European Union. The survey covers enterprises with 10 or more employees operating across the majority of the private business economy. Due to its regularity, content, methods, scale and quality standards, CVTS is acknowledged as the reference statistical source at European level (CEDEFOP, 2019).

1 Methodology

The present study builds on the quantitative analysis derived from European enterprise surveys CVTS 3, CVTS 4 and CVTS 5. Data were obtained from Eurostat's online database and from the Czech Statistical Office. The European standard questionnaires were used as the basis for these surveys with additional national questions. Although some changes were made in CVTS 5, it is still possible to compare findings from CVTS 5 and previous surveys CVTS 3 and CVTS 4 in some of the key indicators. For the purpose of this study the following dimensions and selected key indicators for these dimensions were compared: dimension *The provision of employee training* with one indicator such as Enterprises providing any type of CVT in all enterprises, dimension *The costs of training* with two indicators such as Average cost of CVT courses per participant and Total cost of CVT courses per employee (that is, averaged across all employees in the organization whether they participated or not), dimension *The training policies and processes* with three indicators such as Enterprises having person or department who was responsible for arranging the vocational training, Enterprises having training plan and Enterprises having training budget.

1.1 Sample

The surveys covered enterprise employed 10 or more employees belonging to the business economy (mainly). A stratified random sample design was used for these surveys. Detailed instructions for determining the sample structure and target numbers for each CVT survey were given in CVTS Manuals (European Commission, Eurostat, 2005, 2010, 2015). The Table 1 presents in detail the number of enterprises in the sample and in the sampling frame and the response rate of questionnaires for each survey. For the analysis of the CVTS survey results this study uses the following breakdown by enterprise size enterprises with 10-49 employees, enterprises with 50-249 employees and enterprises with 250 and more employees.

Table 1 Number of enterprises

CVTS/ Reference year	Number of enterprises		
	Sample	Sampling frame	Response rate
CVTS3 (2005)	10000	45 792	80%
CVTS4 (2010)	10000	43 403	81%
CVTS5 (2015)	9224	44 357	87%

Source: CSO, 2008, 2013, 2017; Eurostat, 2016

2 Results

This section presents comparison between enterprises in 2005 (CVTS 3), 2010 (CVTS 4) and 2015 (CVTS 5) in the selected dimensions and indicators. Results are presented by enterprise size.

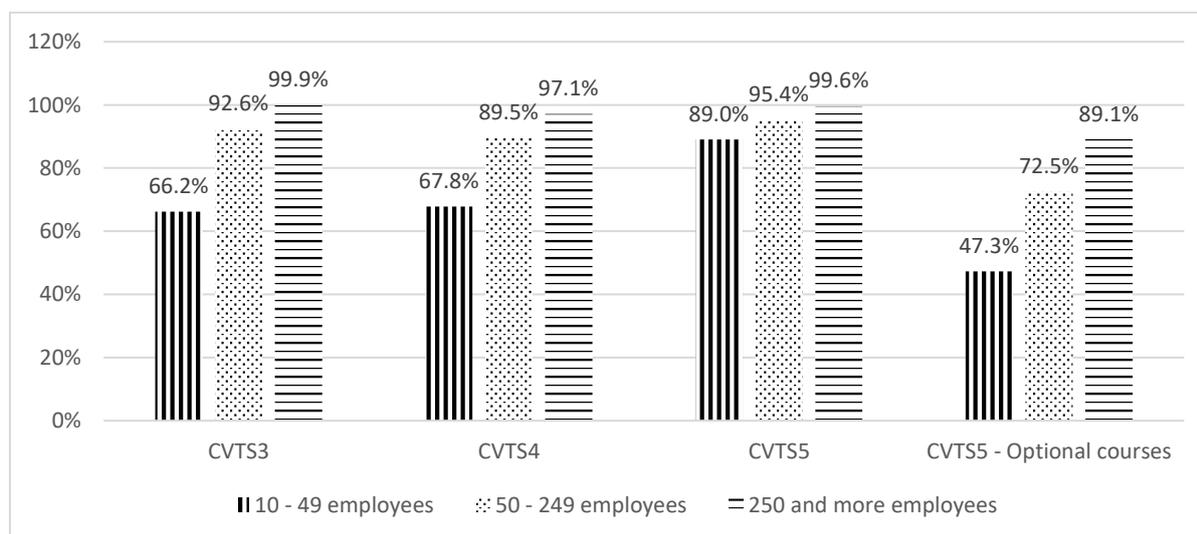
2. 1 Provision of employee training

This subsection presents the level of training incidence in enterprises. The indicator considered is the number of enterprises providing any type of CVT as a percentage of all enterprises surveyed.

Figure 1 displays changes in the provision of any form of CVT between the period 2005-2015. In more detail, the findings show that there was an increase in the provision of any forms of CVT between 2005 and 2015 from 66,2% to 89% of enterprises with 10-49 employees. Conversely, since 2005 there has been a slight reduction in the proportion of organisations reporting provision of any form of CVT from 92,6% to 89% in 2010 in enterprises with 50- 249 employees and from 99,9% to 97,1% in organization with 250 and more employees. A possible explanation for this fall is that the outcomes are presented for the reference year 2010 affected by the global financial crisis, that had an impact on the enterprises including employee training. In the following wave (CVTS 5) there was an increase in the provision of CVT also in these enterprises. On the other hand, the provision of CVT increases with organization size as shown in Figure 1. It worth to notice, that full comparability for this indicator is not possible due to changes made in the 2015 questionnaire. Unlike the previous questionnaires the enterprises were asked whether they provided at least one course for its staff and extra emphasis was put on the possibility to distinguish between obligatory and non-obligatory courses.

To sum up, nearly all large enterprises and most of medium-sized and small enterprises provided any form of training. This can be reflected as a positive trend in employee training.

Figure 1 Provision of CVT courses and other forms of CVT by enterprise size



Source: Own processing based on Eurostat data (2019)

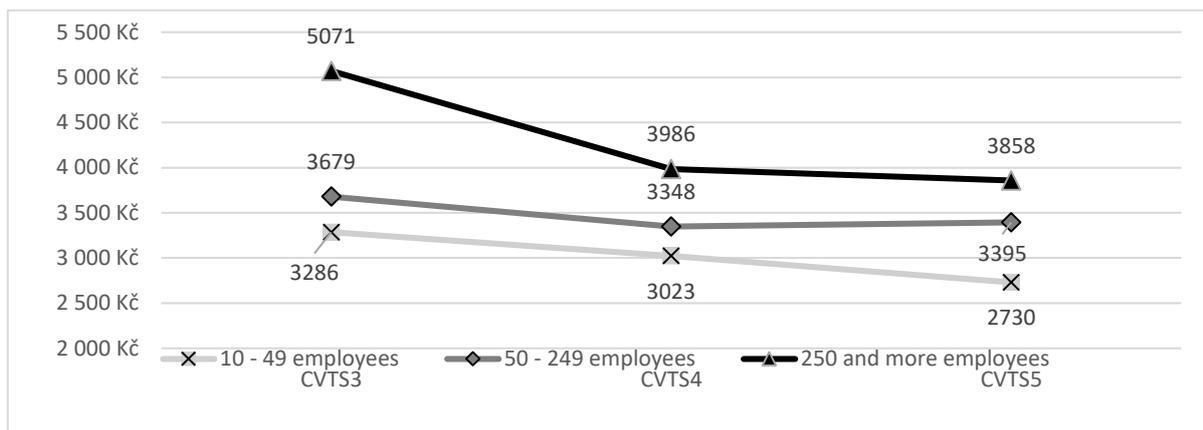
2. 2 Cost of training

Cost of CVT courses per participant

Figure 2 shows that the average cost per participant relating to CVT courses in enterprises with 250 and more employees was 3858 CZK in last CVTS 5, which indicates a decrease since 2005, when it

was 5071 CZK. A similar trend (with a slight decline) is also observed in enterprises with 10-49 employees. In enterprises with 50-249 employees the average cost per participant declined from 3679 CZK to 3348 CZK in CVTS 4. In the last CVTS 5 the cost was 3395 CZK which indicates an increase since 2010, but decrease to compare with CVTS 3. Overall, the average amount organisations spent on training courses per participant declined somewhat between 2005 and 2015. On the other hand, the average cost per participant relating to CVT courses reduces as the size of the organisation increases. It is worth to note that relatively high cost for smaller employers to compare to larger ones, maybe because larger enterprises use new training technology in learning and training activities, more of internal training resources and/or because of economies of scale.

Figure 2 Cost of CVT courses per participant (CZK) (Enterprises that provided CVT) by enterprise size

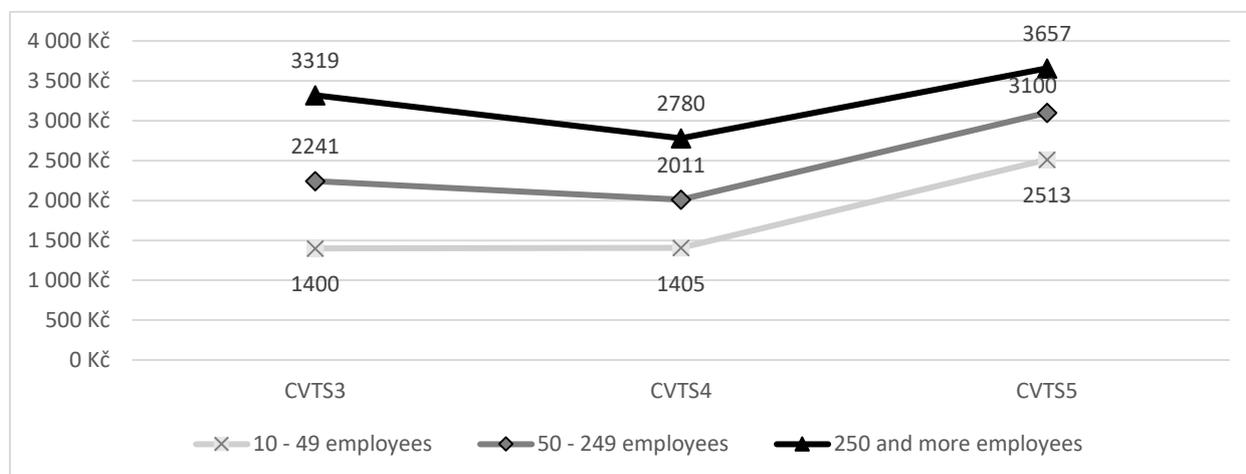


Source: Own processing based on CSU date (CVTS 2008, 2013, 2017)

Cost of CVT courses per employee

Figure 3 provides an overview of the changes in the indicator Cost of CVT courses per employee. Overall, a comparison of costs of CVT courses per employee with CVTS 3 and CVTS 4 suggests rising costs of training courses for all sized enterprises. The average cost of training courses per employee increased from 3 319 CZK (CVTS 3) to 3657 CZK (CVTS 5) in enterprises with 250 and more employees. In enterprises with between 10 and 49 employees this cost increased from 1400 CZK (CVTS 3) to 2513 CZK (CVTS 5) and in enterprises with 50-249 employees from 2241 CZK to 3100 CZK. The finding also reports a slight reduction of average expenditure on CVT courses from 2005 – 2010 in enterprises with 50-249 employees and 250 and more employees. As mentioned above, a possible explanation for this fall is that the outcomes are presented for the reference year 2010 affected by the global financial crisis, that had a greater or lesser impact on the enterprises including employee training.

Figure 3 Cost of CVT courses per employee (CZK) by enterprise size



Source: Own processing based on CSU date (2005, 2010, 2017)

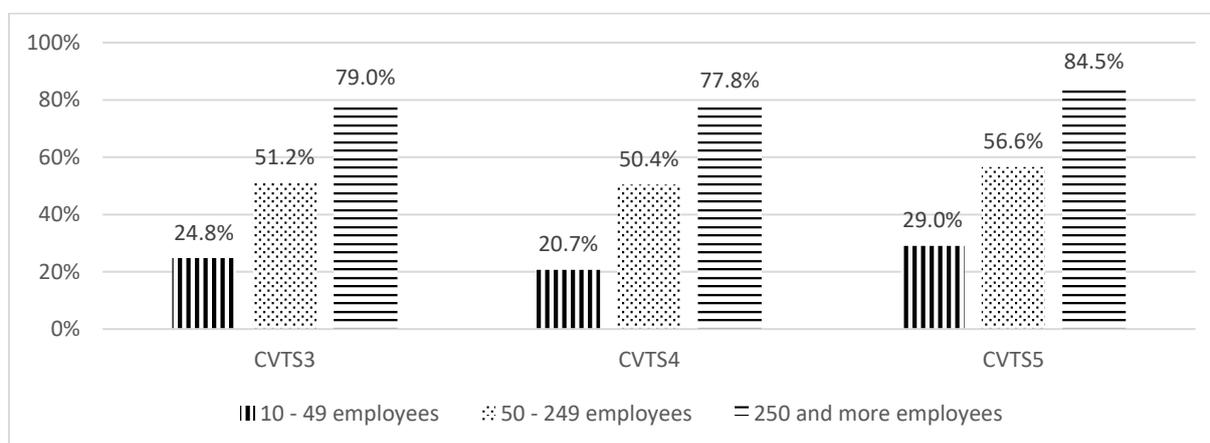
2. 3 Training policy and processes

Provision of employee training is conditioned by having appropriate infrastructure, such as a specific person or department responsible for staff training, and supportive processes, such as having formal planning of training and training budgets (Eurostat, 2015). Thus, these indicators are analysed in the following subsection.

Responsibility for employee training

Comparison over the time (CVTS 3, CVTS 4 and CVTS 5) suggest an increase in the number of all three sized enterprises having the person or department who was responsible for arranging the vocational training. In more detail, enterprises with 10-49 employees improved +4,2%, enterprises with 50-249 employees + 5,4% and enterprises with 250 and more employees + 5,5%. The Figure 4 further indicates that the proportion increases with the size of the enterprises and was significantly higher in enterprises with 250 and more employees than in enterprises with between 10 and 49 employees. In more detail, in 2015 (CVTS 5) only 29% enterprises with 10-49 employees had a person or department responsible. This proportion increases to 56,6% in enterprises with 50-249 employees, and to 84,5% in organisations with 250 and more employees. It is evident that the gap for this indicator remains large.

Figure 4 Enterprises having a specific person or unit responsible for organizing training by enterprise size

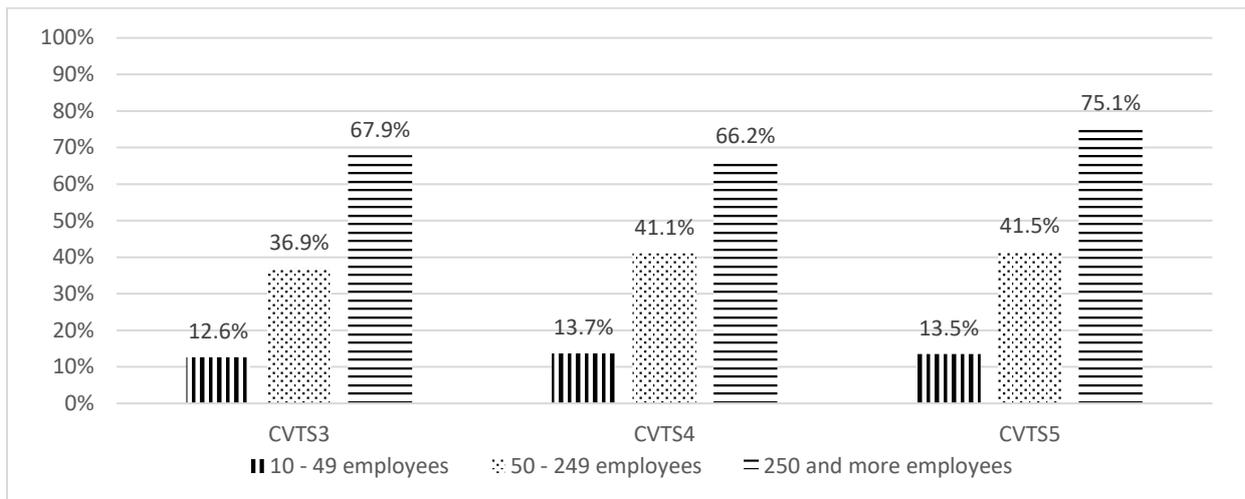


Source: Own processing based on Eurostat data (2019)

Training plan

As shown in Figure 5, despite the proportion of enterprises having a training plan increased between 2000 (CVTS 3) and 2015 (CVTS 5), the training plans are more common in larger enterprises. In more detail, 75,1 % of enterprises with 250 and more employees had a training plan in 2015, that is 7,2% more than in 2005 (CVTS3) and 9,1% more than in 2010 (CVTS4). In contrast, only 41,5% of enterprises with 50-249 employees and 13,5% enterprises with 10-49 employees had training plans in 2015 (CVTS 5). It is evident that the gap for this indicator remains large.

Figure 5 Enterprises having a training plan by enterprise size

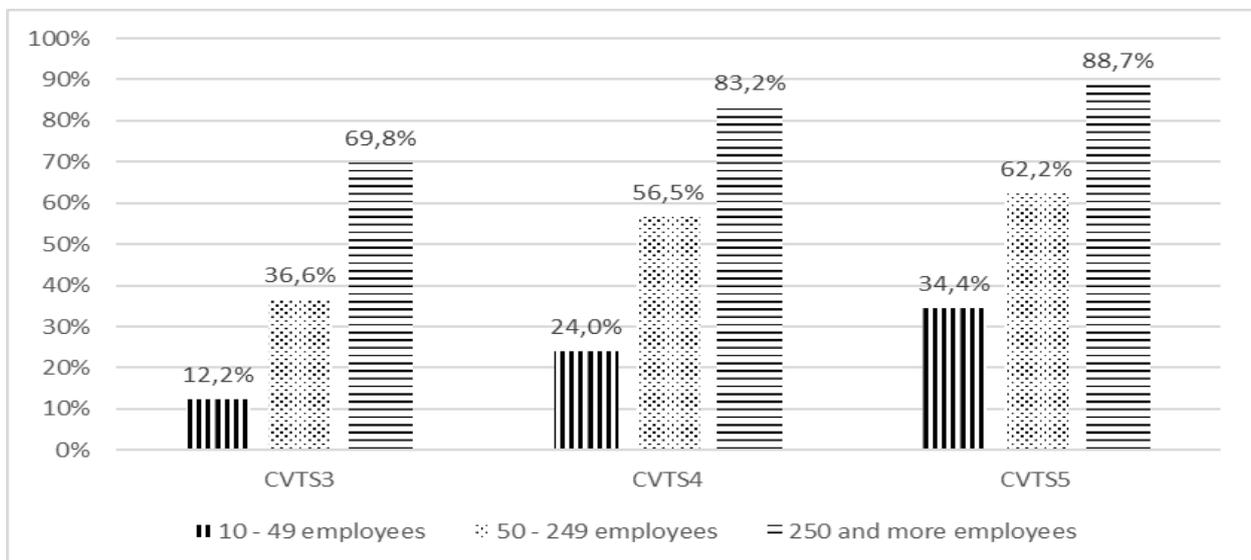


Source: Own processing based on Eurostat data (2019)

Training budget

To compare proportion of enterprises having a training budget over the period 2005 and 2015 the proportion was steadily rising in all sized enterprises. The Figure 6 shows that the proportion of enterprises having a training rose from 12,2% in 2005 (CVTS3) to 34,4% in 2015 (CVTS 5) for enterprises with between 10 and 49 employees, from 36,6% to 62,2% of enterprises with 50-249 employees and from 69,8% to 88,7% of enterprises with 250 or more employees. The figures also indicate, that proportion of enterprises with the training budget increased with enterprise size. The lowest is in enterprises with between 10 and 49 employees only 34,4% in 2015 and the highest in enterprises with 250 and more employees with 88,7% in 2015.

Figure 6 Enterprises having a training budget by enterprise size



Source: Own processing based on Eurostat data (2019)

Conclusion

The aim of this study was to monitor progress and changes in the delivery of continuing vocational training (CVT) supplied by enterprises in the Czech Republic. Specifically, this study analysed and compared enterprise performance on the following key dimensions *The provision of employee training, The costs of training and The training policies and processes.*

The survey identifies the following trends in employer training activities. First, the provision of employee training rose between CVTS 3 and CVTS 5 in all sized enterprises. This can be reflected as the positive trend as the importance of employee training is emphasised. It was also observed that the proportion of enterprises providing employee training increased with enterprise size. Second, the average cost of CVT courses per participants decreased in all sized enterprises between 2005 (CVTS 3) and 2015 (CVTS 5). An explanation for this decline might be adaptation of new training technologies in learning and training activities and using internal courses or informal learning which may reduce the cost of the courses. Next, the average cost of CVT courses per employee increased in all sized enterprises. As with cost per participant this cost was lower in smaller enterprises than in the larger one. The above findings mostly support the previous studies which found that training investments by small and medium enterprises (SMEs) are significantly lower than those of larger enterprises (Antonioli and Torre, 2016). Fourth, the proportion of enterprises with the person or department who was responsible for arranging the employee training increased with enterprise size. Also the propensity to plan for employee training and to set a budget for it, increased with enterprise size. It is worth mentioning that for the indicators referring to have training plan and training budget, the figures are below 14% and below 25% in enterprises with between 10 and 49 employees. In line with previous surveys (Horng and Lin, 2013) these findings reflect that training in small enterprises is mostly unplanned and unsystematic. It is also interesting to note, that proportion of enterprises with training plans are much lower than those with training budget. To sum up, the main determinant of employer training activities and policies that of enterprise size as would be expected. Nevertheless, provision of employee training and training investments are necessary in every organisation, regardless the size because of the increasingly strategic role of knowledge and human capital in knowledge society today.

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Online Marketing Campaign in Context of Influencer Marketing

Petra Jílková¹

¹ Anglo-American University
School of Business Administration
Letenská 120/5, 118 00 Praha 1
e-mail: peta.jilkova@email.cz

Abstract: *Influencer marketing is a marketing approach focused on creating relevant, and consistent content to attract a profitable customer. In an influencer marketing strategy, a brand forms a partnership with the influencers, and use their impact on a brand's industry or target audience. The marketing concept has changed dramatically in recent years and technologies affected the wider practice of the internet in online marketing campaigns. This article proposes and explores the digital marketing trends and their impact on the marketing and communication mix. Additionally, the article analyzes the current state of the influencer marketing on the Czech and Slovak markets, compare it with global markets and predict main trends. In particular, the final report focusses on the position of influencer marketing in the communication mix and the main parameters of online marketing campaigns based on the research. Further statistical analysis confirmed the fact that the Czech Republic has caught up with the rest of Europe and the world in the area of influencer marketing and the issue of the customer way, customer insights and the impact of this trend on campaigns is significant to reach their target market through different types of communication.*

Keywords: *brand management, content marketing, customer insight, customer way, influencer marketing, marketing campaign*

JEL codes: *M31, M37, O31, O35*

Introduction

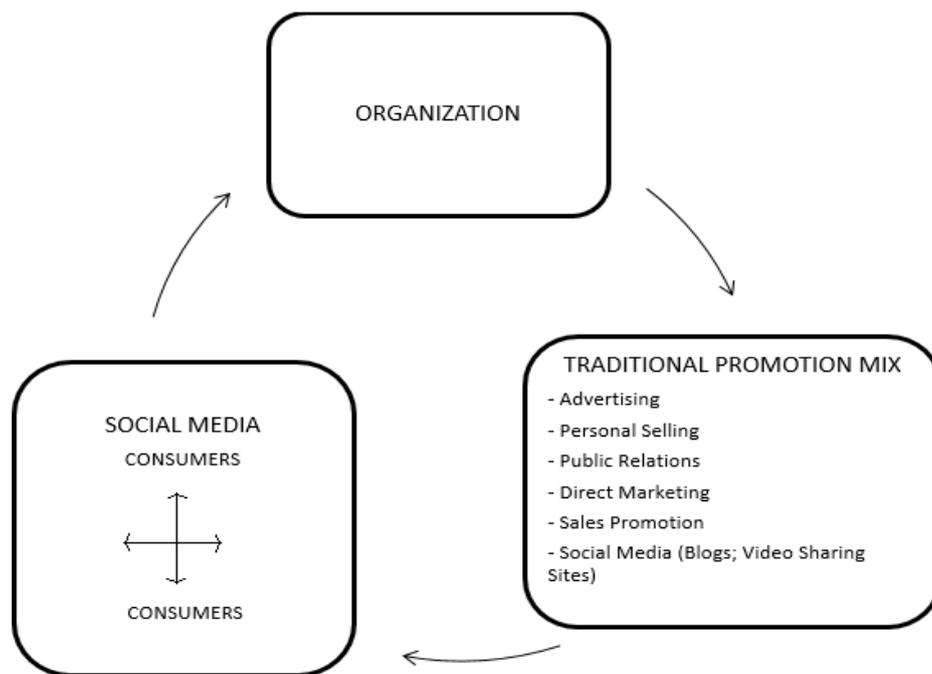
Marketing communication and the attitude to marketing planning has changed, and the rapid progress doesn't show any signs of slowing down. Digital marketing trends and strategies are evolving in the current FinTech and internet development, which means that companies need to use them to succeed in their business. The literature review is focused on the determinants of the influencer marketing campaign and how brands communicate with their target customers in the last decade. The use of social media in the communication campaign has increased over the past few years. Influencer marketing could be defined as 'a type of marketing that focuses on using key leaders to drive a brand's message to the target customer. An influencer is a user of social media, has access to a large audience, can offer them relevant content and can change the customers' behavior or purchase decisions.

1 Literature review

Marketing strategy is a combination of marketing objectives combined into a single comprehensive plan that promotes goods or services and brings profit. Marketing based on a broader view of world markets requires a careful examination of complex decisions related to strategic positioning in conjunction with segmentation. Hassan, & Craft (2005) According to Andreasen (2002) strategies designed to effect behavioral changes always comprise all four elements of the marketing mix (Product, Price, Place, Promotion). Bitner and Booms (1981) created the 7Ps framework for services adding three additional components (Process, Physical Evidence, and Participants) to the basic 4Ps. Constantinides (2002) defined the 4Ss framework (Scope, Site, Synergy, System). 5Ds framework for digital marketing (Digital Devices, Digital Platforms, Digital Media, Digital Data and Digital Technology) was designed by Chaffey and Chadwick (2019). The previous AIDA model according to Belch (2004) was composed of four main steps (Attention, Interest, Desire, Action) and Kotler and Armstrong (2003) to this model added the fifth part, Customer Satisfaction. In 2015 Kaushik developed STDC (See-Think-Do-Care) model for e-commerce customer relationship management. STDC framework helps to do two things: 1 / identify gaps in influencer marketing strategy, and 2 / to assess whether your marketing strategy is wide enough for each phase of the campaign. Influencer Marketing could be a part of the See and Think phase.

This article proposes and explores the digital marketing trends and their impact on the communication mix. Dellarocas (2003) examines the relationship between online consumer feedback information and an unknown seller's reputation. According to Chen and Xie (2008), new technology now is making it possible for an online seller to efficiently provide two different forms of product information to its potential buyers: (1) seller-created product information supplied by the seller via its website or other media, and (2) consumer-created information self-posted by consumers on the seller's website. Mangold and Faulds (2009) defined the position of Social Media in the traditional promotion mix.

Figure 1 Social Media – Position in Traditional Promotional Mix



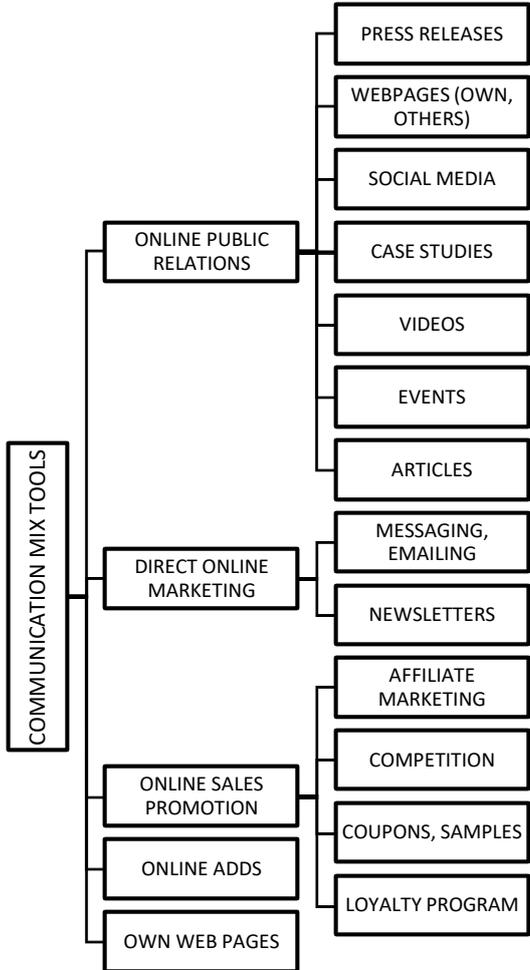
Source: Mangold, W. G., & Faulds, D. J. (2009)

Dhanesh and Duthler (2019) examine the effects of awareness of paid endorsements by social media influencers on followers' cognitive persuasion knowledge, attitudinal persuasion knowledge (relationships with the influencer), and behavioral intentions, specifically eWOM intention and purchase intention. The research was found that awareness of paid endorsement is correlated with the influencer-follower relationship, which is associated with the purchase and eWOM intentions. Salhieh (2019) defined that customers are making rational decisions and would be willing to switch their current service provider if offered better service or better product parameters. A classification of switching reasons and their relative frequency in service industries has been conducted by Keaveney (1995). On the other hand, there must be brand awareness considered as well. Smith and Zook (2012) summarize that the main contribution of the Internet to business is not the possibility of selling products online, but also its capability of building relations with customers and allow the implementation of more efficient and effective systems of digital Customer Relationship Management (e-CRM).

Brands thus influencer marketing can obtain more brand loyalty and trust of their customers. Morgan-Thomas and Veloutsou (2013) demonstrate that trust and perceived usefulness positively affect the online brand experience. Positive experiences result in satisfaction and behavioral intentions that in turn lead to the formation of online brand relationships. Buil et. all (2013) show that the individuals' attitudes toward the advertisements play a key role in influencing brand equity dimensions, whereas advertising spends for the brands under investigation improves brand awareness but is insufficient to positively influence brand associations and perceived quality. The paper also finds the distinctive

effects of monetary and non-monetary promotions on brand equity. Marketing campaign parameters are constantly evolving to adapt to consumer trends, technological advances, and socio-economic changes. The key, of course, is to stay relevant and to offer value to the target customer throughout the valuable product and services. The basis of such a conceptualization is the study conducted by Rooderkerk and Pauwels (2016), which explains that the increasing interest in online communities heightens the need for a better understanding of the people gathering in those communities. Christodoulides and de Chernatony (2004) explain that impressions are formed based on interactions. For more details about the communication mix, see the table below.

Figure 2 Online Communication Matrix



Source: Own processing,

2 Methodology

The methodology used in this paper is the analysis, synthesis, comparison in time and the last part of the research will be dedicated to the future of the Czech and Slovak markets. In the second part of the paper, there were defined as quantitative marketing research. The main aim of it is to answer fundamental questions regarding the influencer marketing. In particular, we want to find out why influencer marketing is using and how influencer marketing is adopted in the marketing campaign. The following hypotheses were defined. Hypothesis 1: 20% of the marketing budget is allocated to influencer marketing.; Hypothesis 2: The most effective social network suitable for influencer marketing is Instagram.; Hypothesis 3: Influencer marketing concept is usually created according to the influencer marketing strategy which is usually done by an external specialized agency. The quantitative marketing research was selected as a research method to verify the above hypothesis. The companies that participated in the research allowed the author to summarize the findings, but not present the results in the way that it might be understandable on the individual company level.

The conclusion sums up the findings and discusses them. Comparing the traditional marketing campaign based on traditional principles or online marketing campaigns using influencers providing a deeper insight into customer reality. For this paper, there were 40 respondents (middle-sized companies with more than 100 employees) in two main segments (Czech - 20 and Slovak - 20). The research is unrepresentative and it is only the first step for the more extensive research of influencer marketing as a part of online marketing strategy.

3 Influencer Marketing Campaign

There are 5.11 billion unique mobile users in the world in January 2019. There is a 2% increase in comparison with January 2018. There are 3.26 billion people use social media on mobile devices in January 2019, with a growth of 297 million new users representing a year-on-year increase of more than 10 percent. The highest increase is in Asia, where we can find 4.25 billion unique users in comparison with Europe, where is only 0.846 billion users.

Table 1 Active Mobile Media Users (2019)

(in billion)	Total Popul.	Unique Mobile Users	Internet Users	Active Media Users	Active Mobile Media Users
Worldwide	7, 676 +1,1%	5, 112 +2%	4, 388 +9,1%	3, 484 +9%	3, 256 +10%
Europe	0, 846 +0,2%	1, 101 +0,5%	0, 724 +7,6%	0, 462 +3,2%	0, 393 +4,5%
US	1, 020 +10,9%	1, 058 +0,9%	0, 798 +7,7%	0, 673 +3,8%	0, 610 +5,8%
Africa	1, 304 +2,5%	1, 049 +5,2%	0, 473 +8,7%	0, 216 +13%	0, 202 +17%
Asia - Pacific	4, 250 +0,8%	4, 416 +3%	2, 210 +10%	1, 997 +12%	1, 931 +13%

Source: Own processing (Digital, 2019).

The online marketing strategy needed to implement integrated planning included content and influencer marketing, to create the Search Optimization Strategy with paid and organic traffic, email marketing based on data automation, to create a multi-channel communication matrix. Influencer marketing has grown as an industry over the last few years. It was \$1.7 billion in 2016, increasing to \$3 billion in 2017. Growth continued to \$4.6 billion in 2018 and is expected to continue its upward trajectory in 2019 to potentially become a \$6.5 billion industry. (<https://influencermarketinghub.com>)

On average marketing budgets are increasing, 39% of US surveyed companies have a digital marketing budget above \$500,000 and they are planning to increase their influencer marketing budget in 2019 as well. 54 % US companies are planning to spend more than \$250,000 annually on influencer marketing, and 17% are going to spend more than \$1 million. (Linqia Report, 2018) In Europe, there is a trend to increase the influencer marketing budget as well, but on a much lower level.

Table 2 Influencer Marketing – Annual Budget (2018)

Market type	Czech Market	Slovak Market	US market
Annual IM Budget	\$0K - \$10K (30%)	\$0K - \$5K (25%)	\$100K - \$250K (17%)

Source: Own processing (US market - Linqia Report, 2018; Czech and Slovak market – Own Research)

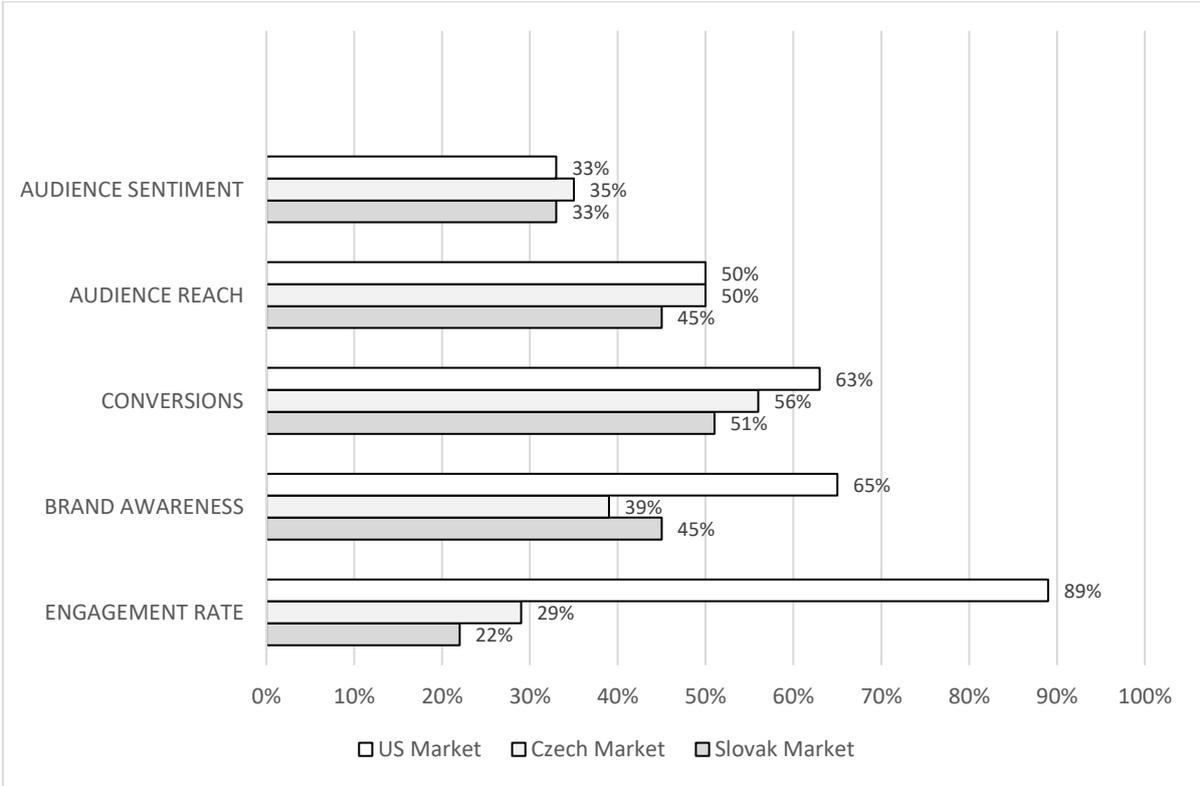
There are a lot of tools on how to measure the effectiveness of influencer marketing. According to the following table, in US (2018), there are usually mentioned as the most common tool how to measure the success of influencer marketing programs: Engagement (89%), brand awareness (65%), conversions (63%), audience reach (50%) and sentiment - content in other words (33%). An engagement rate is a metric that is very important for the US market, which is more developed. This metric usually measure the level of engagement that a piece of created content is receiving from

an audience. We can say, that this metric shows how much people interact with the content and with the influencer. Factors that influence engagement include users' comments, shares, likes, and more.

The situation in the Czech Republic is quite different. The most frequent internet users in the EU who purchase from other EU members are Luxembourg, Austria, Malta, Belgium, and Ireland, the less frequent EU countries are Greece, the Czech Republic, Bulgaria, Poland, and Romania. The main barriers could be language and delivery costs. A large majority of e-shoppers in the 12 months before the survey made online purchases from sellers in their own country. (Eurostat, 2018) The Czech Republic compared to the EU countries is below the average in the number of online transactions. The most active being British (82%), Swedish (81%), Dansk and Luxembourg (80%), the less active individuals are from Romania (16%), Bulgaria (17%) and Croatia (29%). (Czech Statistical Office, 2018)

The current state of e-commerce can be the reason for the fact that the key influencer marketing campaign metrics could be in the Czech Republic slightly different: Engagement (29%), brand awareness (39%), conversions - lead generation (56%), audience reach (50%) and sentiment - content in other words (35%). In the Czech Market, there are two main campaign metrics – Lead Generation and Audience Reach. Audience Reach indicates the number of customers who see your influencer’s content. This metric can be measured by tracking the number of followers of your influencer. Based on it, the marketing manager must create the business, it means to create the conversion. In other words, it means to create leads, is the process of attracting your ideal customers and getting them interested in buying your products or services. This fact is very important for the customer's way and creating a communication campaign. Creating conversion remains the top goal for influencer marketing in the Czech Republic. In the Slovak market, there are similar results.

Figure 3 Influencer Marketing - Key Campaign Metrics (the US, 2018)



Source: Own processing (US market - Linqia Report, 2018; Czech and Slovak market – Own Research)

A lot of companies use influencer marketing for lead generation. Surprisingly, lead quantity and quality are not the top choices for measuring influencer marketing success. More than 55% of Czech and Slovak companies have the influencer marketing strategy based on their company data. In 65% of companies (included in the research; middle-sized companies with more than 100 employees) is for influencer marketing responsible marketing department (Corporate Marketing – 44%, PR and

Communication – 21%) followed by product management department (15%) and in the 15% is this strategy done by external agency (consultant). In other words, this fact means that 85% of companies create an influencer marketing strategy internally.

Social platforms that are the most important for influencer marketing strategy are Instagram, Facebook, Twitter, YouTube and Influencers’ Blogs. When the marketing manager would like to communicate something special with a lot of photos, there is very good Pinterest as well. According to Digital 2019, there are 3,484 billion active social media users. It is 45% of the total population. 3,256 billion users access via mobile devices. The main audience creates people from 18 to 34 years old. They have got on average 8,9 social media account per internet user. They usually spend 2 hours 16 minutes per day using social media via any device. (Digital, 2019)

Table 3 – Influencer Marketing - Strategy and Social Platforms (2019)

Social Platform type	Active Users (in millions)*	Effective	Ineffective	It is not used
Facebook	2,271	82%	12%	6%
YouTube	1,900	64%	14%	22%
Instagram	1,000	90%	2%	8%
QZone	531	0%	0%	100%
Douyin/Tiktok	500	5%	10%	85%
Sina Weibo	446	0%	0%	100%
REDIT	330	0%	0%	100%
Twitter	326	63%	21%	16%
Douban	320	0%	0%	100%
LinkedIn	303	62%	12%	8%
Baidu Teiba	300	0%	0%	100%
Pinterest	250	16%	13%	71%

Source: Own processing (Digital, 2019, Own Research).

* data updated 25 January 2019, based on monthly active users, in millions

Facebook, YouTube, and Instagram top the list of the most effective social media platforms. Influencer marketing often creates content via photos. According to researched companies, Instagram is in the first place in comparison with the third position according to the number of active users of this social platform.

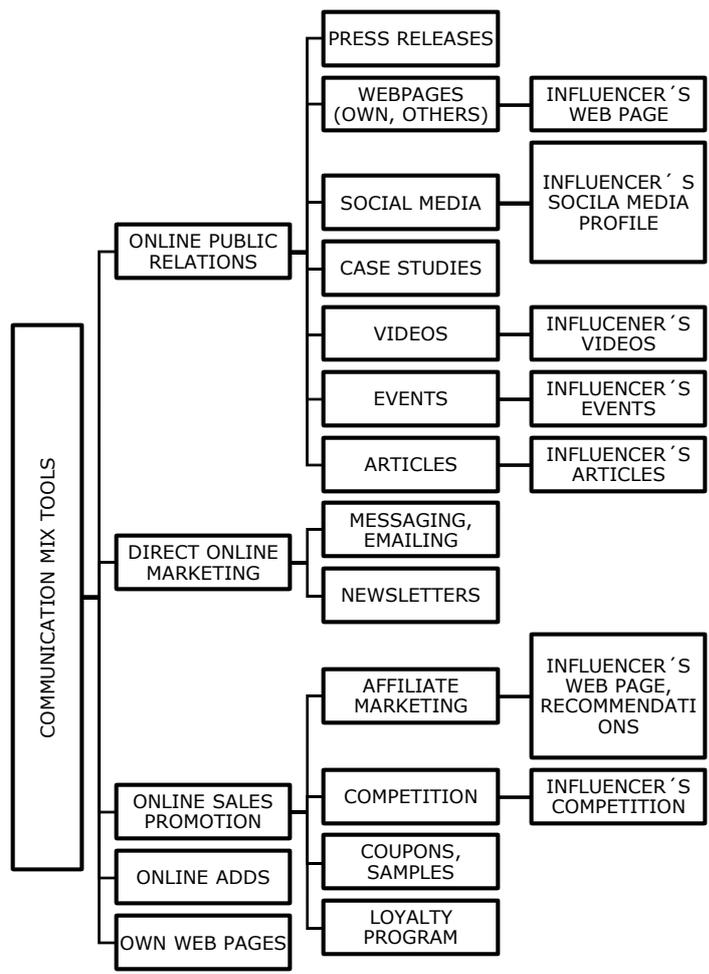
Table 4 Influencer marketing (IM) – campaign parameters (2018)

Market type	Czech Market	Slovak Market	US market
The average number of influencers per campaign	1-5	1-4	30
Campaign Budget (for IM)	\$1,5K	\$1K	\$5K
Success Measurement	Engagement (77%)	Brand Awareness (65%)	Engagement (89%)
Average Price per 1000 impressions	\$5,5	\$6,5	\$2,8
IM management	Outsource Influencer(s)	Outsource Influencer(s)	In-house

Source: Own processing (US market - Linqia Report, 2018; Czech and Slovak market – Own Research)

To better understand how marketers are using influencer marketing, it is important to know the proportion of influencer marketing form the overall digital marketing budget. The results of the question were otherwise 0-1% of the budget for digital marketing (18.4% of respondents), 2-5% (21% of respondents), 6-10% (34,3% of respondents), 11 - 20% (14.5% of respondents), more than 41% (6.5% of respondents) and most recently 21-40% (5.3% of respondents). Social media advertising, online video advertising, influencer marketing, programmatic advertising, and direct buys displays are five of the most common online communication mix tools in digital marketing. For the position of influencer marketing in the online communication matrix based on the research see the following Figure.

Figure 4 Influencer Marketing – Communication Matrix



Source: Own processing.

Conclusions

In particular, the final report focusses on the position of influencer marketing in the communication mix and the main parameters of online marketing campaigns based on the research. The paper leads to a description of the current situation and comparison with foreign markets. This paper has examined the literature review dealing with influencer marketing. The purpose of this paper is to investigate the current state of influencer marketing on the Czech and Slovak markets, compare it with global markets (US market) and predict main trends. Firstly, we examine a theoretical model for the online communication matrix and the development of the theory of marketing and communication mix. Brands are focused on storytelling. Social media-based brand communities are playing an important role in brand awareness. Secondly, the final report focusses on the position of influencer marketing in the communication mix and the main parameters of online marketing

campaigns based on the research. The paper leads to a description of the current situation and comparison with foreign markets. The data allowed us to compare the situation in the Czech Republic, Slovak Republic and in the US.

According to research hypothesis 1 is not confirmed, because based on the research, companies typically allocated fewer funds than we have expected. Based on research, 74 % respondents (companies) invest in influencer marketing campaign less than 10 % of their budget. Hypothesis 2 is confirmed because the most effective social network suitable for influencer marketing are Instagram, Facebook, and Youtube. Influencer marketing is a part of content marketing and marketers are increasingly using influencers to create content to better engage B2C customers during their customer journey. Hypothesis 3 (Influencer marketing concept is usually created according to an influencer marketing strategy which is usually done by an external specialized agency) is not confirmed. 85% of companies create an influencer marketing strategy internally but the problem is that they don't have any strategy for it. The most mentioned influencer marketing challenges are: (1) determining the ROI of influencer marketing campaigns; (2) to create the valuable influencer marketing campaign and to choose which influencer marketing providers to work with, (3) rapidly changing customer behavior make it difficult to for companies to have a relevant campaign and (4) to choose the relevant influencer for company's brand. The research is unrepresentative and it is recommended to do the more extensive research of influencer marketing as a part of online marketing strategy.

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Just knowing you do it: The unacknowledged role of social influence on decision-making

Michal Jirásek¹, Irma Macháčová²

¹ Masaryk University, Faculty of Economics and Administration, Department of Corporate Economy
Lipová 41a, Brno, 62400, Czech Republic
E-mail: mijirasek@mail.muni.cz

² Independent researcher
Svážná 7, 634 00 Brno, Czech Republic
E-mail: irmamachacova@gmail.com

Abstract: *Social proof, isomorphism, imitation, or vicarious learning – these are just some examples of terms used to describe the powerful role of social influence on decision-making. However, while powerful, it is often unacknowledged. Be the reasons conscious (“I don’t want to tell you”) or unconscious (“I am not influenced by others”), social influence needs to have a prominent role in the research on organizational decision-making. In this study, we summarize some of the theoretical perspectives on the role of social influence in decision-making. Then, we provide a case study illustrating its effects and its unacknowledgement by decision-makers. Combining these two parts, we aim to highlight the need to carefully assess possible social influence in further studies of decision-making, regardless of narratives we obtain from individual decision-makers.*

Keywords: *decision-making, social influence, behavioral factors, expert advice*

JEL codes: *D22, D70, D91, M31, M40*

Introduction

We face countless decisions every day. In order to avoid cognitive overload, we often simplify these tasks by using heuristics (simple rules of thumb, Kahneman, Tversky and Slovic, 1982) that allows us to choose quickly. One of the most prominent heuristics is simply looking how the others decided. Ensuing social influence is of interest to a wide range of theories on both individual and organizational levels. We review some of them in the theoretical part below.

The requirements of decision-making on a human cognitive processing capacity are enormous. Take for illustration what Sweller (1988: 261) proposes that a problem-solver must do: “... simultaneously consider the current problem state, the goal state, the relation between the current problem state and the goal state, the relations between problem-solving operators and lastly, if subgoals have been used, a goal stack must be maintained.” The more unfamiliar and of higher level this process is, the more difficult is to reach a decision. One of the reasons is increasing uncertainty associated with this decision.

Miliken (1987) distinguishes three types of uncertainty: (i) state uncertainty (how components of the environment might be changing); (ii) effect uncertainty (how events impact the organization under scope); and (iii) response uncertainty (what responses are available and what are their utilities). There are strategies to reduce the uncertainty (by learning about the environment via experiments, advice seeking, etc.), but they are costly and limited by time and cognitive constraints of the decision-maker and its organization. Therefore, organizations simply strive to avoid uncertainty (Cyert and March, 1963) when possible. And looking at the others and subsequently imitate their behavior is one of the ways to do it.

In this paper, we aim to review some of theoretical perspective on social influence on individual and organizational decision-making. From the breadth of theories, it is clear that social influences are prominent drivers of our decisions. Furthermore, we illustrate the topics with a case study of tax expert advice-seeking, where we show that not only social influence plays an important role, but it is often unacknowledged by decision-makers. The study, therefore, aims to contribute to the research on individual and organizational decision-making by stressing out the effect of social influence and that this effect should be assessed regardless of accounts of decision-makers who may not realize it.

1 Theory

1.1 Social influences on individual level

Social influence belongs to core principles of numerous theories of individual and organizational decision-making. Starting with the former (inspired highly by research in psychology and behavioral economics), the prominent concept describing social influence on decision-making is social proof. Social proof describes that "...we determine what is correct by finding out what other people think is correct," (Cialdini, 2000: 100). Cialdini (2000) summarizes that social proof is the most influential under two conditions – uncertainty of the situation and similarity of a social reference to the decision-maker. Also, authority of a reference person/group, is important (Rao, Greve, and Davis, 2001)

One specific type of consequences of social proof is the bandwagon effect, originating in political science. Simon (1954: 246) describes that the effect manifests "if persons are more likely to vote for a candidate when they expect him to win than when they expect him to lose...". However, the bandwagon effect is nowadays used in many other settings, describing that people behave in certain way just because other people behave like that.

There are numerous studies observing social influence in various contexts. For example, Rao, Greve, and Davis (2001) study analysts' initiation of securities coverage based on activities of other analysts. They find out that recent initiations of coverage by others increase likelihood that a focal analyst will initiate it as well.

It is important to note that social influence does not constitute a one-way learning process. Although we focus on the decision-maker's role as a recipient of information, it is just a small piece of a bigger collective learning that happens in the broader environment. Outcomes of collective learning can be both functional and dysfunctional. As Staber (2010) notes, collective learning is an area of multiple social biases including content-based bias (beliefs that are easier to remember or are coherent with others spread faster), model-based bias (increased attention to beliefs of those who are similar or of a high status), and frequency-based bias (the more frequent the belief is, the faster is likely to spread). As Cialdini (2000: 139) puts it: "...if a lot of people are doing the same thing, they must know something we don't. Especially when we are uncertain, we are willing to place an enormous amount of trust in the collective knowledge of the crowd. Second, quite frequently the crowd is mistaken because its members are not acting on the basis of any superior information but are reacting, themselves, to the principle of social proof."

When we acknowledge the collective learning aspect of social influence, it is easily prone to errors (remember famous experiments of Asch, 1952). Rao, Greve, and Davis (2001) show in their study of analysts' initiation of securities coverage that use of social proof not only leads to subsequent errors (overestimation of an analyzed firm's future performance), but also to post-decision regret leading to subsequent abandonment of securities' coverage. Post-decision regret describes the situation when a decision-maker finds out after making a choice that another alternative would be preferable, which induces sense of loss and regret (Bell, 1982). Post-decision regret is further amplified by overly high expectations of choices under uncertainty (as shown by Harrison and March, 1984).

1.2 Social influences on organizational level

On organizational level, social influence is not less prominent. It constitutes one of the major sources of organizational learning – Huber (1991) distinguish five types of knowledge acquisition:

- i. Congenial Learning – based on knowledge acquired prior or at the moment of conception of the organization
- ii. Experiential Learning – based on direct experience during the existence of the organization
- iii. Vicarious Learning – based on learning from practices of other organizations
- iv. Grafting – based on acquiring new organizational members with knowledge not previously possessed by the organization
- v. Searching and Noticing – based on intentional search and sensing of the environment

Although these types of learning are in largely substitutes to each other, experiential learning is arguably quite slow in a comparison to vicarious learning and grafting. In this sense, it involves much higher amount of uncertainty (and costs in resources and time to learn). This may result in avoiding this type of learning for non-core decisions such as the one we are interested in.

Vicarious learning is more accessible in less competitive markets (Huber, 1991) where other organizations are open to share their experience. Also, its usefulness is arguably a function of environmental stability and context-specificity of its content. Successful adoption of others' practices may be a source of superior organizational performance (as argued, for example, by practice-based view, Bromiley and Rau, 2014).

Lieberman and Asaba (2006) propose two categories of theories explaining inter-organizational imitation: information-based and rivalry-based theories. While in the former, imitated organizations are perceived to have superior information, in the latter the imitation is a tool of maintaining competitive parity. Based on characteristics of these categories, we are likely to observe rivalry-based imitation when two organizations rival each other (i.e., are in the same market, have similar resources and position, Lieberman and Asaba, 2006).

Among information-based theories, isomorphism or tendency of organizations to be similar represents one of the core propositions of (neo)institutional theory. DiMaggio and Powell (1983) explain this process as a result of three mechanisms: (i) coercive – formal and informal pressure from other organizations or the larger environment upon which the organization is dependent; (ii) mimetic – response to uncertainty and ambiguity may lie in adapting practices of the others; and (iii) normative – associated with professionalization, i.e. establishment of shared "cognitive base" on how things should be done in a given field.

It is necessary to separate the decision to adapt and subsequent success of adaption. However, these two concepts are still linked. Absorptive capacity of an organization (Cohen and Levinthal, 2000) influences its ability to recognize and adopt information from the others. This capacity is built by having related knowledge (so the new one fits into the cognitive map), innovative activities, etc. Thus, organizations that are better in absorbing new information should be also better in finding it.

Regarding rivalry-based theories, imitation motivated by competition mitigation grows in importance with growing resource base and market position similarities. Multimarket contact theory (Karnani and Wernerfelt, 1985) work with aggression and retaliation between rivaling firms across their points of contact. The decision to enter the other one's area may then cause retaliation in the form of entry of the other one into former one's area – increasing both firms' multimarket contact. In winner-takes-all environment (e.g., caused by large economies of scale), risk-minimization may explain why competing firms try to mimic each other decision in order to avoid risk of being marginalized. According to Lieberman and Asaba (2006), one of the prominent areas where this behavior flourish is a new market entry (or more specifically, foreign direct investments).

1.3 Other remarks on social influence

Most of the theories presented above share one factor causing social influence in common – uncertainty. While, for example, external pressure (DiMaggio and Powell, 1983) may be behind imitation of practices of others', observing decisions of others is frequently motivated by the aim to uncover an uncertain value of a particular choice. This observation may inform own rational decision-making or lead to its avoidance (by straightforward acceptance or rejection of a choice based on behavior of others).

It is important to note that imitation does not avoid uncertainty. Experience of others contain certain information, but this may be limited to specific contexts and/or subject to lags between adoption and negative outcomes (Lieberman and Asaba, 2006). However, this fact may not be entirely perceived by decision-makers.

Even when we renounce behavioral perspective, social influence may be adaptive under rational decision-making. Rao, Greve, and Davis (2001) describe the information cascade in which – when decision-makers do not have clear information on value of individual choices (reject or accept, for simplicity), they as Bayesian estimators update their information by observing the others. When the

others have taken the choice, the decision-maker may perceive that they observed value in it – and vice versa.

2 Case study

To illustrate the effect of social influence on decision-making, we provide anecdotal evidence from the market research. The case study stems from the research on expert advice seeking and its underlying factors. The case provided below is based on post-hoc analysis, which limits insight into individual explanations, yet it still provides compelling evidence on how much social influence is important.

Specifically, the market research focused on the use of professional tax advisors in the Czech Republic. Tax advisors are the only profession that is legally permitted to offer tax advice in the country. Tax advisors are bound to maintain confidentiality and are responsible for filling tax reports in their clients' sake. Also, they are the only professionals that can be insured against harm done to their clients regarding tax reporting. When an economic subject uses services of tax advisor, it has an opportunity to submit some tax reports later (e.g., three month later for yearly income reports).

The goal of the market research was originally the identification of factors leading to seeking tax advice. Based on pre-data collection interviews, it was assumed that "objective" factors, such as the level of complexity in subjects' taxes or the level of contact with the tax office, will play the major role. However, at the end, the conclusion was that "objective" factors represents only one part of the story, with a social proof explaining important part of the adoption level.

Data are based on phone-based survey with 317 respondents randomly selected to represent the population of commercial subjects in the Czech Republic with turnover between 5-100 million CZK (approximately 0.2-3.9 million EUR on 2018's exchange rate) that are registered to pay value-added tax. The randomness of the sample was then checked against population statistics (Czech Statistical Office) in terms of turnover and home region distribution. Response rate was 60 % with most respondents being either business owners or C-level managers. The survey was conducted by market research company B-inside.

2.1 Characteristics of those seeking and not seeking the advice

For the purpose of the analysis, we divide the dataset into two groups of subjects: (i) subjects in regular or irregular contact with its tax advisor ("advice-seekers", representing 61% of the sample) and, (ii) subjects that do not use services of tax advisors ("self-reliants", representing 39% of the sample). Generally, advice-seekers are bit larger subjects in terms of number of employees and turnover (see Table 1), however their legal status does not play a role.

Table 1 Subject size characteristics for both groups and the full sample

	Self-reliants	Advice-seekers	Full sample
0-9 employees	47%	53%	100%
10-24 employees	34%	66%	100%
25-49 employees	26%	74%	100%
50+ employees	25%	75%	100%

	Self-reliants	Advice-seekers	Full sample
5-9 mil. CZK	44%	56%	100%
10-29 mil. CZK	42%	58%	100%
30-99 mil. CZK	31%	69%	100%

Source: B-inside

Since responsibilities, obligations and rights connected to the role of tax advisors may be clouded to some decision-makers, the research assessed whether there are differences in their knowledge between advice-seekers and self-reliants. The idea was that a low level of knowledge inhibits interest in seeking tax advice services. Respondents were inquired whether tax advisors are bound to maintain confidentiality, whether they are legally responsible for correct calculation of taxes and

whether accountants (professionals that are arguably the closest to tax accountants in the eyes of general population) can be insured against harm done to their clients regarding tax calculation. Asked on 5-point Likert scale (Certainly yes – certainly no), only one respondent was able to correctly answer all three questions with full certainty. Surprisingly, there is no significant difference between the two categories.

2.2 Reasons for seeking advice

As stated earlier, the original study's presumption had been that "objective" factors would play the key distinguishing role between self-reliants and advice-seekers. One of the core presumptions was that advice-seeking increases with size of an economic subject. This is clearly supported by sample's descriptive statistics in Table 1 as the share of advice-seekers gradually increases with size both in terms of employees and turnover. Regarding tax-specific factors, the level of contact with the tax office was assumed to be a major driver of advice-seeking.

Table 2 Contact with the tax office

	How often do you need to react on questions from the tax office (per year)?		How many times you have been controlled by the tax office (in previous five years)?	
	Self-reliants	Advice-seekers	Self-reliants	Advice-seekers
Not at all	11%	7%	40%	35%
1-2 times	66%	53%	54%	54%
3-5 times	19%	24%	4%	8%
More than 5 times	4%	16%	2%	3%
Total	100%	100%	100%	100%

Source: B-inside

Assessing whether more frequent contact with the tax office (either in form of questions regarding reports or direct controls – Table 2) leads to a higher use of tax advisors, we can see that only in the case of high frequency of questions from the tax office, the two groups distinctively differ (4% of self-reliants vs. 16% of advice-seekers are questioned more than five times per year). It seems that there is some association between the contact with the tax office and having tax advisors, but it is arguably not very strong one. Outside the level of contact with the tax office, advice-seekers have to deal with a higher level of tax specifics than self-reliants (21% vs. 4%). Yet again, this factor does not seem to solely explain advice-seeking.

Table 3 Advice-seekers: Explicitly stated reasons for seeking tax advisers' services

	5-9 mil. CZK	10-29 mil. CZK	30-99 mil. CZK	All advice-seekers
Assurance that everything is done properly	44%	24%	28%	33%
Complex tax situations that are not known by a subject	21%	22%	15%	20%
Consulting	12%	5%	6%	8%
Previously occurred problems	2%	6%	10%	6%
Later submission of tax reports	3%	9%	4%	5%
Legally required	0%	9%	5%	5%
Our account became a tax advisor	2%	5%	4%	3%
Growth of the firm	2%	5%	4%	3%
Tax and tax reporting optimization	3%	5%	2%	3%
Owner's requirement	3%	0%	4%	2%
It is a standard	0%	1%	2%	1%
Other	7%	9%	18%	11%
Total	100%	100%	100%	100%

Source: B-inside

When explicitly asked on the reasons why advice-seekers started to use tax advisors (Table 3; the question was open and reasons were later categorized), the major reason is assurance that taxes reports are done properly. This reason is more important to the category of the smallest subjects in the sample – arguably ones that have the least broad support in accounting and tax matters (limited number of specialists employed by the firm internally or externally). This is supported by the fact that this category seeks tax advice also because of complex tax situations that the subjects can't handle by themselves. In comparison, the category of the largest subjects (30-99 million CZK in turnover) has the reasons much more evenly distributed (excluding "other", the two major reasons constitute 43%, compared with 64% in the case of the category of the smallest subjects).

Table 4 Self-reliants: Explicitly stated reasons for seeking tax advisers' services in the future

	5-9 mil. CZK	10-29 mil. CZK	30-99 mil. CZK	All self-reliants
Complex tax situations that are not known by a subject	72%	44%	53%	56%
Growth of the firm	9%	15%	8%	12%
Assurance that everything is done properly	3%	6%	3%	4%
We already need an advisor	4%	0%	3%	2%
Later submission of tax reports	0%	1%	0%	0%
Other	4%	5%	8%	5%
I don't know; nothing	8%	30%	25%	21%
Total	100%	100%	100%	100%

Source: B-inside

When the group of self-reliants has been asked what could lead them to seek advice in the future (Table 4), the assurance that taxes reporting is done properly plays a minimum role. This does not fit the group of advice-seekers – either because this benefit is appreciated later on (nevertheless, no big difference in knowing legal obligations of tax advisors between the two groups counters this explanation) or because subjects that perceive uncertainty in tax matters already decided to seek advice to avoid the unpleasant situation. In the case of self-reliants, the major reason are potential complex situations that subjects cannot handle by themselves (the response is bit less common with increasing turnover yet remains frequent). Beside that there is a big group that does not perceive the need or reasons to ever seek tax advice (21% in total).

2.3 The role of social influence

So far, it seems that the contact with the tax office is somehow higher in the group of advice-seekers, as well as complexity of tax matters and certainly the calming feeling associated with avoiding uncertainty regarding taxes. It is important to remember that the question on factors for seeking tax advice was open, meaning that subjects stated factors with which they justify the decision. In none of these responses they mentioned social influence (e.g., "Somebody recommended me to seek advice.").

Table 5 Role of a social proof (i.e., whether an economic subject knows somebody else who use tax advisory services)

	Self-reliants	Advice-seekers	Full sample
Without a social proof	52%	48%	100%
With a social proof	32%	68%	100%
Total	100%	100%	

Source: B-inside

However, when we cross-tabulated these two groups with the question whether they know somebody who use tax advisory services (Table 5), the evidence paints bit different picture. When the respondents do not know anyone else using a tax advisor (they do not have a social proof), there is

an almost even chance that the subject itself is using one. On the other hand, with a social proof, two thirds of economic subject have a tax advisor. Stated otherwise, having a social proof increases the proportion of advice-seekers by almost a half. The social influence is likely to be strong, although we cannot distinguish the exact mechanisms under which it influences the decision and how it interacts with other factors we identified earlier.

Table 6 Advice-seekers: Explicitly stated reasons for seeking tax advisers’ services (social proof)

	Without a social proof	With a social proof	All advice-seekers
Assurance that everything is done properly	23%	36%	33%
Complex tax situations that are not known by a subject	21%	20%	20%
Later submission of tax reports	14%	3%	6%
Previously occurred problems	10%	5%	6%
Consulting	8%	8%	8%
Legally required	8%	4%	5%
Tax and tax reporting optimization	6%	3%	3%
Owner's requirement	3%	2%	2%
It is a standard	2%	1%	1%
Our account became a tax advisor	0%	2%	1%
Growth of the firm	0%	4%	4%
Other	5%	12%	10%
Total	100%	100%	100%

Source: B-inside

Nevertheless, in order to shed some light on these mechanisms, we analyze the differences in explicitly stated reasons for seeking tax advice in relation to having or not having a social proof (Table 6 – note that slight differences in full sample numbers from Table 3 are caused by missing data). What is interesting, for subjects with a social proof, reduced uncertainty plays an important role (assurance that everything is done properly being factor with 36% share vs. 23% in the other group). This may be linked with the level of contact with the tax office (Table 7). For the more frequent contact with the tax office, the subjects with a social proof seek advice more often than when they do not have it (25% vs 44% in case of responding to tax office questions 3 times and more in a year; 3% vs. 13% in the case of tax office controls 3 times and more in the last five years). In these cases, there is no big difference between self-reliants and advice-seekers without a social proof. Therefore, it looks like that a social proof may indeed serve a role of an evidence that tax advice reduces uncertainty regarding taxes (which it does in the reality).

Table 7 Contact with the tax office (social proof)

How often do you need to react on questions from the tax office (per year)?			
Group	Self-reliants	Advice-seekers	Advice-seekers
Social proof	Both	No	Yes
Not at all	11%	4%	8%
1-2 times	65%	71%	48%
3 times and more	24%	25%	44%
Total	100%	100%	100%

How many times you have been controlled by the tax office (in previous five years)?			
Group	Self-reliants	Advice-seekers	Advice-seekers
Social proof	Both	No	Yes
Not at all	40%	31%	36%
1-2 times	55%	66%	50%
3 times and more	5%	3%	13%
Total	100%	100%	100%

Source: B-inside

While questions and controls from the tax office may not automatically lead to negative consequences, advice-seekers without a social proof encountered more often tax problems (10% vs. 5%). Also, they seem motivated by a later submission of tax reports (14% vs. 4%), well popularized benefit of having a tax advisor. It seems that when a strong negative incentive (previous problems with taxes) or a good knowledge of a benefit (later submission of a tax report) are present, they compensate for the need of a social proof.

Regarding post-decision regret, we find no evidence of it. Although the mean satisfaction with tax advisor's services is on average higher for subjects without a social proof (9.13 out of 10, vs. 8.93 out of 10), the difference is not significant (p-value 0.186). Additionally, Net Promoter Score ("Would you recommend tax advisory services for economic subjects of similar size?") for tax advisory services is considerably high with 77% of respondents being promoters, 17% passive and only 6% detractors.

Although not stated among reasons why subjects seek tax advice, social networks play a key role when searching for an advisor. First choice of 62% of respondents is to approach a tax advisor they know, or ask their accountant, colleagues or friends.

3 Discussion

It is true that social networks are the core arena for searching for a tax advisor. However, searching represents the follow up activity after the decision to seek advice. Our data clearly shows that the social network is not used only for search but also influences the previous stage, decision-making. It is clear that a decision whether to seek a tax advice has an element of response uncertainty (unclear value associated with seeking advice; Miliken, 1987). Social influence may be informational in this context and help an economic subject to bridge this uncertainty.

What is striking is the unacknowledgement of a role of social influence by respondents. People tend to post-rationalize their decisions, so they may perceive knowing others as a weak reason why to use a tax advisor. Also, the social network may be used to deliver information on factors explicitly stated later on ("I have an advisor and, therefore, I can be sure that my taxes are calculated properly."). Yet, the respondents were asked openly, without being limited to a choice out of pre-selected categories.

Consequently, we suggest that it is important to acknowledge social influence in researching decision-making. Especially when quantitative data collection tools are used (e.g., survey), factors used in post-rationalization may obscure true underlying factors. Arguably the best solution before such a quantitative study is to inform the research with a qualitative pilot of a given decision-making

situation. Yet, even then research may not uncover these factors when it relies solely on respondents' accounts and do not actively seek for certain behavioral principles. The behavioral sciences literature (e.g., stream on biases and heuristics, Kahneman, Tversky and Slovic, 1982) provides informational insights into human decision-making. We believe that its knowledge and informed application (not all principles are as strongly present on every occasion) is important for any research studying decisions. Without the good command of it, factors as social influence may easily escape researchers' attention, which decreases the value of subsequent findings.

The fact that we have not found any evidence of post-decision regret (e.g., Rao, Greve and Davis, 2001) does not counter this concept from our point of view. It appears that tax advisors are generally perceived as helpful, which is implied by high levels of both satisfaction with services and Net Promoter Score. Therefore, it seems that social influence is pointing to a beneficial decision while not overly increasing expectations (as suggested by Harrison and March, 1984).

Since our case study represents post-hoc analysis of data collected for different purposes, it is limited in its insights into mechanisms leading to the decision to seek tax advice or not. Mainly, we show results that indicate association, not causality between social proof and advice-seeking. Nevertheless, we believe that it is highly inspirational for further research, and more important, it shows that social influence is one of the major contributors to this decision.

Conclusions

In our study, we summarize the role of social influence on individual and organizational levels of decision-making. Social influence (under different names) plays a key role in a number of theories and our anecdotal evidence supports this fact. On the sample of economic subjects from the Czech Republic, we study the decision to seek tax advisors' services. We find numerous – but rather weak – explicitly stated reasons why subjects seek advice. Besides that, we also identify social influence, fully unacknowledged by respondents as a part of the decision, to play an important role.

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Differences in CSR reporting between parent and subsidiary companies

Markéta Kleinová¹, Klára Kašparová²

¹ Masaryk University
Faculty of Economics and Administration, Department of Corporate Economy
Lipová 41a, 602 00 Brno, The Czech Republic
E-mail: 461851@mail.muni.cz

² Masaryk University
Faculty of Economics and Administration, Department of Corporate Economy
Lipová 41a, 602 00 Brno, The Czech Republic
E-mail: klarad@econ.muni.cz

Abstract: *The objective of this research was to identify the differences in CSR reporting between parent and subsidiary companies in the dairy industry. Due to the different institutional contexts and different experiences with CSR reporting, French companies were chosen as the parent companies and Czech companies as the subsidiaries. In total, the authors looked at six reports using content analysis. The results demonstrate that the reports of the French parent companies are significantly longer than the Czech ones, graphs are included, they are published in French and English, they have search features, and they are posted on their websites. The parent companies provide much more information about their corporate social responsibility behaviour than their subsidiary companies, and they are also much better at fulfilling the criteria for evaluating the credibility and quality of the report. And unlike their subsidiary companies, their reports also deal with all of the topics listed in GRI Standards.*

Keywords: *CSR disclosure, CSR report, parent company, subsidiary company, France, the Czech Republic*

JEL codes: *M14, Q01, M31, G34*

Introduction

Companies today are faced with increasing demands to publish information about the social and environmental impact of their economic activities. The CSR report can be seen as a means by which companies explain to their shareholders how the principles of CSR have been integrated into their everyday practice and how successful they have been (Moravcikova et al., 2015). Research has shown that the creation and publication of CSR reports has a positive effect on a company's reputation and financial results (Margolis et al., 2009; Plumlee et al., 2010; Yusoff, Mohamad and Darus, 2013). However, a company only acquires these advantages when the key information which is relevant to stakeholders is included in these reports, and when the information provided is published in a suitable format and audited by an independent third party (Charlas, 2012).

Earlier studies on CSR reporting showed that individual countries have a strong influence on the level of reporting on socially responsible behaviour (Wanderley et al., 2008, Waddock, 2008, Young & Marais, 2012). The European Union is one of the most active regions in the world for publishing CSR reports (KPMG, 2017), though even here there are obvious differences in reporting as a result of different legislation (Wolniak & Hąbek, 2016). While France is one of the countries with the highest levels of CSR reporting, the Czech Republic is still among those countries with below-average values, despite an upward trend (Blasco et al., 2017).

However, France's strong position in reporting is not surprising. As early as 1977, it introduced compulsory reporting (Law on Social Reporting, Article L. 438-1) on employment-related matters (Berthoin Antal and Sobczak, 2007). The New Economic Regulation (NRE) Act of 2001 expanded the scope of reporting and since 2002 companies listed on the French stock market have had to provide social and environmental information in their annual reports (Berthoin Antal and Sobczak, 2007). Since 2013 and the Grenelle Acts, this has been compulsory for all large companies with more than 500 employees active in France (Kaya, 2016). The companies' reports also have to be verified by an independent third party to confirm the accuracy of the information provided.

In the Czech Republic, reporting on socially responsible behaviour has only been compulsory since 2017 with the implementation of the European directive no. 2014/95/EU into the Accounting Act and the Capital Market Undertakings Act (Dušek, 2017). As in France, this is only compulsory for large companies with more than 500 employees. However, due to additional criteria (property of at least half a billion CZK or a net turnover of at least one billion CZK, while the company also has to be a public interest entity), only a very small number of companies are subject to this legal obligation. However, even before this amendment, the Accounting Act required accounting entities which produced annual reports to also include non-financial information. This mainly includes providing information concerning the predicted development in the entities' activities, activities in research and activities in environmental protection and labour relations (Accounting Act, § 21, paragraphs 1 and 2). At present, this is only compulsory for large accounting entities (Act no. 563/1991 Coll., § 21, paragraph 3). These reports also have to be audited. The Capital Market Undertakings Act also contains requirements that issuers of securities – which are large accounting entities according to the Accounting Act – provide information in their annual reports about the implementation of diversification policies and the results of this implementation (Act no. 256/2004, § 118, paragraph 4).

Due to the different environments and traditions, the authors attempted to identify differences in CSR reporting between parent companies based in France and their subsidiary companies based in the Czech Republic. The authors examined the differences in format and content. As a result, two research questions (RQ) were chosen:

RQ1: Do the reports referring to the socially responsible behaviour of parent and subsidiary companies differ in the form of the reports?

RQ2: Do the reports referring to the socially responsible behaviour of parent and subsidiary companies differ in the content of the reports?

1 Methodology

Content analysis was used to carry out the objective and answer the research questions. The advantage of this method is that it examines reality without interfering in it. The disadvantage, however, is that it presents what a particular company says about itself in the document under analysis and not about what it is in fact doing. The authors used a quantitative content analysis (Landrum and Ohsowski, 2017) to ascertain the occurrence of references to the relevant themes in the documents under analysis.

Two coders coded the documents to ensure research reliability. Prior to the start of the research, the authors checked their knowledge of English to be at a B2/C1 level, which indicates the sufficient ability to understand academic texts (SERR, 2002). This was necessary as they were coding both Czech and English documents. After coding, the inter-coder reliability was ascertained using the Miles and Huberman model (Miles and Huberman, 1994 in McAlister et al., 2017). The reliability was set at a minimum of 85% following the recommendation by McAlister et al. (2017). Inconsistency was resolved using a code which was jointly selected on the basis of discussion.

$$\text{reliability} = \frac{\text{number of agreements}}{\text{number of agreements} + \text{number of disagreements}}$$

1.1 Coding Schemes

The format and content were evaluated from several perspectives. The format was evaluated based on the type of report, its length, the inclusion of graphics and the manner of publication. The content was evaluated based on the number and range of topics, and the credibility and quality of the report.

The topics and categories observed are shown in Table 1. It presents a simplified, modified form of the GRI Standards, which, according to Blasco et al. (2017), is the most popular method for processing non-financial reports both in France and the Czech Republic. For the topics, the authors selected only the GRI 102 General Disclosure 2016 from the Universal Standards, as it is the only one which examines the topics the report should contain. Topic-specific standards were kept in full: i.e. the research also looked at economic, environmental and social topics. The simplification and modification of the GRI Standards 2016 for categories was based on combining some of these (e.g. the category Ethics and Integrity with the category Governance, the category Emissions with the category Effluents and Waste, and some GRI 400 categories relating to employees under the one

category of Employees), or reducing them (e.g. the category Reporting Practice in General Disclosure, which is not related to the topic of CSR but to the technical data of the report, such as reporting cycle or reporting period, and the category Biodiversity due to its low relevancy to the companies in question). The concept of semantic unit was introduced to monitor the scope. This indicated the occurrence of references about the given topic, ranging from several words to a full sentence.

Table 1 Coding scheme – topics and categories

Topic	Categories
General disclosure	Organizational profile
	Strategy
	Governance
	Stakeholder engagement
Economic pillar	Market presence
	Anticorruption and anti-competitive behavior
Environmental pillar	Materials
	Energy
	Water
	Emissions and effluents
Social pillar	Employees
	Human rights
	Local communities
	Customer health and safety
	Marketing and labeling

Source: Authors based on GRI Standards DC

The authors adopted the categories of evaluating the credibility of the report from the CorporateRegister.com (2013). The categories of evaluating the credibility of the report were adopted from the KPMG methodology (King et al., 2015) with certain modifications. Unlike KPMG, the authors included the categories “Target and Indicators” and “Transparency and Balance” in the category “Corporate Responsibility Governance” due to their closeness in meaning. At the same time, they divided the category “Risk and Opportunity” into separate categories. In the same way they divided the category “Suppliers and Value Chain” – ascertaining the environmental and social impacts of the value chain – into the separate categories “Impacts of the products and services” and “Impact of the suppliers”. The terms for the categories used are shown in Table 2.

Table 2 Coding scheme – credibility and quality

Credibility	Quality
Bad news	Stakeholder engagement
CSR data and targets	Materiality
Standards and assurance statement	Risk
Stakeholder voices	Opportunity
Badges and awards	Impacts of products and services
Contact	Impacts of suppliers
	Corporate responsibility governance

Source: Authors based on CorporateRegister.com (2013) and King et al. (2015)

1.2 Research sample

In terms of the research objective, the authors looked for firms fulfilling the condition that the parent company was in France, and the subsidiary company was in the Czech Republic. The authors made this selection based on the assumption that reporting by French parent companies would be more sophisticated than by Czech subsidiary companies due to the institutional context and tradition. The authors also assumed that due to the superiority and dependence relationship between the parent and subsidiary companies, Czech subsidiary companies would also report on CSR to a relatively larger extent if the French parents operated in that way. The research was limited to companies from the dairy industry.

The authors were unable to find a complete list of milk processors in the Czech Republic whose ownership structure could be verified. As a result, they used the IFCN Top 20 list of milk processors from the International Farm Comparison Network, which identifies the largest milk processors in the world based on their market share (IFCN, 2018). Companies were subsequently identified whose origin and main operation is in France. In this way the companies Groupe Lactalis, Danone, Groupe Sodiaal, Savencia and BEL SA were identified.

Further analysis, however, showed that Groupe Latalis is part of a Belgian holding (Violette, 2019). As the influence of the specific country on the level of CSR reporting is strong (Wanderley et al., 2008, Waddock, 2008, Young & Marais, 2012), this company was excluded from further research to prevent any possible risk of distorting the results. The authors examined the remainder to discover if they had subsidiary firms in the Czech Republic. The research showed that all of them have subsidiary companies in the Czech Republic. However, unlike the others, the subsidiary company Groupe Sodiaal was unusual because it specialised in only one product – whey (Kohout, 2011; Euroserum, 2016). As a result, it was also excluded from subsequent research. Based on the number of employees, all of the parent firms fall into the category of large firms (FT, 2019). Two of the subsidiary companies fall into the category of medium-sized firms (Danone a.s. and BEL sýry Česko a.s.), and one (Savencia Fromage & Dairy Czech Republic, a.s.) into the category of large firms (Kurzy.cz, © 2000 – 2019).

Table 3 research sample

Parent companies	Subsidiary companies
DANONE SA	Danone a.s.
Savencia SA	Savencia Fromage & Dairy Czech Republic, a.s.
BEL SA/Fromageries Bel SA	BEL sýry Česko a.s.

Source: Authors

The research sample eventually consisted of 6 reports – see Table 3. The authors understood a CSR report to mean both a separate CSR report and an integrated report or annual report. In the case of the annual reports the authors only analysed the text – the analysis did not include tables with purely financial data or their commentary up to 1 sentence long. The authors determined the existence of the reports solely from online sources. Reports from 2017 were analysed. The reports of the French companies were analysed in English due to the language skills of the coders, and the Czech reports in Czech.

2 Results

The following section presents the results from the content analysis. This section is divided into two subchapters in accordance with the research questions. In the first, the authors will refer to the results relating to the differences in the format of the reports; in the second, the differences in the content of the reports are examined.

2.1 Format of the reports

The format was evaluated based on the type of report, its length, the use of graphics and the manner of publication. The results are summarized in Table 4. The results of the content analysis show that both parent and subsidiary companies most often choose annual reports to inform stakeholders about their socially responsible behaviour.

Table 4 format of the reports

Company	Country	Type of report	Length	Graphics	Publication
DANONE SA	France	Annual report	74/70	Yes	Website (pdf + digital publication)
Danone a.s.	The Czech Republic	Annual report	32/20	No	Public register (scanned pdf)
Savencia SA	France	Annual report	74/63	Yes	Web (pdf + digital publication)
Savencia Fromage & Dairy Czech Republic, a.s.	The Czech Republic	Annual report	29/15	No	Public register (scanned pdf)

BEL SA/Fromageries Bel SA	France	Stand-alone report	54/50	Yes	Website (pdf)
BEL sýry Česko a.s.	The Czech Republic	Annual report	71/33	No	Public register (scanned pdf)

Source: Authors based on companies' reports

However, we do find differences with the length of the report. The first number in Table 4 in the length column indicates the overall number of pages of the report, the second shows the number of pages of text excluding tables containing financial data, without commentaries longer than one sentence and without the list of controlling/cooperating firms. From the second number, in particular, it is clear that the reports from the French parent companies are considerably longer. That length, however, is compensated for by the attractiveness of the graphs (most of the information is presented in the form of pictures or graphs with pictograms and commentary). This is lacking in the reports from all of the Czech subsidiary firms. Their reports only contain text, which is often very dense.

Another important difference is that the French parent companies post their reports on their websites in both French and English. The Czech subsidiary companies fulfil their legal obligations (Act no. 304/2013 Coll.) and only post their reports on the public register. This is also evidently the reason why they are only in Czech. Neither do the subsidiary firms refer to the CSR reports created by their parent companies on their websites or in their annual reports. The final difference is in the type of the chosen document. Although all of the firms selected Adobe Portable Document Format, there is only a search option in the French reports. The Czech reports are only a scanned copy of a different format transferred onto a pdf. file.

2.2 Content of the reports

The content was evaluated in terms of the number and range of themes (topics and categories), and the credibility and quality of the report. The research results are presented within this structure. Table 5 shows the occurrence of the themes and the range which is given to them in the companies' reports. The range was monitored using the occurrence of the semantic unit. This was defined as providing information about a given category ranging from several words to a full sentence. The column labelled F indicates the report of the appropriate French firm, CZ for the report of the Czech firm.

Table 5 topics and categories included in the reports

Topics	Categories	Danone		Savencia		BEL	
		F	CZ	F	CZ	F	CZ
General disclosure		27.2%	29.1%	18.8%	57.1%	29.6%	48.8%
	Organizational profile	45	10	26	11	28	15
	Strategy	30	3	14	1	30	1
	Governance	17	2	16	0	29	3
	Stakeholder engagement	40	1	34	4	46	1
Economic pillar		7.6%	7.3%	6.5%	7.1%	5.6%	14.6%
	Market presence	36	3	16	2	14	2
	Anticorruption and anti-competitive behavior	1	1	15	0	11	4
Environmental pillar		24.5%	3.6%	35.3%	3.6%	29.2%	4.9%
	Materials	44	0	36	0	26	0
	Energy	8	0	30	0	22	0
	Water	21	0	34	0	10	0
	Emissions and effluents	46	2	69	1	73	2
Social pillar		40.6%	60.0%	39.5	32.1%	35.6%	31.7%
	Employees	35	26	76	9	31	11
	Human rights	8	0	16	0	29	0

	Local communities	48	7	47	0	42	1
	Customer health and safety	57	0	28	0	34	0
	Marketing and labeling	49	0	22	0	24	1
Total number of content units		485 (100%)	55 (100%)	479 (100%)	28 (100%)	449 (100%)	41 (100%)

Source: Authors based on companies' reports

Table 5 shows that there are large differences in the range of information provided on socially responsible behaviour between the parent companies based in France and the subsidiaries in the Czech Republic. The parent companies provide information in absolute terms on average eleven times more than their subsidiaries. From the difference as a percentage, however, it emerges that for economic and social aspects of CSR, the parent and subsidiary companies refer to these to approximately the same extent. The Czech subsidiary companies even provide more information on general disclosure (in particular for the category of the organizational profile). On the other hand, they provide substantially less information on the environmental aspect than their parent companies.

The results of the analysis also show that there are differences between the companies in the choice of categories which their reports provide information on. The French parent companies provide information on all of the categories monitored. This is because the coding scheme was created using the simplified GRI Standards, which are used by both Danone and Savencia when compiling their reports. Although BEL produces its reports according to the UN Global Compact, due to its alignment with GRI (GRI, n.d.), this choice does not result in differences in the report's categories. Czech subsidiary companies fail to provide information in their reports on their activities and their impact on the environment in the categories for materials, energy and water. For the social aspects they also ignore human rights and the influence of their activities and regulations on the protection of the health and safety of their customers.

When assessing the credibility of the reports, the authors used criteria formulated by CorporateRegister.com (2013). This identifies the topics which should appear in every credible report. The results of the content analysis are shown in Table 6. The column labelled F indicates the report from the appropriate French firm, CZ for the Czech firm. The numbers present the amount of occurrence of information on a given topic. The results show that there are also differences here between the parent companies and the subsidiaries. The French parent companies basically deal with all of the topics, albeit to different extents. The Czech subsidiaries mainly provide information on standards awarded and assurance statements. Surprisingly, they do not provide any information on badges and awards or listening to the stakeholders' voices. Also, the scope of provided information from the Czech companies is substantially lower than from their parent companies.

Table 6 credibility of the reports

Topics	Danone		Savencia		BEL	
	F	CZ	F	CZ	F	CZ
Bad news	0	0	6	1	1	2
CSR data and targets	51	0	18	1	50	2
Standards and assurance statement	5	3	21	2	19	2
Stakeholder voices	42	0	9	0	5	0
Badges and awards	20	0	23	0	7	0
Contact	7	0	2	1	4	0

Source: Authors based on companies' reports

When assessing the quality of the reports, the authors used an adapted version of the KPMG methodology (King et al., 2015). This identifies the topics which should appear in every high-quality report. The results of the content analysis are presented in Table 7. The column marked F indicates the report from the appropriate French firm, CZ for the report from the Czech firm. The numbers indicate the amount of occurrence of information on a given topic. The results show that there are also differences here between the parent and subsidiary reports. Again, the French parent companies

basically deal with all of the topics monitored, albeit to different extents. The Czech companies only provide information on stakeholder engagement and the social and environmental risks arising from their activities. Also, the scope of information provided by the Czech companies is significantly lower than by the parent companies.

Table 7 quality of the reports

Topics	Danone		Savencia		BEL	
	F	CZ	F	CZ	F	CZ
Stakeholder engagement	39	1	33	3	46	1
Materiality	0	0	27	0	23	0
Risk	24	1	33	2	17	2
Opportunity	9	0	14	0	12	0
Impacts of products and services	35	0	19	0	23	0
Impacts of suppliers	9	0	26	0	13	0
Corporate responsibility governance	7	0	15	0	14	0

Source: Authors based on companies' reports

Conclusions and discussion

The objective of the research was to identify the differences in CSR reporting between parent and subsidiary companies. The authors chose two very different countries for their research. The first was France, where the reporting of non-financial information has a long tradition. The second was the Czech Republic, where despite the fact that the publication of this information has been regulated for some time by the Accountancy Act, a focus on the importance of non-financial reporting only began in 2017. Due to the fact that the relationship between the parent and subsidiary company is based on a superiority and dependence relationship, the French companies were chosen as the parent companies, where the probability of CSR reporting was greater. The authors also assumed that despite the different institutional context, the parent companies would enforce this type of reporting on their subsidiary companies.

The research results show that the reports from the parent and subsidiary companies differ in both format and content. It would, therefore, appear that the French parent companies do not require this type of reporting from their subsidiary companies. This is despite the fact that their own reports fulfil the requirements for high-quality and credible CSR reports and also show a good knowledge of the issue in question. A question for further research would be the reason for this decision. One explanation might be that Czech companies do not at the moment understand the advantages of CSR reporting and do not require this type of reporting, thus it is logical that companies do not publish these reports. Another reason might be that French parent companies only publish these reports because of legal obligations and fail to see the resulting advantages. Logically, therefore, they do not request the publication of reports by their subsidiary companies if the law does not require them to. Another reason might be that the parent companies only monitor the short-term financial performance of their subsidiary companies, leaving the rest of the competencies associated with management to the subsidiary companies. Due to their focus on short-term objectives, they fail to see the potential of CSR reporting.

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Performance of the Slovak and Czech Enterprises Focused on Audiovisual Arts and Music

Mária Kmetý Barteková¹, Helena Majdúchová²

¹ University of Economics in Bratislava
Faculty of Business Economy, Department of Business Economy
Dolnozemska cesta 1, 852 35 Bratislava, Slovakia
E-mail: maria.bartekova@euba.sk

² University of Economics in Bratislava
Faculty of Business Economy, Department of Business Economy
Dolnozemska cesta 1, 852 35 Bratislava, Slovakia
E-mail: helena.majduchova@euba.sk

Abstract: *The aim of our contribution is to analyse the performance of Czech and Slovak enterprises providing audiovisual arts and music. The category named audiovisual arts and music consists of the following activities: motion picture, video and television programme production, sound recording and music publishing activities. The situation of the film industry did not begin to develop substantially until after the end of the First World War and the establishment of an independent Czechoslovak Republic. Post-war euphoria gave a boost to all of Czech society, including film. New film companies were formed and the first professional studios were established. Ambitious projects were begun based on Western models. Mostly, we used the data available from the various statistical databases. Our results provide empirical evidence of the positive role of creative industries in economic development of the both countries, Czech and Slovak Republic. However, the lack of access to finance and to market can hinder the development of audiovisual arts and music. The paper contains only the partial results of our research.*

Keywords: *Audiovisual arts, Creative industries, Economic Growth, Music, Performance*

JEL codes: *E69, Z10, Z11*

Introduction

In this new digital economy, immaterial value increasingly determines material value, as consumers are looking for new and enriching "experiences" (Coulson, 2012). The ability to create social experiences and networking is now a factor of competitiveness (Domenech et. al., 2014). There is a lot of untapped potential in the cultural and creative industries to create growth and jobs. To do so, Europe must identify and invest in new sources of smart, sustainable and inclusive growth drivers to take up the baton (Boix and Soler, 2017). Much of our future prosperity will depend on how we use our resources, knowledge and creative talent to spur innovation (Haynes and Marshall, 2017). Building on our rich and diverse cultures, Europe must pioneer new ways of creating value-added, but also of living together, sharing resources and enjoying diversity (Cerisola, 2019, McGuigan, 2010).

In the Slovak Republic, there is no official definition of the "cultural and creative industries" provided in either legislative or cultural policy documents. In acceding to the 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions, one could argue that the Slovak Republic has officially accepted the definition of cultural and creative industries as provided by the UNESCO.

Definition of the cultural and creative sector provided by the Czech Ministry of Culture is following: "Cultural and creative sectors (CCSs) include activities which are based on human creativity, skill and talent. CCSs are based on cultural values, and artistic and creative expression. They have the potential to create wealth and jobs, in particular by using intellectual property." The outputs of the CCSs' activities contribute with their added value to other economic sectors and can be a source of technological and non-technological innovation (creative and digital economy). CCSs have many other positive impacts on society and the specific individual (O'Connor, 2000, Farr-Wharton and Brown, 2015).

The Slovak Film Commission as the unit of the Audiovisual Fund is the main public funding institution for the Slovak audiovisual culture and industry. The aim of the Commission is to support the entire

film value chain - development, production, distribution and promotion of audiovisual works, cinemas, festivals, research, training activities, innovations and technologies. Recipient of financing from the Commission shall be individual or legal entity registered in the Slovak Republic.

In the Czech Republic, the largest volume of investment into film production is concentrated in the sector of foreign location and service production, i.e. providing production services for incoming foreign producers, rather than producing Czech films (The Czech Film Fund, 2019). Such service production companies, which profit from the so-called rebates provided by the Czech Film Fund (CFF), only rarely invest in Czech films. The only influence these service providers have on the local industry is the general development of infrastructure and the hiring lower- and medium-level crew workers, who bring experience with foreign work methods into Czech film. However, this sector has hardly any influence on screenwriting and project development. The biggest players among domestic producers are primarily reliant on three dominant sources of funding: The CFF (whose prime recipients are producers of arthouse projects), Czech Television (companies more closely tied to CT are those who develop television series as well as films), and private television companies (whose strongest partners are the producers of commercial projects).

Audiovisual arts and music as the economic sector consist of film, video, TV, radio, Internet podcasting and music.

1 Methodology

Pearson's product moment correlation coefficient is denoted as ρ for a population parameter and as r for a sample statistic. It is used when both variables being studied are normally distributed. This coefficient is affected by extreme values, which may exaggerate or dampen the strength of relationship, and is therefore inappropriate when either or both variables are not normally distributed. The correlation coefficient, denoted by r , is a measure of the strength of the straight-line or linear relationship between two variables. The well-known correlation coefficient is often misused, because its linearity assumption is not tested. The correlation coefficient can – by definition, that is, theoretically – assume any value in the interval between +1 and –1, including the end values +1 or –1.

The formula (1) basically comes down to dividing the covariance by the product of the standard deviations. Since a coefficient is a number divided by some other number our formula shows why we speak of a correlation coefficient.

$$r_{XY} = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2} \sqrt{\sum_{i=1}^n (Y_i - \bar{Y})^2}} \quad (1)$$

The aim of this paper is to research the relationship between the creative industry and the audiovisual and music sector as the factor influencing the performance of these sectors. One of the performance indicators is employment. We decided to analyse the correlation between the employment in the creative industries and the audiovisual and music sector in both countries, as well.

2 Data

There are no robust data and comprehensive or partial studies concerning the current state of performance of the enterprises focused on audiovisual arts and music in Czechia and Slovakia. There is also the lack of data sources about the use of the current period of Structural Funds for the support of cultural and creative industry in both countries. Due to the number and complexity of the operational programmes and their administrative governance in the Czech Republic and in the Slovak Republic, a robust comprehensive research would be very demanding and time consuming.

This analysis is mainly based on the outputs of statistical databases of Eurostat, the Slovak Film Commission, the Czech Film Commission and research projects implemented by the Arts and Theatre Institute since 2007.

3 Results and Discussion

The promotion of entrepreneurship in the cultural and creative sectors in the Czech Republic has been very rare and has not been strategic so far. The cultural and creative sectors face a large number of obstacles, mainly due to their specific and atomized structure. In the Czech Republic, this structure is dominated by SMEs, micro-companies and individual entrepreneurs (self-employed persons).

The state financial support scheme reflects the needs of the enterprises in the Slovak audiovisual and music sector. Estimated structure of support activities of the Slovak Film Commission for 2018:

- 75% - program 1: development and production of audiovisual works – feature, documentary, animation, student films, minority co-productions,
- 17% - program 2: distribution, promotion, international presentation, festivals, cinema admissions support,
- 3% - program 3: education, training, research, publishing,
- 5% - program 4: digitization and modernization of cinemas, development of audiovisual technologies.

The results of financial support policy set by the Slovak Film Commission are included in table 1. Number of the approved application varied between 243 and 350 per year (The Slovak Film Commission, 2019). The Slovak Film Commission provides the highest average amount of financial support per 1 application (EUR 17 863 – 35 320) among the all institutions, which finance the cultural and creative industry in the Slovak Republic. In 2017, the Slovak Film Commission allocated EUR 132,400 more for the support of audiovisual culture than in the previous year (EUR 7,566,088 in 2017 and EUR 7,433,688 in 2016), which represents a year-on-year increase of 1.78%. Over the course of eight years, the Slovak Film Commission has supported 2,849 applications for the support of audiovisual culture with EUR 65,259,442 in total.

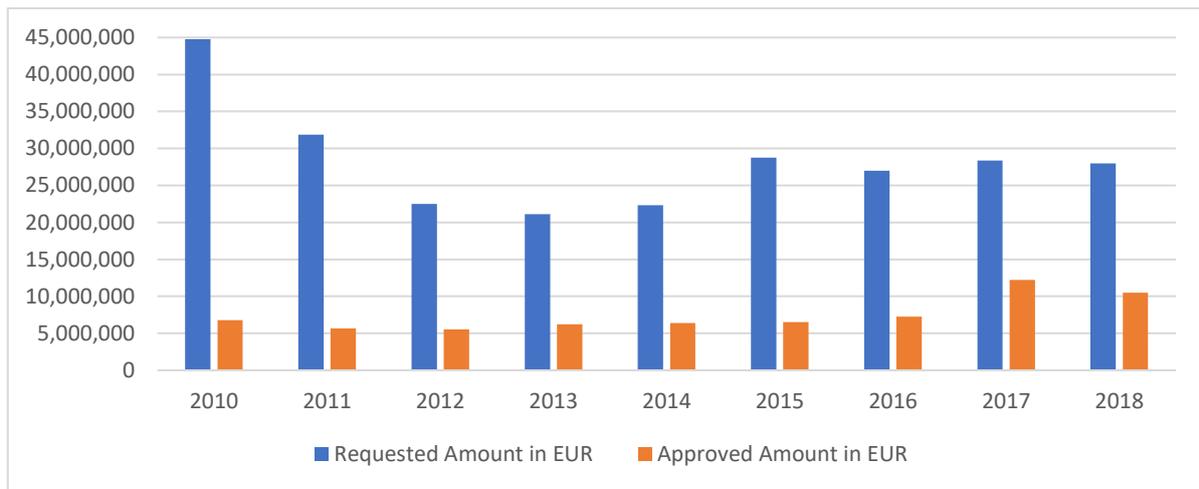
Table 1 Received vs. Approved Applications - the Slovak Film Commission

Financial Support	2010	2011	2012	2013	2014	2015	2016	2017	2018
Received Applications	508	518	483	668	602	548	594	523	527
Approved Applications	260	243	249	349	329	331	350	346	333
Average amount per 1 application	26 160	23 284	21 168	17 863	19 456	19 682	20 798	35 320	31 524

Source: data extracted from the Slovak Film Commission

As one can see, the approved financial support is insufficient from the establishment of the Slovak Film Commission (Figure 1). The interest in the financial support provided by this programme is still unbelievably high. The result caused by the lack of the financial support is the slowly decreasing total requested amount.

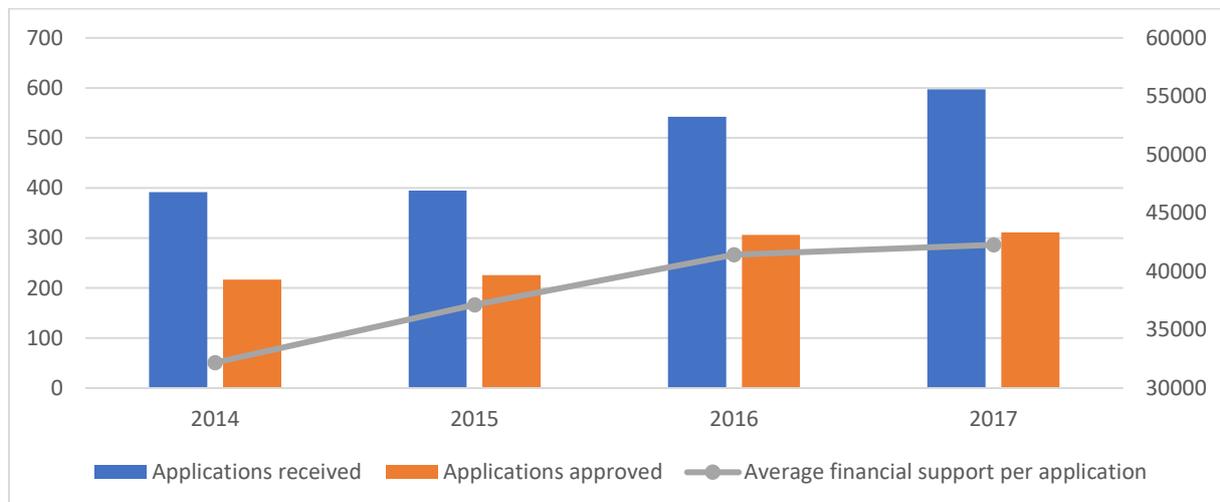
Figure 1 Requested Amount vs. Approved Amount of Financial Support (the Slovak Film Commission) in EUR



Source: own calculations, data extracted from the Slovak Film Commission

One can see that the average financial support by the Czech Film Fund per application has grown. The number of applications approved grows also every year (Figure 2). The fact is that in the Czech Republic is the same problem as in Slovakia – the lack of financial sources.

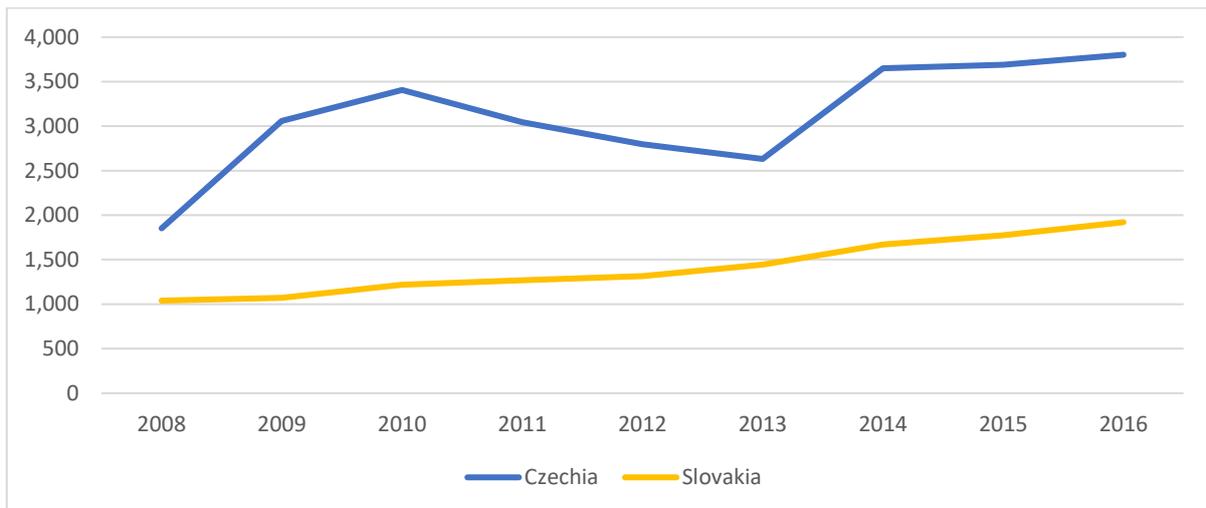
Figure 2 Received vs. Approved Applications - the Czech Film Fund (2014-2017)



Source: own calculations, data extracted from the Czech Film Fund

Figure 3 is mapping the population of the Slovak and the Czech active enterprises in the audiovisual and music sector (Eurostat, 2019). The number of the active enterprises in the Czech Republic is more volatile in comparison with the Slovak population of the active enterprises.

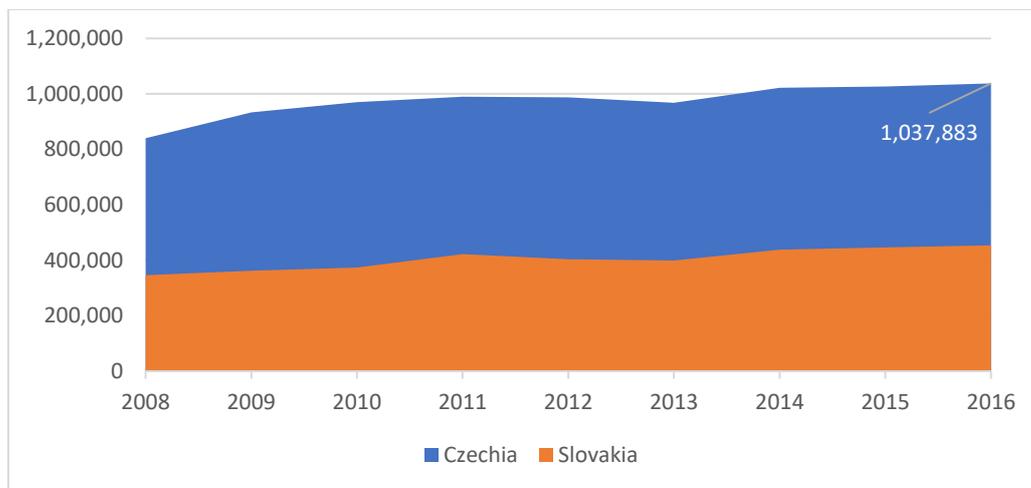
Figure 3 Population of Active Enterprises Focused on Audiovisual Arts and Music (2008 - 2016)



Source: own calculations, data extracted from Eurostat

The most significant change in a population of active Czech enterprises in the creative industry was recorded in 2008 and 2009 (Figure 4). The growth of the enterprise population in Slovakia was in comparison with the Czech Republic just slight.

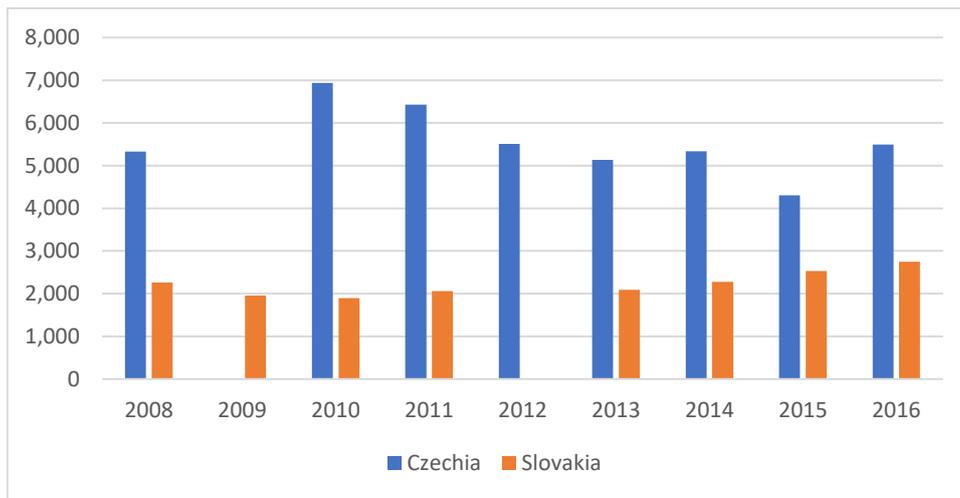
Figure 4 Population of Active Enterprises in the Creative Industry (2008 - 2016)



Source: own calculations, data extracted from Eurostat

Although the population of active enterprises focused on the audiovisual arts and music is relatively small in both countries, but the enterprises are valuable as the bearers of the cultural heritage. Many recent studies (Šagátová, 2019, Petrová, 2019) have shown that the active enterprises in the audiovisual business represent companies with a great economic potential and are providing quality jobs. Data about the number of people employed in the audiovisual arts and music in year 2012 for the Slovak Republic are missing (Figure 5). The same data were not published for the Czech Republic in 2009.

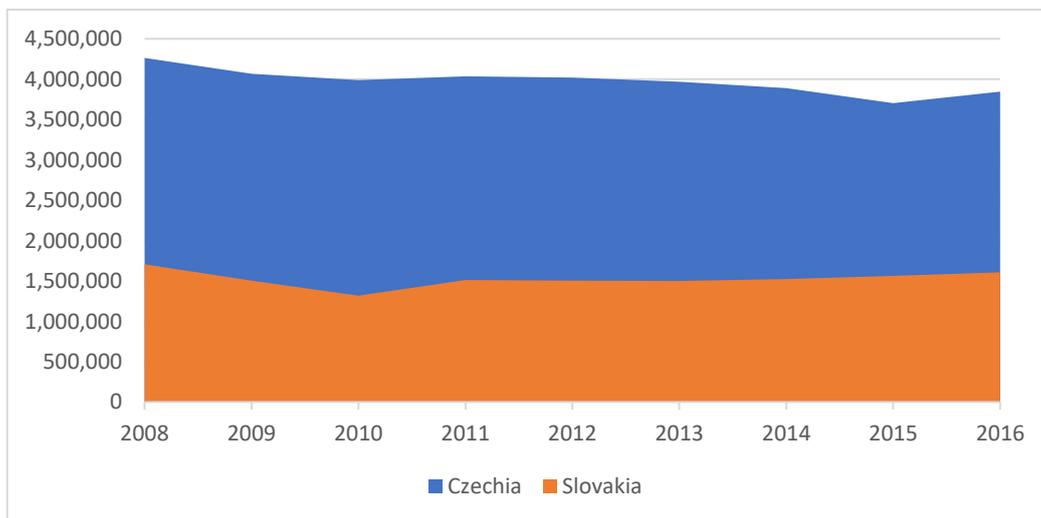
Figure 5 Persons Employed by the Enterprises Focused on Audiovisual Arts and Music (2008 - 2016)



Source: own calculations, data extracted from Eurostat

In the EU, there is a lot of untapped potential in the Creative Industries to create growth and jobs. Much of the future prosperity will depend on how resources, knowledge and creative talent be used. Creative Industries offer a real potential to respond to the challenges thereby contributing to the Europe 2020 strategy and some of its flagship initiatives such as the Innovation Union, the Digital Agenda, tackling climate change, the Agenda for new skills and new jobs or an industrial policy for the new era (Rybářová, Štetka and Šagátová, 2018). Figure 6 shows the development of the employment in the Creative Industries in Czechia and Slovakia. In the long period, we have noticed a decrease of the persons employed by the enterprises in the Czech creative industries. The same development we have seen in the Audiovisual and music sector in the Czech Republic. One can see the difference between the development of the employment in these two countries.

Figure 6 Persons Employed by the Enterprises in the Creative Industries totally (2008 - 2016)



Source: own calculations, data extracted from Eurostat

Pearson Correlation Coefficient r reached the value 0,921734. It confirmed the strong correlation between the population of the Slovak enterprises in the creative industries and in the audiovisual and music sector (Table 2). We described the relation between these two variables such a strong positive linear relationship.

Table 2 Pearson Correlation Coefficient of the Enterprises in the Audiovisual Sector and the Enterprises in the Whole Creative Industry in Slovakia

Slovak Republic	Enterprises in Creative Industry in Total	Enterprises - Audiovisual Arts and Music
Enterprises in Creative Industry in Total	1	0,921733572
Enterprises - Audiovisual Arts and Music	0,921733572	1

Source: own calculations, data extracted from Eurostat

Table 3 contains the results of the correlation analysis focused on the relationship between the population of the enterprises in the Czech creative industries and the Czech audiovisual and music sector. We state that the relationship described as strong positive linear. In comparison with the Slovak industries, the r value is a little bit lower.

Table 3 Pearson Correlation Coefficient of the Enterprises in the Audiovisual Sector and the Enterprises in the Whole Creative Industry in Czechia

Czech Republic	Enterprises in Creative Industry in Total	Enterprises - Audiovisual Arts and Music
Enterprises in Creative Industry in Total	1	0,886869
Enterprises - Audiovisual Arts and Music	0,886869	1

Source: own calculations, data extracted from Eurostat

Rate of employment depends on various factors. Factors such as inflation, GDP growth, population and foreign direct investment are brought into discussion. In the period 2008 – 2011 the financial crisis influenced the economic performance in the Slovak Republic as well as in the Czech Republic. The Pearson correlation coefficient is lower than in the previous cases (Table 4). The r value 0,623047 described the correlation between the development of employment in the Slovak creative industries and the Slovak audiovisual and music sector still as strong positive linear.

Table 4 Pearson Correlation Coefficient of Persons Employed in the Audiovisual Sector and Persons Employed in the Whole Creative Industry in Slovakia

Slovak Republic	Persons Employed in Creative Industry in Total	Persons Employed - Audiovisual Arts and Music
Persons Employed in Creative Industry in Total	1	0,623047
Persons Employed - Audiovisual Arts and Music	0,623047	1

Source: own calculations, data extracted from Eurostat

According to the Pearson correlation coefficient, we have noticed that the relationship between the employment in the Czech creative industries and in the audiovisual and music sector is only moderately positive (Table 5). There can be a lot of reasons why this correlation is weaker than the others. In the Czech Republic, we noticed the trend to establish the small enterprises with the low number of employees in the audiovisual and music sector. We expect that this phenomenon is the major reason.

Table 5 Pearson Correlation Coefficient of Persons Employed in the Audiovisual Sector and Persons Employed in the Whole Creative Industry in Czechia

Czech Republic	Persons Employed in Creative Industry in Total	Persons Employed in Audiovisual Arts and Music
Persons Employed in Creative Industry in Total	1	0,439458
Persons Employed in Audiovisual Arts and Music	0,439458	1

Source: own calculations, data extracted from Eurostat

Finally, we summarized the results of our analysis.

Conclusions

Since in the Czech Republic the potential of the cultural and creative industries for growth, employment and competitiveness has not been appropriately recognized yet, it would be desirable to launch a special umbrella programme aimed at increasing awareness and mapping of the cultural and creative sectors.

A strong correlation was confirmed between the population of the Slovak enterprises in the creative industries and in the audiovisual and music sector, same as in the Czech ones. The relationship between the development of employment in the Slovak creative industries and the Slovak audiovisual and music sector still as strong positive linear (r value = 0,623047). In according to the Pearson correlation coefficient, we have noticed that the relationship between the employment in the Czech creative industries and in the audiovisual and music sector is only moderately positive. There are some reasons why this correlation is weaker than the others. In the Czech Republic, we noticed the trend to establish the small enterprises with the low number of employees in the audiovisual and music sector. As mentioned, many cultural and creative entrepreneurs are small to medium sized enterprises. Among them, enterprises consisting of one to two people represent the overwhelming majority of the companies of the sector and encompass this new type of "entrepreneurial individuals" or "entrepreneurial cultural workers", who no longer fit into previously typical patterns.

The outputs of the Creative industries' activities contribute with their added value to other economic sectors and can be a source of technological and non-technological innovation (creative and digital economy). Creative Industries have many other positive impacts on society and the specific individual.

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Evaluating Employee Education Effectiveness: The Kirkpatrick Model in Czech HRM Practice

Lenka Komárková¹, Miloslava Hiršová²

¹ University of Economics, Prague
Faculty of Management, Department of Exact Methods
Jarošovská 1117/II, Jindřichův Hradec, Czech Republic
E-mail: lenka.komarkova@vse.cz

² University of Economics, Prague
Faculty of Management, Department of Social Sciences
Jarošovská 1117/II, Jindřichův Hradec, Czech Republic
E-mail: miloslava.hirsova@vse.cz

Abstract: *In the context of Industry 4.0, corporate education is again at the forefront of interests. Given the current high employment rate, it is necessary to ensure the development of employees by using high-quality and effective training programs. Applying the Kirkpatrick model, this paper aims to assess the development in evaluating organizational education within the CZ-NACE sectors of economic activity from the point of view of its frequency as well as the applied evaluation levels. The analyzed period covered five years, from 2010 to 2015. The Czech Statistical Office data from the surveys CVTS 4 and CVTS 5 served as the basis for the analysis. Based on the standard statistical methods, the results show that education effectiveness control was most often carried out in the sectors K, S, and J in 2015. On the contrary, it was the least frequent in the sector L. The education effectiveness evaluation at level 2 of the Kirkpatrick model was less used than the evaluation at level 3. Further, in the majority of sectors, there has been a significant increase in implementing the evaluation at the third and the fourth model levels since 2010. Our analysis reflects the application of the theoretical model in practice, and the results can serve as feedback for enterprises in the particular sector in assessing the quality of employee education and development and help them to intertwine their educational activities with their strategic planning.*

Keywords: *HR management, corporate education, Kirkpatrick model, Continuing Vocational Training Survey, Czech Republic*

JEL codes: *M53, M54, O34*

Introduction

In the context of Industry 4.0, when there is a greater demand for digital technology knowledge, corporate education and training are again at the forefront of HRM in companies or organizations. Moreover, at a time of low unemployment, it is difficult for organizations to find suitable people in the labor market and, therefore, it is necessary to pay better care to training and development of organization employees by means of quality and effective training programs. For organizations, corporate education should be not only effective but also efficient (Průcha, 2004). Therefore, it must have well-defined goals and learning outcomes, as well as measurable indicators of educational effects (Pineda, 2010).

One of the best-known models for education and training evaluation is the Kirkpatrick model (Kirkpatrick and Kirkpatrick, 2006). This model is focused on the evaluation of educational goals and is commonly used in corporate practice, predominantly abroad, but it has already become known to Czech companies and organizations, also thanks to works on this model written in Czech (e.g., Tenkl, 2014; Pitučová, 2013). This paper focuses on the extent of use of the Kirkpatrick model for education evaluating by organizations operating in the Czech Republic.

1 Theoretical Background

The Kirkpatrick model evaluates educational activities with regard to their goals, and it has four evaluation levels: 1. Reaction, 2. Learning, 3. Behavior, and 4. Results. Typically, it is displayed by a triangle or pyramid, which leads to an understanding of the hierarchical dependence of individual criteria, but such dependence or causality has not been proven (Alliger and Janak, 1989; Campion and Campion, 1987). Although the model is relatively old (see Kirkpatrick, 1959), it is still used and

discussed (Lee and Pershing, 2000; Botek, 2018). The model has its followers (e.g., Phillips, 1998; Kaufman and Keller, 1994) who established the next fifth level. On the other hand, the model is also criticized (e.g., Bates, 2004; Reio et al., 2017). Moreover, Lee and Pershing (2000) point out that further research should focus on models based on the overall evaluation and proper using of the evaluation results. Based on the content analyses, Botek (2018) demonstrated that most of the basic evaluation frameworks or models include at least three levels of the Kirkpatrick model.

The Reaction criterion reflects trainees' affective reactions (e.g., how much they enjoy it) and utility judgments (e.g., how useful it was for them), while the Learning criterion measures the added value to their knowledge (Alliger et al., 1997). Thus, these criteria are labeled as internal, because they relate to what happens in the course of the training (Landy and Conte, 2007). Behavior and Results are taken for external criteria – they assess the level of expected changes after the training program. It is important to take into account that, due to their external character, they may also be influenced by the broader organizational context. Besides this, Kucherov and Manokhina (2017) demonstrated that the choice of the evaluation level is related to the duration and costs of training programs.

Alliger and Janak (1989) found one interesting difference: at that time, the data from practice showed that organizations applied mostly the first Reaction-level of evaluation. This is because it is very easy to ask employees how they enjoyed the training program. For evaluation at other three levels, time lag after the training program is needed: 3-6 months for the Learning-level, 6-9 months for the Behavior-level, and at least 12 months for the Results-level (Rafiq, 2015). On the other hand, at the same time, scientific publication editors preferred papers, where all the evaluation levels had been taken into account and the effectiveness of applying them had been investigated. As presented above, the conclusions of these studies (e.g., Alliger et al., 1997; Baldwin and Ford, 1988) support the idea that the levels of evaluation do not have a hierarchical layout, and each of them is suitable for a specific context depending on the aims to be achieved, that means, in some cases, usage of two or more levels is appropriate.

As a whole, these criteria provide important feedback on the effectiveness of educational activities in the organization. However, when choosing a particular level of evaluation, the organization also may provide its stakeholders (Guerci and Vinante, 2011) and outside observers with information on its strategic plans and needs aimed at the crucial fields of its development. Applying each of the four levels of evaluation may reflect different motivation of the evaluator and may also have a different impact on trainees' motivation to learn as well as on their subsequent behavior. For organizations in public sector, Phillips and Phillips (2009) recommended that all the training programs should be evaluated at the first level, 60% at the second level, 30% at the third level, and 10% at the fourth level.

We do not have the opportunity to compare the reported application of evaluation levels with the goals or purpose of corporate training. However, we can assume that using only the Reaction criterion may indicate a rather formal approach to education. It can also be assumed that companies that use multiple levels of evaluation have a more rigorous elaboration of the education system and are more considering its link with corporate goals and needs. The importance of applying all the criteria of evaluation is explained by Theodotou (2018, p. 64): *"...you must plan to start from Level 4 to Level 1 but implement from Level 1 to Level 4"*. Thus, the use of external criteria, i.e., Behavior and Results, if consistent with the typical workload of the trainee, may indicate an effort to be in line with current trends in organizational education (Kirkpatrick and Kirkpatrick, 2009; Curado and Teixeira, 2014).

Thus, the paper aims to answer the following two research questions:

RQ1. What are the differences in applying an evaluation level when assessing corporate educational program effectiveness across sectors of economic activity?

RQ2. How much has the corporate education evaluation changed within five years?

2 Data and Methods

The study is based on data from the last two questionnaire surveys of the Continuing Vocational Training Survey (CVTS) conducted by the Czech Statistical Office every five years, namely CVTS 4 in 2011 (with the reference year 2010) and CVTS 5 in 2016 (with the reference year 2015). The population set consisted of all the economic entities (i.e. legal entities and natural persons) operating in the Czech Republic in all the CZ-NACE sectors of economic activity except six ones: A – Agriculture,

forestry and fishing; O – Public administration and defense, compulsory social security, P – Education; Q – Human health and social work activities; T – Activities of households as employers; U – Activities of extraterritorial organizations and bodies. In addition, only those economic entities (hereinafter organizations) employing at least ten persons were included in the population set. Thus, the population set, and also the sample set did not include micro-firms.

Respondents (organizations) were selected from the Business Register database based on a stratified random sample. The return rate of questionnaires was over 80% in both years. Finally, the research samples included 7,789 organizations for the reference year 2010 and 8,001 organizations for the reference year 2015. Table 1 introduced both samples. There are numbers of organizations according to the sectors. Further, Table 2 shows percentages of organizations according to their size (Small – organizations with less than 50 employees, Middle – organizations with 50 to 249 employees, and Large – organizations with at least 250 employees). More information on the entire survey, including the presentation of the basic results, can be found at webpages of the Czech Statistical Office (2013, 2018). For better understanding of our results, we consider it important to mention here that the reported educational activities include not only those provided by the organization itself but also those bought at an external provider. In addition, in 2010, the assessment of the second level (Learning) was aimed only at certificates having been obtained, while in 2015 the data on examination evaluating the level of acquired knowledge were demanded.

Table 1 Numbers of organizations by the sectors in the samples for 2010 and 2015

Sector	Description	2010	2015
B	Mining and quarrying	119	99
C	Manufacturing	3392	3489
D	Electricity, gas, steam and air conditioning supply	116	126
E	Water supply, sewerage, waste management	240	247
F	Construction	459	460
G	Wholesale and retail trade	1218	1291
H	Transporting and storage	461	508
I	Accommodation and food service activities	453	380
J	Information and communication	355	410
K	Financial and insurance activities	279	309
L	Real estate activities	75	44
M	Professional, scientific and technical activities	209	226
N	Administrative and support service activities	253	258
R	Arts, entertainment and recreation	93	85
S	Other services activities	67	69
Total		7789	8001

Source: own calculation based on CVTS 4 and CVTS 5 data

Table 2 Percentage of organizations by the size given the sector in the samples for 2010 and 2015

Sector	2010			2015		
	Small	Middle	Large	Small	Middle	Large
B	65.5	20.2	14.3	64.6	24.2	11.1
C	50.6	28.3	21.2	49.4	27.6	22.9
D	60.3	20.7	19.0	51.6	30.2	18.3
E	58.3	28.3	13.3	57.9	29.1	13.0
F	56.6	29.2	14.2	61.3	27.6	11.1
G	62.6	25.1	12.3	61.5	25.3	13.2
H	48.8	29.3	21.9	53.1	24.6	22.2
I	75.5	20.1	4.4	70.3	24.7	5.0
J	58.6	27.3	14.1	59.5	26.1	14.4
K	59.5	30.1	10.4	56.0	32.7	11.3
L	69.3	25.3	5.3	70.5	22.7	6.8
M	51.7	27.8	20.6	45.1	26.5	28.3
N	28.5	32.4	39.1	22.9	34.1	43.0
R	46.2	24.7	29.0	37.6	32.9	29.4
S	59.7	16.4	23.9	50.7	18.8	30.4
Total	55.0	27.2	17.9	53.6	27.2	19.2

Source: own calculation based on CVTS 4 and CVTS 5 data

In particular, the data sets in both cases were supplemented by weights designed to eliminate the error caused by non-response. Due to these weights, it was possible to correct the relative frequencies calculated from the sample to obtain unbiased estimates related to the population. Moreover, focusing on the use of external levels of the Kirkpatrick evaluation model, a multiple logistic regression model was used. All the calculations were conducted in the statistical software R version 3.6.1 (R Core Team, 2019).

3 Results and Discussion

Table 3 shows percentages of organizations that provide education to their employees, and also it shows the percentage of organizations that usually evaluate such education. From the figures, it follows that more than 90% of organizations from the sample for 2015 educate their staff. There is a big increase of 18.4 percentage points (pp) in five years. However, only 46.3% of them carried out the subsequent evaluation of this education. Nevertheless, this is 9.7 pp more than in 2010. In particular, more than 60% of organizations evaluating education effectiveness belong to three sectors, namely K – Financial and insurance activities (66.9%), S – Other services activities (65.8%), and J – Information and communication (61.1%) in 2015. In 2010, there was only one sector K (64.2%).

The worst in the evaluation of educational programs is R – Arts, entertainment and recreation (22.1%) in 2010, and L – Real estate activities (30.6%) in 2015. Notice that real estate activities are the only sector where the percentage of evaluating organizations decreased in the course of five years while the increase in provided education was by 28.7 pp. The highest growth in provided educational activities was in the sector I (by 30.6 pp), but the frequency of their evaluation grew only by 6.8 pp. The character of data does not allow for deeper analysis, but we can assume that these numbers may reflect the demands of legislation on obligatory training of employees. This is usually delegated to external subjects that also provide its evaluation, mostly in the form of issuing demanded certificates.

Table 3 Percentage of organizations that provide employees' education (Freq. 1); percentage of organizations that usually evaluate the effectiveness of their employees' training, calculated from all the organizations in the sector (Freq. 2) and from all organizations in the sector that provide education to their staff (Freq. 3) for 2010 and 2015

Sector	2010			2015		
	Education Freq. 1	Evaluation Freq. 2	Evaluation Freq. 3	Education Freq. 1	Evaluation Freq. 2	Evaluation Freq. 3
B	87.6	35.1	40.0	90.3	52.2	57.8
C	76.0	30.2	39.7	91.8	45.1	49.1
D	82.1	41.6	50.6	98.1	58.4	59.6
E	85.5	30.1	35.2	94.6	38.1	40.3
F	71.6	25.1	35.1	92.5	37.1	40.1
G	68.6	24.8	36.2	89.2	40.9	45.8
H	75.3	22.5	29.8	94.1	33.6	35.8
I	50.8	14.5	28.6	81.4	28.8	35.4
J	81.0	37.0	45.7	95.5	58.4	61.1
K	87.6	56.2	64.2	93.1	62.3	66.9
L	63.9	30.4	47.5	92.6	28.4	30.6
M	78.8	25.1	31.9	93.8	48.2	51.4
N	74.2	23.0	31.1	78.7	32.8	41.7
R	74.5	16.5	22.1	90.8	47.7	52.5
S	74.9	33.7	45.0	95.5	62.9	65.8
Total	72.2	26.5	36.6	90.6	42.0	46.3

Source: own calculation based on CVTS 4 and CVTS 5 data

The percentage of individual levels of the Kirkpatrick model is given in Table 4. Levels 1 (58.2%) and 2 (51.7%) were most frequently conducted in 2010, while levels 1 (49.8%) and 3 (40.6%) were most frequently conducted in 2015. In general, organizations refrain from direct reviewing employee knowledge after the end of a training event. Therefore, if organizations use two levels of evaluation,

they usually use one external criterion next to one internal criterion. This result does not correspond to the used hierarchical layout (triangle or pyramid) for the Kirkpatrick model, but it is in accordance with Alliger and Janak (1989)' findings. An exception is mining and quarrying from the primary sector of the economy, where level 2 evaluations are still used in more than half (61.4%) of organizations in 2015. Again, this may be due to legislation demands on obligatory certificates needed for employment in this sector professions.

The fourth (Results) level of the Kirkpatrick model was used in the evaluation by 23.5% of organizations in 2010, and by 24.6% of organizations in 2015. The biggest leap in the order was done by the R sector (Arts, entertainment and recreation) which was the last (7.3%) in 2010 and the first (37.5%) in 2015 from the level 4 perspective. With regards to the nature of work in this sector, this seems to be the most suitable level of evaluation, when compared to the second level (Learning), which fell down by 43.9 pp. However, further investigation would be useful to find out which particular criteria are applied for the evaluation of results, especially with respect to the wide range of activities belonging to this sector.

Table 4 Percentage of organizations evaluating education by levels of the Kirkpatrick model from all organizations in the sector that evaluate the education effectiveness for 2010 and 2015

Sector	2010				2015			
	Level 1	Level 2*	Level 3	Level 4	Level 1	Level 2	Level 3	Level 4
B	57.5	74.4	16.3	13.6	41.8	61.4	39.1	23.2
C	61.9	54.1	26.3	24.4	52.3	36.3	39.2	22.7
D	59.7	67.5	12.4	15.8	57.7	40.3	43.2	21.4
E	66.9	65.3	17.7	19.2	49.4	21.5	33.3	24.8
F	46.5	63.2	21.1	15.4	39.0	32.9	31.2	19.0
G	54.6	42.1	33.7	25.6	47.4	34.7	42.8	26.9
H	47.1	63.9	18.2	17.6	41.9	29.5	36.3	16.5
I	48.5	37.0	35.6	27.1	32.4	38.2	41.9	27.4
J	73.3	43.6	36.2	21.9	63.1	27.1	42.7	28.3
K	76.6	44.4	41.1	24.9	72.5	33.0	46.7	22.9
L	60.6	54.5	14.5	28.5	46.3	28.0	55.4	11.0
M	74.8	42.2	25.2	23.7	45.7	18.6	50.3	30.5
N	58.5	38.6	40.5	34.3	57.0	38.2	49.6	30.5
R	69.7	54.6	2.6	7.3	60.8	10.7	44.1	37.5
S	40.0	73.6	25.2	38.8	69.6	25.3	31.9	24.4
Total	58.2	51.7	27.1	23.5	49.8	32.2	40.6	24.6

Source: own calculation based on CVTS 4 and CVTS 5 data

Remark: *Level 2 in CVTS 4 is only partially consistent with the level 2 definition of the Kirkpatrick model.

In particular, we analyzed changes in the use of the external levels (the third and fourth levels) of the Kirkpatrick evaluation model between 2010 and 2015 across the sectors using a multiple logistic regression model. The considered model had the sector and the year as explanatory factor variables, and it included the interaction term between them as well. The effects of the individual sectors were estimated in relation to the mean of the sectors' effects, the effect of the year was related to the reference year 2010. The point and interval estimate for odds ratios and the significance of the considered effects can be found in Table 5.

Table 5 Odds ratio estimates with related confidence intervals (CI) and p-values based on multiple logistic regression with the sector and the year as explanatory factor variables

Main Effect	OR	95% CI	p	Interaction	OR	95% CI	p
B	0.53	(0.28, 1.01)	0.052	B x Year	1.52	(0.67, 3.46)	0.314
C	1.33	(1.12, 1.56)	0.001	C x Year	0.67	(0.54, 0.84)	0.000
D	0.43	(0.24, 0.76)	0.004	D x Year	2.24	(1.10, 4.58)	0.026
E	0.64	(0.41, 1.00)	0.050	E x Year	1.09	(0.61, 1.94)	0.764
F	0.70	(0.51, 0.97)	0.032	F x Year	0.92	(0.60, 1.40)	0.691
G	1.34	(1.07, 1.67)	0.011	G x Year	0.90	(0.67, 1.21)	0.492
H	0.90	(0.65, 1.23)	0.498	H x Year	0.85	(0.56, 1.30)	0.460
I	1.52	(1.03, 2.24)	0.034	I x Year	0.72	(0.43, 1.20)	0.202
J	1.52	(1.11, 2.09)	0.009	J x Year	0.73	(0.48, 1.09)	0.124
K	1.64	(1.19, 2.26)	0.002	K x Year	0.64	(0.42, 0.98)	0.040

L	1.18	(0.57, 2.45)	0.655	L x Year	1.75	(0.48, 6.41)	0.397
M	1.26	(0.83, 1.90)	0.283	M x Year	1.35	(0.78, 2.31)	0.284
N	1.43	(0.98, 2.11)	0.067	N x Year	0.85	(0.50, 1.44)	0.543
R	0.41	(0.17, 0.98)	0.044	R x Year	1.99	(0.72, 5.52)	0.188
S	1.84	(0.90, 3.73)	0.093	S x Year	0.43	(0.17, 1.05)	0.063
Year	1.83	(1.53, 2.19)	0.000				

Source: own calculation based on CVTS 4 and CVTS 5 data

It can be seen that the use of external levels increased statistically significantly from 2010 to 2015. On average across all sectors, odds on evaluation at the external levels rose by 83%. However, the change in the three sectors C, D, and K differed significantly from this overall increase, see p-values for interactions in the last column of Table 5. For sectors C (Manufacturing) and K (Financial and insurance activities), the increase was significantly lower than the overall change, while for sector D (Electricity, gas, steam and air conditioning supply), it was significantly higher. On the other hand, in 2010, the sectors C (OR: 1.33) and K (OR: 1.64) were above the sector average in terms of external-level education evaluation and the sector D (OR: 0.43) was below the sector average.

In addition to the frequency of utilization of the individual model levels, the frequencies for the number of levels used by organizations were also calculated, see Table 6. Organizations most often used only one level from the considered model for evaluation in both years (55.3% in 2010, and 50.0% in 2015). A relatively small number of organizations used all four model levels to evaluate. In 2015, there were four sectors (E – Water supply, sewerage, waste management, L – Real estate activities, R – Arts, entertainment and recreation, S – Other services activities) with almost no representation. The average number of the Kirkpatrick model levels used is the highest for sector K (Financial and insurance activities) and N (Administrative and support service activities). However, the averages between considered years cannot be directly compared because of differing option menu of evaluation techniques in the 2015 questionnaire.

Nevertheless, the results indicate that although the number of evaluation levels used did not change much in the course of five years (Table 6), their structure is changing (Table 4 and 5). This could point to a positive development in the form of a higher take-up of the content of the training and, accordingly, the choice of more appropriate evaluation methods. Furthermore, as Lee and Pershing (2000) say, it is necessary not only to evaluate but also to make good use of the evaluation results. Namely, the obtained results should be considered when planning and selecting further educational activities.

Table 6 Percentage of organizations evaluating education by the number of levels of the Kirkpatrick model from all the organizations in the sector that evaluate the effectiveness of education, and average numbers of levels used by organizations given the sector, both for the years 2010 and 2015

Sector	2010					0*	2015				
	1	2	3	4	Average Number		1	2	3	4	Average Number
B	44.6	48.9	6.5	0.0	1.62	1.8	50.4	30.2	15.9	1.8	1.65
C	52.1	32.9	11.3	3.8	1.67	8.4	47.7	31.1	10.5	2.2	1.50
D	52.8	40.1	6.1	1.0	1.55	5.1	52.3	24.3	11.7	6.6	1.63
E	43.2	47.5	6.2	3.1	1.69	5.8	60.8	32.1	1.3	0.0	1.29
F	63.7	29.6	3.7	3.1	1.46	11.2	60.6	23.5	4.3	0.4	1.22
G	63.1	21.6	11.3	3.9	1.56	7.4	48.2	31.6	10.6	2.2	1.52
H	63.8	28.2	5.4	2.6	1.47	11.1	60.9	22.1	4.5	1.4	1.24
I	62.3	29.6	5.7	2.4	1.48	10.8	52.8	24.7	9.1	2.6	1.40
J	46.8	34.4	15.8	3.0	1.75	4.0	49.2	30.9	13.6	2.3	1.61
K	40.5	36.4	18.5	4.5	1.87	3.2	41.1	37.9	13.2	4.7	1.75
L	54.1	35.9	7.7	2.2	1.58	5.3	48.6	46.1	0.0	0.0	1.41
M	44.9	45.9	7.6	1.6	1.66	12.6	45.3	30.3	7.8	3.9	1.45
N	40.5	48.6	9.3	1.6	1.72	2.3	48.2	26.0	19.0	4.5	1.75
R	70.4	27.0	0.7	1.9	1.34	11.8	49.6	12.2	26.3	0.0	1.53
S	39.4	47.7	8.9	4.1	1.78	9.3	44.6	31.9	14.3	0.0	1.51
Total	55.3	32.1	9.3	3.3	1.61	8.5	50.0	29.1	10.2	2.1	1.47

Source: own calculation based on CVTS 4 and CVTS 5 data

Remark: *Questionnaire in CVTS 5 also allowed choosing another evaluation method. Number 0 means that the organizations did not evaluate according to the Kirkpatrick model.

Conclusions

To conclude, it is obvious that the organizational education scene in the Czech Republic is changing. We are aware of the fact that the results of this study may be burdened by typical problems of questionnaire surveys, which is mainly the possible misunderstanding of question meaning and the tendency to bias in answers to present oneself in a better light. Anyway, when comparing the situation in 2010 to that one in 2015, it is evident that there is a considerable growth of educational activities across all the examined sectors. But the evaluation of educational outcomes shows only a slow trend in growth. In spite of this, it is notable that there is a change in the structure of applied evaluation methods. It is the shift to combining evaluation levels, and it is pleasing that this combination includes internal and external levels of assessment. It is difficult, or nearly impossible, to assess what percentage proportion of particular levels of evaluation is appropriate. The recommendations of Phillips and Phillips (2009) on this issue concern only the public sector and even there we believe it is not possible to apply them without a better knowledge of the wider internal and external context. But we would like to turn the attention of managers and HRM professionals to the ideas of Theodotou (2018) emphasizing the need to intertwine the goals of strategic planning and educational evaluation in one unit applying the Kirkpatrick model levels in a top-down way for planning and bottom-up for evaluating. Thus, the trend in combining evaluation levels aimed not only on satisfaction or added value of knowledge of trainees but assessing also what changes in their behavior or in organizational outcomes the education brought can be considered as a step in the right direction.

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Where does the Czech Republic export to?

Ladislava Kuchynková¹

¹ Masaryk University
Fakulty of Economics and Administration
Department of Business Economics and Management
Lipová 41a, 602 00 Brno
E-mail: kuchynkova@mail.muni.cz

Abstract: *This scoping review examines the current situation of the Czech export market and its prospects for the future. Firstly, it looks at the Czech Republic's traditional partners, who are mainly its neighbouring countries, and highlights the main Czech export activities. It then focuses on perspective destinations from the perspective of the growing volume of trade in recent years, as well as from the perspective of the current dynamic development of local economies. The CzechTrade agency plays a key role in promoting Czech exports and is active abroad in its search for business opportunities and in helping new and existing Czech exporters in establishing themselves in new markets. The Free Trade Agreement is another important tool for supporting Czech exports, and Czech exporters have been able to utilize its many advantages.*

Keywords: *Czech export, foreign markets, foreign trade, CzechTrade agency, Free Trade Agreement*

JEL codes: *F13, F14, F23, M16*

Introduction

In 2017 the Czech Republic supplied goods and services worth 180.2 billion dollars worldwide, which represents approximately 1.1% of global exports. This amounts to a year-on-year increase of 11.1%. From a continental perspective, 88.6% of Czech exports went to European countries. A smaller amount was exported to Asia (6.6%), North America (2.7%) and Africa (0.9%). It is logical that Czech exporters prioritize the European markets which they know well and which are geographically close. Below is given an overview of the Czech Republic's 15 most important trade partners which were the destination of 82.8% of Czech exports (Worldstopexports.com, 2018):

- Germany: 58.8 mld. USD (32.6% of total exports)
- Slovakia: 14 mld. USD (7.7%)
- Poland: 10.8 mld. USD (6%)
- France: 9.2 mld. USD (5.1%)
- United Kingdom: 8.8 mld. USD (4.9%)
- Austria: 7.9 mld. USD (4.4%)
- Italy: 7.3 mld. USD (4%)
- Netherlands: 5.3 mld. USD (2.9%)
- Hungary: 5.2 mld. USD (2.9%)
- Spain: 5.1 mld. USD (2.8%)
- Belgium: 4.1 mld. USD (2.3%)
- United States: 3.7 mld. USD (2%)
- Russia: 3.5 mld. USD (2%)
- Sweden: 2.8 mld. USD (1.6%)
- Switzerland: 2.6 mld. USD (1.4%)

It would be unrealistic to expect any country linked to international trade to have a positive trade balance with all of its trading partners. In 2017 the Czech Republic had the highest trade deficits with these countries (Worldstopexports.com, 2018):

- China: -9.5 mld. USD
- Poland: -3.8 mld. USD
- Netherlands: -3.3 mld. USD
- South Korea: -2.3 mld. USD
- Ireland: -1.3 mld. USD
- Hong Kong: -1.1 mld. USD

These negative values in cash flows clearly show the competitive disadvantages that the Czech Republic has with the above-mentioned countries, but it also represents a great opportunity for the Czech Republic to expand its strategies specifically for individual countries, thereby strengthening its overall position in international trade.

The following 10 groups of products represent 75.4% of the overall value of Czech exports and there is also given the percentage share which each export category represents in terms of the Czech Republic's overall exports (Worldstopexports.com, 2018):

- Vehicles: 38.2 mld. USD (21.2% of total exports)
- Machinery including computers: 33.8 mld. USD (18.8%)
- Electrical machinery and equipment: 30.6 mld. USD (17%)
- Articles of iron or steel: 6.7 mld. USD (3.7%)
- Plastics and plastic articles: 6.4 mld. USD (3.6%)
- Furniture, bedding, lighting, signs, prefab buildings: 5.4 mld. USD (3%)
- Rubber and rubber articles: 3.9 mld. USD (2.2%)
- Iron and steel: 3.8 mld. USD (2.1%)
- Optical, technical and medical apparatus: 3.7 mld. USD (2%)
- Mineral fuels including oil: 3.3 mld. USD (1.9%)

1 Germany

Germany is the dominant partner in Czech international trade. Since joining the European Union, the volume of Czech-German trade has more than doubled. This positive trend is mainly due to Czech exports as almost one third of all of Czech exports go to Germany, albeit that Czech products do not remain exclusively in the market there. The industrial level and ability of German firms to operate in international markets is shown through the re-exports to other countries, where Germany acts as a kind of intermediary through which Czech products are sent on to the rest of the world. The most important region is Bavaria, where the Czech Republic exports twice as much as it does to the whole of France or Great Britain.

The key sector in trade is the automobile industry. Almost 60% of Czech exports are made up from machines and electro-technological products or motor vehicles. The Czech Republic is a major supplier to the German car industry and in 2017 it was the number one foreign supplier to the German automobile industry. The Czech Republic's Škoda Auto has a 9% share in the German market, which means that every eleventh car purchased in Germany is a Škoda. Due to the use of innovative technology, there has not only been an upturn in the value of Czech exports in the automobile industry, but also in optical and photographic equipment, which has risen sharply in recent years. In addition to industry, machinery, electro-technology and energy, there has also been a rise in Germany's demand for advisory services, nanotechnologies, biotechnologies and medicines. A significant volume of the export trade is also taken up by iron and steel, plastics and related products, and rubber and related products.

A relatively new trend is Czech companies investing in Germany; for example, ČEZ is very active there and has purchased companies dealing in solar panels and electricity storage, as well as those focusing on the production of electricity using hydrogen technologies, not to mention other innovative firms. (BusinessInfo.cz, 2018)

2 The Visegrád Four

Over recent years the economies of the Visegrád have grown faster than the large West European economies, while also recording very low levels of unemployment, resulting in consumer appetite to spend more. The whole region continues to benefit from money from various European Union grant programmes. The contributions which the V4 countries make to the coffers of the EU are much smaller than the contributions from the structural funds which flow back into these countries. It is estimated that in the first ten years of its membership of the EU the Czech Republic received 400 billion crowns more than it paid in.

The Visegrád group represents more than 12% of the EU's population and the strong performance of their economies is linked to efforts by some political leaders to exert greater influence in the future

operation of the EU. At present the Czech Republic is faring the best with a per capita gross domestic product of 84% of the average of the 19 countries of the Eurozone. Slovakia is at 73%, Poland 66% and Hungary 65%. (Bičík, 2018)

Western Europe is one of the most important export markets for the Visegrád countries. 84% of the Czech Republic's exports go to EU countries and Germany is its most important trading partner with one-third of Czech exports. On the other hand, the Visegrád group is one of the largest trading partners for Germany, and with an overall turnover of more than 250 billion euros, is greater than the volume of trade between Germany and China.

Historically **Slovakia** has had the most interlinked market with the Czech Republic. It is the second largest export market for Czech products and services. The most important Czech exports include automobiles and parts and equipment for motor vehicles. In terms of the exchange of services, the Czech Republic has a positive balance with Slovakia in transport services, financial services and in construction work. A large number of Czech companies operate in Slovakia – Energetický a průmyslový holding, Agrofert Holding, Hamé, Škoda JS, Tatra Kopřivnice and ČEZ. The areas in which these companies operate are amongst some of the most long-term in terms of export or investment opportunities – the production of automobiles and car parts, the transport industry, infrastructure, energy, agriculture and the food industry.

The Czech Republic's trade with **Poland** continues to grow year-on-year, albeit with a negative trade balance at the moment. The Czech Republic mainly exports cars and vehicles for personal transport, parts and equipment for motor vehicles, semi-finished iron and steel products, equipment for automated data processing, telecommunications equipment, metal products, fats and vegetable oil, paper, cardboard, hydrocarbon, etc. The largest Czech investment in Poland was the acquisition of two electricity companies by ČEZ. Other significant investors include Energetický a průmyslový holding, Penta Investments, Kofola, Třinecké železářny, Bohemia Group and Zentiva.

Czech exports to **Hungary** have been growing over the long term and exceed Hungarian imports. The most important exports from the Czech Republic to Hungary are cars, electrical equipment and appliances, industrial machines, metal products, iron and steel, and telecommunications equipment. The most important Czech companies operating in Hungary include Škoda Holding, ČEZ, Ravak, AAA Auto and Agrofert. In terms of long-term investment, the most important sectors are the automobile industry, construction – especially the construction and reconstruction of blocks of flats – energy, ecology and the health sector.

3 Perspective destinations

At present the **United States** is the largest market for Czech exporters outside of the European market. The largest share of Czech exports to the USA is made up from turbo and turboprop engines, engineering products and tyres. Small and medium-sized businesses are becoming increasingly active in exporting as the American market pays for quality, innovation and specific goods or services, but is more difficult in terms of logistics and prompt deliveries. At the same time, it is a stable market with enormous consumer and industry demand, although the competitive environment there is very tough and companies have to deal with uncompromising regulations. Prominent Czech companies already operating in the American market include Česká zbrojovka, Mitas (part of the Czech Rubber Group), Brano Group, United Hydrogen Group and the KKCG investment group. A fairly significant part of Czech exports consists of services – telecommunications, IT services and financial services. Czech technological start-ups are very interested in the American market as success in this market means global success. (Zenkner, 2017)

India is one of the Czech Republic's biggest trading partners in Asia. Rapid and constant economic growth with more than one billion customers makes for an interesting challenge for Czech exporters. Current Czech exports to India mainly consist of high value products, automotive components, machine tools, equipment and parts for the energy industry, telecommunications equipment, photographic materials, paper and luxury glass. However, to acquire orders in the complex Indian market requires institutional support for mutual trade, otherwise the chances of market success are minimal and any possible implementation could take several years. The size and variety of the country offer business opportunities in many different areas. Through trading with Indian partners it

is possible to enter into smaller markets in South Asia. Companies already operating in the Indian market include Škoda Auto, GHH-Bonatrans (bicycle manufacture and axles for trains) and Chemoprojekt. (Uljačenková, 2018)

Singapore is the gateway to the entire region of Southeast Asia. For ten years, trade between the Czech Republic and Singapore has been on the rise, with a negative balance at the moment. Due to a limited amount of space, Singapore has to import most of the goods for its own consumption. In addition to consumer goods, there is also a great opportunity for exports in science and research. Singapore has one of the most open economies with a liberal customs regime, attracting numerous exporters which in turn generates significant competition in the market. (Zavdil and Hustolesová, 2018)

Despite the imposition of sanctions, Czech companies in **Russia** have seen a slight rise in trade, and over the last year the export value has increased by 9.3%. In addition to the traditional area of engineering, one of the strategic sectors is agriculture, which has become an interesting area in terms of profitability. This is understandable as Russia's response to EU and USA sanctions was to issue a raft of retaliatory measures which mainly targeted food importers to the country, because Russia relies on being self-sufficient in food and it provides farmers with a wide range of opportunities to gain state subsidies. This situation is advantageous for foreign suppliers of technology, genetic material, seed corn and innovative products for agriculture. Attention should not only be focused on Moscow and the surrounding area, but also on the other regions which differ significantly in terms of geography, history and culture, which results in different approaches towards trade. (Petrášová, 2018)

The importance of the **countries of the Balkan peninsula** has also increased in terms of trade and over the past ten years the volume of Czech exports to the 11 Balkan countries has risen by 50%. This volume will undoubtedly increase as the individual countries become more integrated within the European Union. The Balkan countries differ significantly in terms of their size, population, average earnings, levels of industrialization and culture. The main export items from the Czech Republic to the Balkans include cars and car parts, medical and health materials, detergents and cleaners, toys, electrical parts, cables and cigarettes. The most important financially are the exports of Czech buses, small hydroelectric power plants and mining technology. Some of the Czech companies operating in the Balkans include Energo-Pro (turbines), Kofola, Czechoslovak Group, the engineering firm ZK Termochem, Korado radiator manufacturers and Rudolf Jelínek. (Plevák, 2018)

Small and medium-sized Czech businesses often choose difficult routes for their exports, taking their products to countries outside of the EU region. As they are able to achieve relatively good added value it pays for them to do so, even with relatively smaller volumes of exports. Another reason for this step is the diversification of the dependency risk on nearby markets. In connection to the financing of small and medium-sized businesses, the Czech Export Bank concluded 100 contracts worth 552 billion CZK in 2017, which is the largest amount in the bank's history, and more than half (54%) of the contracts were to finance exports to non-European countries. In terms of trade, many of these countries are among those with the highest risk (e.g. Cuba, Kyrgyzstan, Peru, etc.). The overall rate of growth in 2017 for the development of Czech small and medium-sized businesses' exports to non-European countries was from - 0.1% to + 5.3%, almost reaching the same export level as to the countries of the EU (+5.8%). Naturally, the opening of distant markets is much more difficult for smaller companies, which is why it is important for them to receive state support in the form of marketing and financial tools. (BusinessInfo.cz, 2018)

4 The CzechTrade agency

CzechTrade is one of the most important promoters of Czech exporters and for more than 20 years has been trying to ease Czech companies' entry into foreign markets worldwide. The agency charges for its services though the cost is subsidised by the Czech state as part of encouraging exports. The busiest of all CzechTrade's 50 international offices is the Dusseldorf branch. It deals with the largest number of commissions (approximately one every day) and has the most clients, who, thanks to its support, have been successful in their business contacts with their German partners.

Since the start of 2018 CzechTrade clients have had the possibility to use its unique Directory of Exporters which aims to help with companies' marketing abroad. It is an official online database of

Czech export companies, providing entrepreneurs with a free presentation of their profile and products in seven languages. The service is designed as an accompanying online resource for companies which use the international services of the CzechTrade offices. (Štičková, 2018)

For example, in the Balkan countries the five offices of CzechTrade are ready to help with a business's successful start-up and they provide information about the particular foreign market in terms of legislation, export conditions, payment ethics, business habits, competition, costs, distribution channels and presentation opportunities in the given region. They are even able to provide Czech entrepreneurs with tips concerning business partners or help them to set up a branch in the local market.

There is an office of CzechTrade to help Czech companies establish themselves in the complex Singapore market. It provides on-site practical assistance in the search for potential business partners, arranges meetings and helps in establishing a company in Singapore. It is possible to arrange for the provisional use of an administrative setup in a fully equipped office for up to 90 days until the Czech firm establishes a company in Singapore and finds its own offices, while an employee of the agency will provide professional assistance in the process of establishing a branch within the country.

5 Free Trade Agreement

With a mandate from the member states of the EU, the European Commission gradually negotiated bilateral agreements on free trade (FTA – Free Trade Agreement) with a number of so-called third countries, and encourages exporters from the EU to take advantage of the reduced tariffs contained in these agreements. In the individual agreements it distinguishes the products which the reduced rates apply to, while at the same time the composition of the exports from the individual EU member states is different.

The average percentage of exports subject to reduced tariffs accounts for 60% of all exports to 17 partner countries of the FTA, and more than 70% in the case of the Czech Republic, Slovakia, Croatia and Portugal, which shows that for these countries the FTA really is "tailor-made". In a minimum of 15 categories from a total of 21 relating to reduced tariffs there was a level of usage of above 80% by only five member states and the Czech Republic came first in 18 categories followed by Slovakia (16 categories), and Bulgaria, Croatia and Poland (all 15 categories). (Macek, 2018)

The greatest percentage of Czech exports which were subject to reduced tariffs were in the following categories: means of transport, machinery and plastic and rubber products. On the other hand, the lowest percentage utilizing the right to reduced tariffs in the Czech Republic were works of art, precious stones and precious metals. In the case of the Czech Republic, the overall savings from tariffs as a result of the free trade agreements was 352 million EUR (approx. 9.04 billion CZK), while the loss from customs duties totalled 53.7 million EUR (approx. 1.38 billion CZK). The fact that the Czech Republic has the highest losses in duties from the export of those products which often also have the highest level of use of preference (transportation, plastic and rubber products) demonstrates that in a high value export even a small shift in the level of use of preference can reflect significantly on the level of savings from the duty rates. (Macek, 2018)

Conclusions

The Czech Republic is an exporting country which exports mainly industrial goods. Its most important partners are its neighbouring countries and the other members of the European Union. One of the advantages of EU membership for an export-orientated country is not only the freedom to trade freely in a single market with half a billion customers, but also the opportunity to penetrate into markets outside of the EU due to the joint trade policy of this economic powerhouse. As it is important for our country to be able to export with the minimum of complications, Czech companies are able to utilize more than 30 trade agreements on free trade through the FTA, which is an excellent opportunity for a country which has an 80% share of export in its GDP, and where the rule states that the more open the foreign markets are, the more likely the domestic economy is to be successful (Pavlíček, 2017). The European Union and the Czech Republic itself have become wealthy from

foreign trade because they attempt to make use of the advantages which this free trade offers. The advantages lie not only in the removal of most tariffs, but also other non-tariff trade obstacles (e.g. the recognition of product certification and preventing discrimination in accessing public commissions in the given country).

As was shown in chapter 3, small and medium-sized businesses are becoming more successful in their activities outside of Europe. It can be assumed, therefore, that even the traditional Czech exporters will no longer be satisfied with the European region and will want to access more distant, lucrative markets. Naturally, business conditions differ significantly from country to country, and there might be problems such as language barriers or complex legislation. However, these and other problems can be addressed by representatives of the CzechTrade offices abroad, who understand the specific markets and can find reliable business partners for the company, organise introductory meetings and verify the interest of future customers in the products. Their services save companies time and money and provide them with important information about the markets which would otherwise be difficult to acquire.

An interesting opportunity for confident Czech firms aiming for the Asian markets is collaboration with business partners in India or Singapore, where they will meet with strong competition and thus discover the extent to which their products are competitive in the most advanced countries, as is the case when entering the market in the USA. Czech exporters also have an outstanding opportunity in agricultural production in Russia, including plants and livestock, processing, storage, transport and logistics of agricultural and food-industry products. There are also opportunities there for companies focusing on energy, engineering, IT and advisory services. In the future, the countries of the Balkan peninsula offer the promise of significant development in trade activity as a result of the increased living standards of its population. A very dynamic trend can be observed in Czech exports to China and Sweden, which have grown year-on-year by almost 20%, to Poland (a growth of 16%) and to Austria (a growth of 15.6%). The fastest growing export categories are optical, technological and medical equipment, with a year-on-year growth of 23.4%, followed by iron and steel (a growth of 22.3%) and plastics and plastic products (a growth of 17%) (BusinessInfo.cz, 2018). In conclusion, it can be stated that the Czech export market is thriving, its volume grows each year (by more than 5% in 2017) and it goes hand in hand with the country's growth in GDP. In the future, the biggest problem for Czech companies will not be an absence of competitive goods or services, but rather a lack of production capacity caused by the lack of appropriately trained workers and increasing wages, as well as the strengthening of the Czech currency.

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Accommodation in sharing economy: view of young Peruvians

Alfredo Mantovani Escalante¹, Radoslav Škapa²

¹ Masaryk University
Faculty of Economics and Administration
Lipová 41a, Brno
E-mail: 469842@mail.muni.cz

² Masaryk University
Faculty of Economics and Administration
Lipová 41a, Brno
E-mail: skapa@econ.muni.cz

Abstract: *The text provides insight into motivation, barriers and shopping behaviour of young Peruvian consumers. More specifically, the empirical study sheds light on the use of the sharing economy to book accommodation. The data from the consumer survey conducted in 2019 showed limited experience of such accommodation services. Those who have personal experience with sharing service recognise its benefits and believe that the benefits outweigh the risks. The results suggest that if appropriate business/marketing actions are taken, the sharing accommodation market could grow soon.*

Keywords: *sharing economy, young consumers, market research, accommodation*

JEL codes: *M10, M31*

Introduction

The sharing economy has emerged through technological developments in terms of internet platforms, mobile applications and social media (Hamari, Sjöklint, & Ukkonen, 2015).

Most of the authors describe the sharing economy as a business or market model, while others describe it as a more complex socio-economical system. Stephen Miller describes the term as an economic model in which individuals are creating and sharing goods, services, space and money (S. Miller, 2016). More broadly, it can be seen as a facilitator of community ownership, localised production, cooperation, small-scale enterprises, and regeneration of economic and natural abundance; and as encouraging innovative forms of temporary access to products and services (Posen, 2016).

The growth of the sharing economy term and the development of its different business models have grown in parallel with another concept that is closely related to it, and this concept is the circular economy (Egerton-Read, 2016). The circular economy seeks to keep the resources within a closed-loop system, in which materials are transformed from one to another, broken down and reused over and over again in subsequent manufacturing processes in a way that the materials are not degraded and nothing is lost as waste (Sposato et al., 2017). Sharing economy and collaborative consumption are part of the circular economy, playing a role in extending the amount of time that a product is in use while maximising the utilisation (Egerton-Read, 2016). For example, it was identified by an average car is parked more than 90% of the time and that office spaces are unoccupied 30-50% of the time during working hours (Cave, 2015).

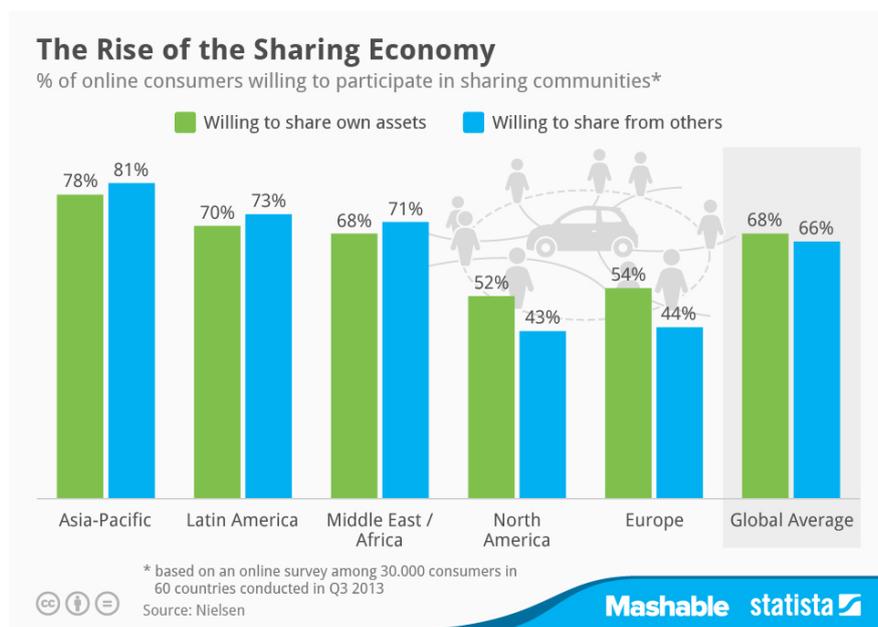
The sharing economy is in the process of transforming a great number of industries among which the hospitality sector is especially vulnerable: companies like Airbnb affect the entire tourism industry, in some ways changing the attractiveness of a destination by replacing the traditional forms of accommodation represented by hotels and resorts, with a wide variety of unique properties available on the sharing economy platforms (Cesarini & Nechita, 2017).

Some authors believe the sharing economy has many far-reaching effects: sharing economy brings several benefits to society, such as empowerment of ordinary people, efficiency, and lower levels of carbon footprint. Moreover, some believe that it has a potential of fairer value allocation, more democratically organised business, environmental consciousness, and the power to bring people together in new ways (Schor, 2016).

At the same time, the sharing economy contains a particular moral hazard, which is minimised with the creation of various review systems to build trust. Many studies suggest that moral hazard to consumers affects the involvement in sharing economy, the sharer and the user are supposed to trust each other for the transaction to take place (Wharton and Partners, 2015).

In order the sharing economy to be thriving, it relies on the people’s willingness to share (Van Welsum, 2016), which differs across cultures and countries as documented by the online survey by Nielsen company (Richter, 2014). The overall acceptance of sharing schemes is pretty high in most parts of the world, but interestingly this study shows that consumers in emerging regions such as Asia-Pacific and Latin America seem to be more open to sharing than those in North America and Europe (see the graph for details).

Figure 1 The Rise of Sharing Economy



Source: Richter, 2014

The literature suggests that special conditions should exist in order for the sharing economy to exist in a market - critical mass, idling capacity, belief in the commons, and trust between strangers (Botsman & Rogers, 2010). The critical mass denotes to the minimum number of people that are required in order for collaborative consumption to be possible. The idling capacity indicates that the items to be shared must be unused for some time. The belief in commons and the trust between strangers are parallel and associated with the overall trust that the people engaging in sharing economy activities do so with good intentions.

Owyang, Tran, & Silva (2013) suggest three different drivers of sharing economy: societal drivers, economic drivers, and technological drivers: The societal drivers are the ones related to the social aspect of the market and consumers, and these drivers include the environmental concerns, the need for social belongingness, and the increases in urban density. The economic drivers include the new source of income for the provider, the reduction of costs for the consumer, the increasing costs of production, and the value in accessibility over ownership. The technological drivers are significant for the development of sharing economy because most of the time, these drivers provide the platform and means for the sharing economy business models to exist. These drivers include the development of online platforms, the habits of internet usage, and the development of accessible and secure payment systems.

1 Research design

The purpose of this analysis is to explore and describe how the sharing economy penetrated the young Peruvian market of the accommodation segment and to determine which are the main characteristics, motivations, and challenges that exist for the sharing economy to grow in this sector.

A quantitative approach of research was chosen as it enabled capturing information from a high number of individuals about an accommodation segment of the sharing economy. The topics/items that were inquired in the survey result from literature review about motivation, risks and barriers to sharing economy in general and for accommodation specifically, as documented in academic literature. Due to the limited extent of the conference paper format, the thorough literature review is not covered in the article. In general, we can classify the research approach as deductive.

The research seeks to answer the following research questions (RQ):

RQ1: Do young Peruvian consumers use sharing economy accommodation platforms while travelling? How often do they use these platforms?

RQ2: Which are perceived benefits and risks that are considered by the young Peruvian consumers about the sharing economy accommodation platforms?

RQ3: Does gender, age, and sharing economy experience affects the view of consumers on accommodation services?

In harmony with the ambition to focus on young consumers, the respondents' selection was restricted to age between 18 and 35 years. An online survey platform (Google Forms) was chosen as the means to distribute the surveys and to collect the data for practicality reasons. Spanish seemed to be the most appropriate language to be used in the survey because Spanish is the most spoken language among young Peruvians. The wording of items was designed carefully (by a native speaker) in a way that the survey is easy to grasp and the questions not to be misunderstood. The questions were designed as close-ended; the majority had a form of five-point scales. The ordinality of variables was reflected by the use of the nonparametric tests in the statistical analysis (conducted in the SPSS 25).

The data collection started in April 2019 and stretched over two weeks. A total number of 120 participants between the ages of 18 and 35 answered the survey during these days. The sample consists of more females (59%) than males (41%). Additionally, there is a good representation of the age groups between 31 and 35 (33%), between 27 and 30 (31%), and between 23 and 26 (27%), and a lower representation of the age group between 18 and 22 (9 %). This uneven age and sex proportion resulted from convenience sampling chosen for practical reasons (i.e. limited resources).

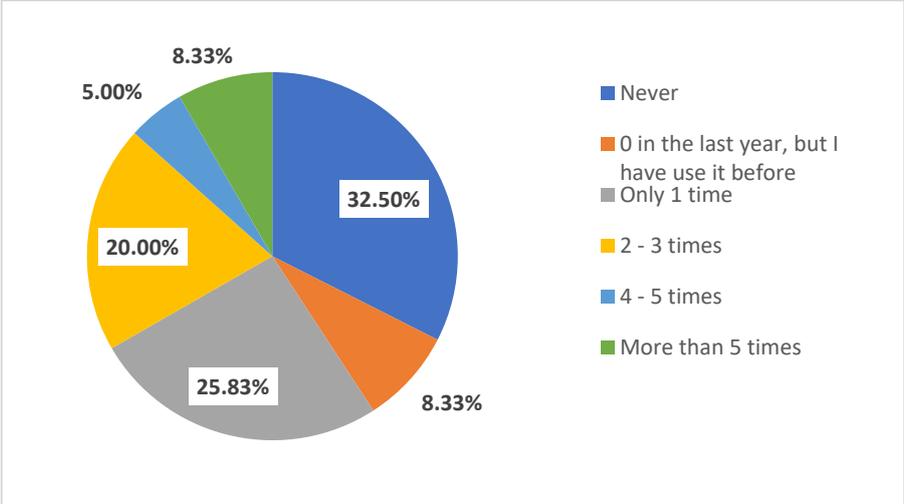
3 The findings

The RQ1 inquired the current practice and experience of young Peruvian consumers. The respondents have a strong preference for the traditional type of accommodations such as hotels or resorts (55%) and backpacker hostels (22%). A minority of people only (19%) prefer renting private accommodation. This type of private accommodation is the one that is being offered through the sharing economy platforms.

Importantly, one-third of consumers (33%) has never used a sharing economy platform and – at the same time - one fourth used a sharing economy platform to book accommodation just once in the last year. Both the numbers show that the sharing services are not very common in the respective group of consumers (the precise frequency of use is apparent from Figure 2). On the contrary, the commercial platforms are quite known among young Peruvians: Most of them (98%) know at least one sharing-economy platform, and there were two respondents only having never heard about any sharing economy platform from the accommodation segment. The Airbnb is the most well-known platform being recognised by 88% of the sample, followed by Couchsurfing recognised by 36%. The other platforms are known by less than 10% of the sample.

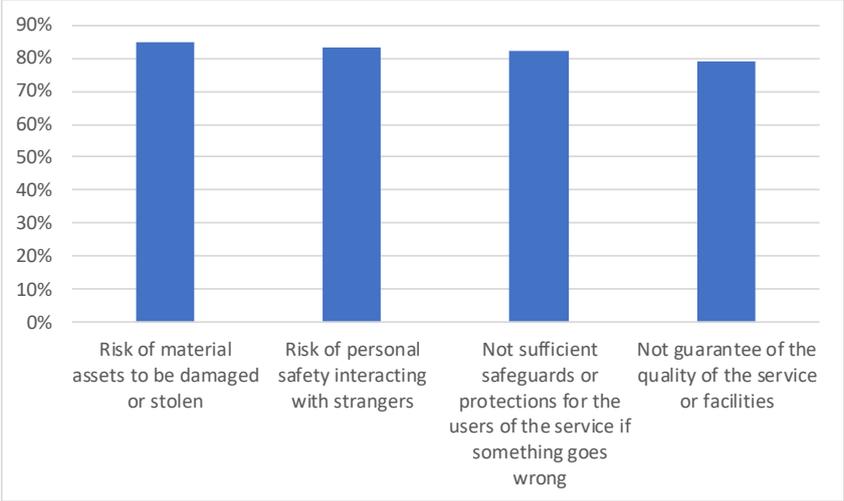
The perception of the risk by the consumers about the sharing economy platforms (RQ2) is an crucial characteristic of consumer behaviour. To determine the importance of the risks for the sample, the most critical risks were extracted from the literature review and included in the survey. The results show that most of the risks have similar importance: The most critical risk is one of getting the assets damaged or stolen (85%) – when providing the service, the second most important is the risk of personal safety from interacting with strangers (85%), the third most one is not having sufficient safeguards or protections in case something goes wrong (82%). Moreover, the least significant risk is not having the guarantees of the quality of service and quality of facilities (79%).

Figure 2 The Use of Sharing Economy Accommodation Platforms in the Last Year



Source: authors

Figure 3 Perceived risk importance



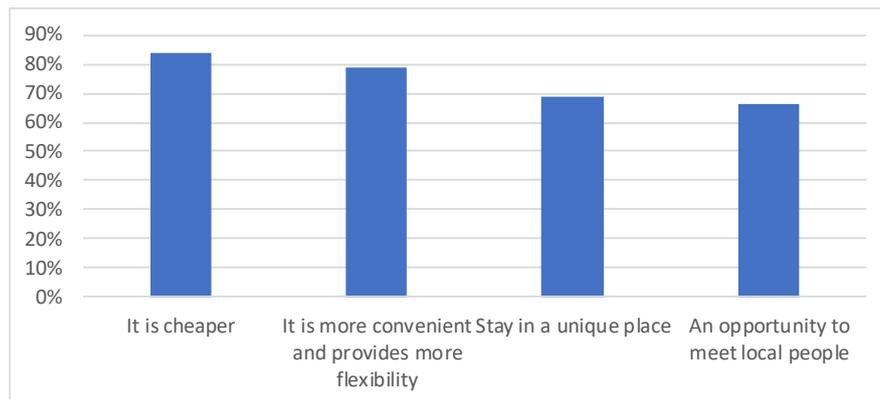
Source: authors

Similarly, the importance of the benefits for the sample is based on the literature review. The results show that, unlike for the risks, the benefits are not distributed equally: The most important benefit is the economic benefit from getting cheaper options on the sharing economy platforms (84%). The second is the convenience and the flexibility that the sharing economy provides from using technology (78%), followed by the opportunity that the participants can get to stay in a unique place, getting an exceptional experience that they could not get from staying in a more traditional accommodation option (69%). The least essential benefit out of the given benefits is the social benefit

of having the opportunity to meet local people and to make new friends from using a sharing economy platform (66%).

The RQ3 seeks to find if there a difference in experience, motivations, and risks between the male and female travellers of the sample. The Mann-Whitney and chi-square tests did not show substantial differences; the only one related to travelling mode - alone or accompanied: the female participants showed a higher preference for travelling with the family ($U = 1158$, $p = 0.001$) and friends ($U = 1273.5$, $p = 0.009$) than the male participants. Perception of motives and risk is the same, as well as the experience with sharing services. Besides, the women take online reviews of accommodation providers more into consideration.

Figure 4 Perceived Benefits Importance



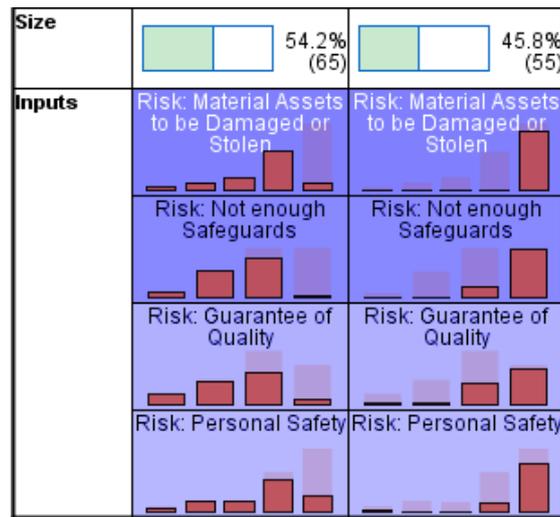
Source: authors

The similar test for age did not indicate any differences; the younger and slightly older respondents contained in the sample are homogenous in terms of their views and experience. What makes the difference; however, is the experience. Again, the within the researched areas (motivations, barriers, single/accompanied travelling, the overall perception of sharing services) the difference was identified in the travelling mode: The experienced customers would prefer accompanied travelling more often – they incline to travel with family members, friends, in a couple.

It is worth to mention two more differences: experienced customers are less afraid of personal safety risks ($r = - 0.264$, $p = 0.004$) and they strongly agree with the statement that benefits outweigh the risks in sharing services ($r = 0.261$, $p = 0.004$).

Several cluster analyses were run on available data with the ambition to investigate the differences in respondents. Only one of the tested model was reasonable from statistic and interpretation point of view - it is the model distinguishing the respondents according to their perception of risks. The respondents split into two groups – the one seeing the higher risk associated with this kind of accommodation (46%). The other (54%) perceive all the four inquired categories of risks to be lower (we can add that these customers also see the benefits/risks ratio more favourable for sharing services). The differences in 5 scale evaluation of the risks are presented in Figure 5.

Figure 5 Clusters based on perceived risks of sharing services in accommodation



Source: authors

Conclusions

The most important piece of information that can be taken from the results of the study is the lack of penetration that the sharing economy accommodation platforms have in the Peruvian market among young consumers as they still have a strong preference for the most traditional types of accommodation like hotels and hostels over renting private accommodations using sharing platforms. From the somewhat limited number of people who have used a sharing economy platform, most of them don't seem to use these platforms very often.

The results of the study show that all the risks proposed have a very similar importance for the participants. On the other hand, the perception of the importance of the benefits proposed of the sharing economy is not that uniform. By far the most important one is the cheaper option of accommodation that can be gotten from these platforms. From the business point of view, the finding of benefits/risk perception is of high relevance as people with experience with the accommodation platforms were satisfied with this way of accommodation. It suggests that appropriate marketing measures can lift the market potential. Another fact that speaks in favour of the partial homogeneity of young Peruvians, which means that the service offering and marketing communication could be uniform, at least shortly and no specific market segmentation, increasing the overall cost for service providers, is needed at the moment.

Finally, we have to point out some limitations that affect the validity of results: The first weakness is the limited number of questions that could have been included in the survey and limited sample size (also overrepresenting young people living in Lima) – both things result from resource restrictions for the research.

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Comparing Effectiveness of Display Ads and Influencer Marketing on Pinterest

Dušan Mladenović¹, Danish Ishtiaq Ahmad², Anida Krajina³

¹ Masaryk University
Faculty of Economics and Administration, Department of Corporate Economics
Lipova 41, 60200, Brno, Czechia
dusan.mladenovic.op@gmail.com

² Masaryk University
Faculty of Economics and Administration, Department of Corporate Economics
Lipova 41, 60200, Brno, Czechia
danish.parvi@gmail.com

³ Masaryk University
Central European Institute of Technology - CEITEC
Kamenice 5, 62500, Brno, Czechia
anida.krajina@gmail.com

Abstract: *Social media is becoming an integral part of our everyday business life. Individuals are spending hours on social media, either through their smartphones or computers. The goal of this research paper is to investigate and analyse the social media marketing tactics focused on the Pinterest platform in the context of a real e-commerce website. A so-called split test will be performed between influencer marketing and display ads and respective results in the form of metrics and sales will be presented. The results indicated that influencer marketing is significantly more effective marketing channel in comparison to various types of display ads on Pinterest. Main limitations of this study are that Pinterest is a relatively new marketing channel implying that not much of the research has been performed so far – leading to very vague theoretical foundations of the concept. Secondly, while identifying the characteristics of influencer marketing, the focus has been on influencers working in the niche of fashion and lifestyle, which naturally does not show the whole scope of influencer marketing on Pinterest. Promising venue for the future studies is the eventual test the integration of influencer marketing and display ads, contrary to this study.*

Keywords: *influencer marketing, pinterest, display ads, e-commerce, dropshipping*

JEL codes: M37, M31, M30

Introduction

Conventionally, advertising and communication were done by non-targeted and traditional ways through magazines, television, radio and direct email (Kim and Peterson, 2017). These methods proved to be not very effective as it was hard, or almost impossible to precisely target specific individuals (Scott, Laws and Boksberger, 2013). The advent of the internet and social media has changed the conventional communication and advertising industry on many fronts - one of which is social media as a newly established channel. Social media has changed the strategies and tools for communicating with customers and has become one of the essential factors in proactive influencing consumer behaviour. Companies have always fought for seeking consumer attention, and the advent of social media has provided a new ground to excel it. The high competition has forced both companies and marketers to explore new ways to reach their customers leading to the development of social media marketing. Social media has become an integral part of our lives, and it has a significant factor in influencing different aspects of our behaviours regarding purchases, opinions, evaluation, etc. Also, the general easiness and cost-effectiveness of internet marketing channels, compared to the conventional ones, has enabled businesses of all kinds to reach their target audiences more efficiently. Social Networking Sites like Facebook, Twitter, Pinterest, Instagram, etc. have changed and are changing the course of internet marketing. For instance, the number of active monthly users on Pinterest is well over 250 million (Pinterest, 2018). This remarkable number indicates how potentially useful Pinterest and other social media platforms could be for companies to promote their brand, products, and services (Mladenovic and Dolenc, 2016). Social media also gives its users the freedom and ability to review products and services that they use (Mladenovic, Krajina and Miliojevic, 2019). This thing helps in influencing other potential customers and helps the

company in getting useful feedback about their product or service. For this paper Pinterest platform will be considered with the general goal of observing deviations between metrics when influencers and display ads (Promoted Pins) are utilized. Therefore, the main research goal is: *What communication channel (influencer marketing or display ads) is more effective in the context of generated sales?*

1. Theoretical background

The rise of social media gave birth to social networking sites (Tuten and Solomon, 2014). The online communities that allow people to socialize and interact with each other are known as social-networking sites (Kent et. al, 2018). These sites allow users to connect with other users by creating personal-information profiles, inviting friends and family to gain access to those profiles, sending messages and comments, etc. (Kaplan and Haenlein, 2010). The personal profiles can include various types of information about the users. It includes their names, dates of birth, photos, videos, audio files, and blogs. In short, social networks emerge from the ability of users to represent themselves and their interests and to network with other like-minded users. Facebook, Pinterest, Twitter, LinkedIn, Instagram, VK, and Myspace are few of the best-known social networking sites. Usage of social media networks produces outcomes such as community building, content sharing and collaboration enhancement (Ngai et. al, 2015).

If an entity strives to reach a wider audience, it can do it by literally paying Pinterest to promote their pins (pins equals posts on other social networking sites). They look the same as normal pins. To run a promotional campaign, Pinterest provides an option of crafting advertising campaigns for business accounts (Chasser and Wolfe, 2010). The process is replicated from the offline environment or other online contexts. The business needs to start by defining the campaign goals, set a daily budget and the total budget. Once these are decided, an image or pin needs to be selected for promotion. The following step involves precisely selecting the target audience. There are a remarkable number of options available to define the target audience (e.g. keywords, demography, device, gender, language, etc) (Gill et. al, 2007). Once all these steps are followed the pin/post is ready for promotion. The campaign runs until the daily budget is reached. According to Gilbreath (2014), the awareness of the advertisements has increased by 12 percent compared to last year, but most of the users have not seen any advertisements. Those who have seen the advertisements have been neutral towards them. Pinterest users do not consider the display ads as annoying as the ads perfectly converge with the normal pins and hence does not harm user experience, rather users called it more relevant content (Gilbreath, 2014). Half of the active users have clicked on the Promoted pins to retrieve more information about the product and about 40 percent of them have made a purchase. The most popular categories for shopping are fashion and clothing, arts and crafts. Social media influencers represent a new type of independent, third-party endorsers who shape an audience's attitudes through blogs, tweets, and the use of other social media channels (Glucksman, 2017). Through sites like Instagram, YouTube, Twitter, and Facebook, social media influencers create content promoting certain brands to obtain a following and brand recognition (Kucuk and Krishnamurthy, 2007). According to Bolan and Williams (2008), the success of social media influencers is vitally important to brands; therefore, technology has been developed to identify and track influencers' relevance to a brand or organization. This technology tracks the number of hits on a blog, times a blog is shared, likes and comments, and followers. These points are pivotal aspects of social media influencer's success (Bolan and Williams, 2008). Influencer marketing on social media opens a new channel for brands to connect with consumers more directly, organically, and at scale to their everyday lives. Social media influencers promote brands through their personal lives, making them relatable to the average consumer. According to Glucksman (2017), *When a party attempts to influence another to take specific actions, a dynamic ensues that can change the course and content of their relationship.* Influencers truly serve as the ultimate connection between a brand and a consumer. Through their candidness and openness with consumers, influencers have high social clout and credibility (Zietek, 2016), which is what makes the phenomenon so successful. Where traditional marketing targeted mostly mass audiences, influencers have the unique ability to target niche audiences that have until now been unreachable (Bakos, 1997).

2. Methodology

For this paper, authors have been using the so-called split test - widely referred to as the A/B test (Content Marketing Institute, 2017). The test is widely utilized in the online environment and consists

of verifying how target audience react when exposed to different stimuli (in this case two different communication channels). Moreover, two campaigns have been planned, developed and consequently launched. The first one was directly engaging with the Pinterest platform - in the form of promoted pins (the type of ads in literature known as display ads). On the other hand, two influencers in the respective niche market have been selected, contacted and consequently, the promotional content have been generated and disseminated. Both campaigns were in the English language, targeting the US market and were launched at the same timestamp (Mondays - 9 AM local time). Some of the metrics that have been closely investigated include (adopted from Gill et. al, 2007): paid reach, likes/dislikes, comments, reactions, CTR, bounce rate and ultimately - total sales. To gather wider and more profound sentiment about the quality and relevancy of videos, comments have been read, monitored and actioned. Moreover, authors were following those profiles that did share respective content onto their pages and investigating publicly available data from those public pages. Based on these, the reported findings and conclusions have been extrapolated. In general, two buying personas were developed based on the already accumulated data on GonChas.com. The first buying persona is a female in her 20s, 30s, and 40s, living in the USA. She is a student or a job holder having an interest in fashion and shopping online. She is a user of Pinterest and uses it for getting inspiration. The second persona is in the same age group that includes women that are interested in DIY and crafts, home décor, fashion, beauty and wellness living in the USA. DIY stands for "Do it yourself" and means activities for which there is a choice between doing it oneself or hiring someone else (Hill, 1979).

Both campaigns were sending individual prospects to the online shop whereby all metrics have been collected. The website GonChas.com is an e-commerce website build on WordPress platform and uses the "WooCommerce" plugin that allows selling merchandise online. The main idea of the website is to outsource less-expensive, high quality and viral items from Chinese site Aliexpress.com and sell it on gonchas.com for a profit margin. The supply chain management method used is known as drop-shipping. In this method, the distributor ships individual orders directly to the customer on behalf of the online shop (Tarn et. al, 2003).

3. Findings and discussion

In this chapter general findings will be presented together with follow up discussion and overall campaign performance for the duration of the testing.

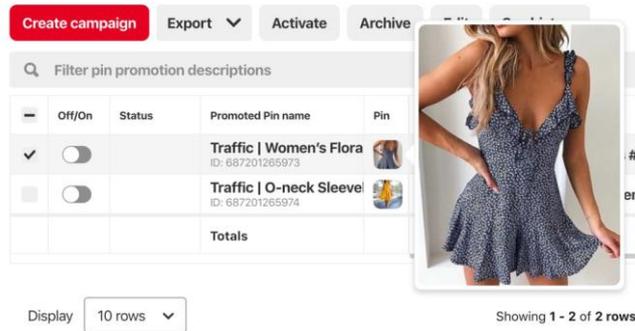
3.1. Display Ads (Promoted Pins)

The display ad campaign ran for seven days (May 4th, 2019 – May 11th, 2019) and used all the allocated budget. Before the campaign, two trending products are selected for promotion using this channel. Both products are women in summer dresses. The products were chosen according to the current season, demand and trend. To get in touch with the target audience, buying personas (that are already mentioned) have been utilized to narrow down the number of individuals. The following list of interests was indicated in the campaign setup stage:

- Women's Fashion
- Dresses
- Summer dresses
- Women's apparel
- USA

In general, due to its relatively simple setup and straightforward execution Wilkinson et. al, (2016), the ad format selected was Promoted Pins. In its essence, this type of ads has only one image per product post. The respective images were taken from the sellers' page on AliExpress.com. Another reason for choosing Promoted pins over, for instance, Carousel ad, was due to extensive authors' experience with this type of ads on Pinterest and due to proven success rate so far.

Figure 1 Display of Promoted Pin



Source: Own data

According to Johnson (2017), Carousel ads had 0.95% click-through rate (hereby CTR) with \$0.18 CPC while Promoted Pins had an average of 1.80% CTR with \$0.18 cost per click (hereby CPC). The CPC is the same for both because it was selected manually. Both ad sets were launched with the goals of traffic and product sales. Additionally, the campaign included audiences with the indicated interests:

- Home Decor (Interests)
- Women's Fashion (Interests)
- Beauty (Interests)
- Women Jewelry and accessories (Interests)
- Women's Top (Interests)
- Online shopping (Interests)
- Fashion Trends (Interests)
- Makeup and hair (Interests)

The settings of ad sets for the traffic campaign was: daily budget \$20, CPC of \$0.18 was selected manually, ad placement both newsfeed and search, the interest was narrowed down to the interests from the Google and Pinterest analytics, audience were only women between 18 to 44, location selected was only USA, English was selected as the language of the targeted audience, devices selected were Android, iPhone, and web, and normal pacing was selected for the ad. The Pinterest Ad showed a potential monthly audience size of 42m-56.8m for the targeting criteria selected. Every ad contained one viral image of the product, a title and relevant hashtags were used in the description. The traffic results for the one-week campaign is shown in the figure below. All the metrics are acquired from Pinterest Ads report. The return on investment (hereby ROI) and conversion rate are calculated separately as they needed data from both Pinterest ads and GonChas site. The number of clicks has been taken from the Pinterest ads report while the number of sales has been taken from the GonChas site. The total amount of sales is taken from the GonChas.com site while the Pinterest ad gave the total amount spent on the campaigns:

Figure 2 Display Ads Campaign Results

The screenshot shows a detailed table of display ads campaign results. The table has columns for 'Off/On', 'Status', 'Promoted Pin name', 'Pin', 'Impressions', 'CPM', 'Engagements', 'Clicks', 'CTR', and 'CPC'. Two pins are listed: 'Traffic | Women's Flora' and 'Traffic | O-neck Sleeve'. A 'Totals' row is also present. Below the table, there is a 'Display' dropdown set to '10 rows' and a status indicator 'Showing 1 - 2 of 2 rows'.

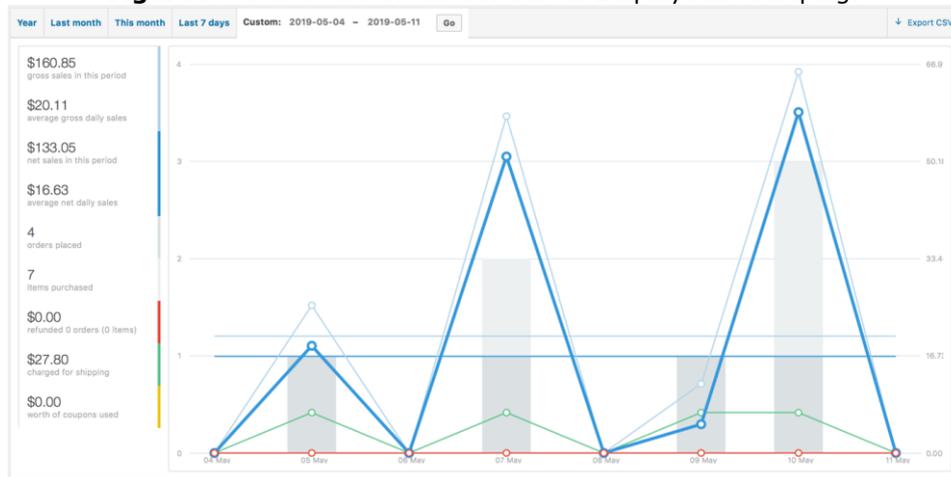
Off/On	Status	Promoted Pin name	Pin	Impressions	CPM	Engagements	Clicks	CTR	CPC
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Traffic Women's Flora ID: 687201265973		19,418	\$2.12	548	222	1.19%	\$0.18
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Traffic O-neck Sleeve ID: 687201265974		13,042	\$3.79	864	522	2%	\$0.18
Totals				32,460	\$2.99	1,412	744	1.66%	\$0.18

Source: Own Data

Consequently, a total of four orders were placed during the observed timeframe and the total gross sales achieved by the two items was \$160.85, as seen in the figure below. This amount also includes

the shipping charges. Both the items had free shipping on AliExpress, so the shipping costs are also included in the total amount of sales. Furthermore, the promoted items received a total of 744 clicks while the total impressions stood at 32,460 while the CPC stood at \$0.18. One of the products achieved a CTR of 2% while the other stood at 1.19%. The total amount spent on the ad campaign was \$133.76 for one week. The gross sales during this period were \$160, out of which \$75 went into order fulfilment. The overall loss was \$48.76 with a negative ROI. In general, the display ad campaign was not profitable - and resulted in a loss of resources.

Figure 3 Sales Overview as a Result of Display Ads Campaign



Source: Own Data

Consequently, the campaign itself was not able to reach the predetermined goals (increasing website traffic and total sales). The overall CTR was around 1.66% which is lower than the industry standards of 2.69% (Irvine, 2019) and is not sustainable in the long run. The conversion rate was also very low as only 4 people placed orders out of 744 people who went on the site. It was calculated by dividing total purchases by the total link clicks. The items promoted were two summer dresses for women. Both were selected from the viral dresses on Pinterest so a higher conversion was expected from them. The bounce rate was around 63% during the period of a Pinterest ad campaign. That is higher than the standard bounce rate for e-commerce sites (Irvine, 2019). The optimal bounce rate for e-commerce and retail websites is 20%-40% (Pawel, 2018). Possible reasons for a high bounce rate could be:

- Slow load time of the page
- Poor site navigation
- Not enough product information
- Poor product photos/description
- Not enough trust signals

In the case of GonChas.com the page loading time is three seconds, which is a lot faster than the average loading time of a landing page found by google as twenty-two seconds (Googleapis, 2017). The navigation and product information architecture is also clear. The possible reasons for the high bounce rate can be poor product photos/description and not enough trust/reliability signals. Consequently, in the future campaigns, these issues should be addressed and incorporated.

3.2. Influencer Marketing

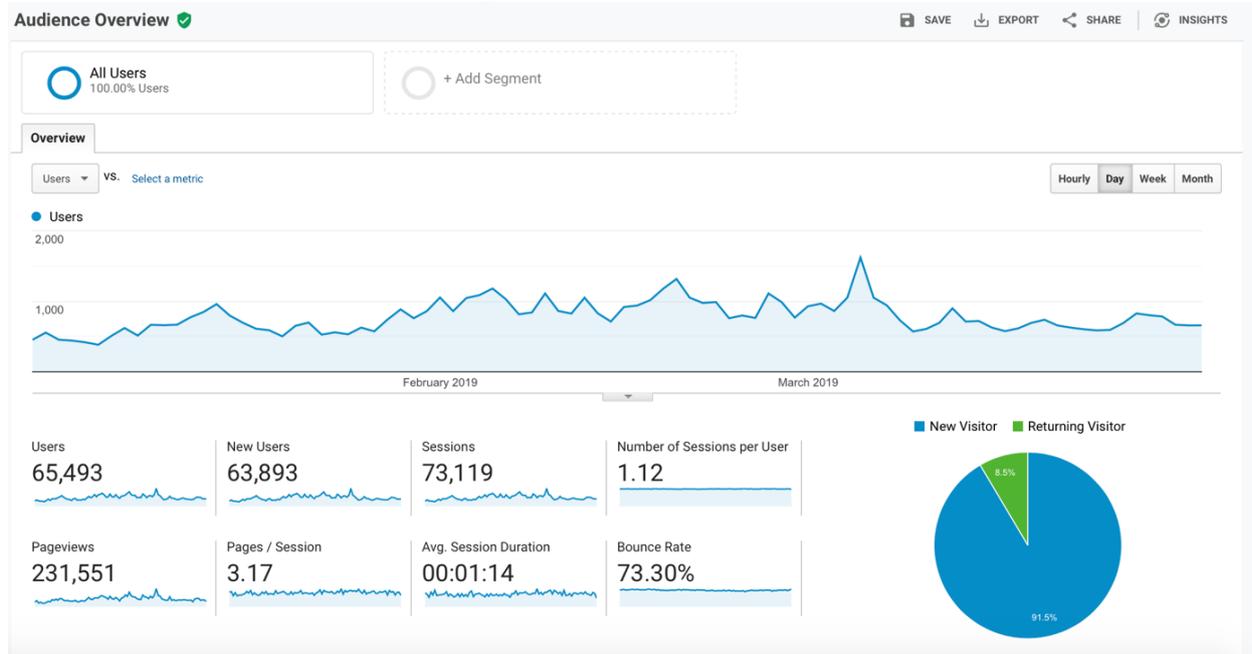
The data concerning the influencer marketing campaign has been for the course of one month (May 11th, 2019 - June 11th, 2019). The total budget allocated for influencer marketing was 3000 EUR. A total of two influencers were used for marketing the products directly from GonChas.com's Pinterest account. Important metrics concerning the influencers' credibility, is the number of followers. One of the influencers has 2.6 million followers while the other one has 2.1 million followers. Both of the selected influencers are highly involved with the fashion niche, which was a precise match for the products that are population GonChas.com. Most of the items promoted during this period were from the following categories:

- Women's Dresses
- Women's Jewelry
- Women's bottoms

- Women's tops

Every influencer posted the unaccounted number of pictures of the same products for one month. The total traffic recorded during the respective period was over 65,000 unique visitors with total pageviews of slightly over 231,000. The following figure from Google analytics show the stats of GonChas.com for the selected period.

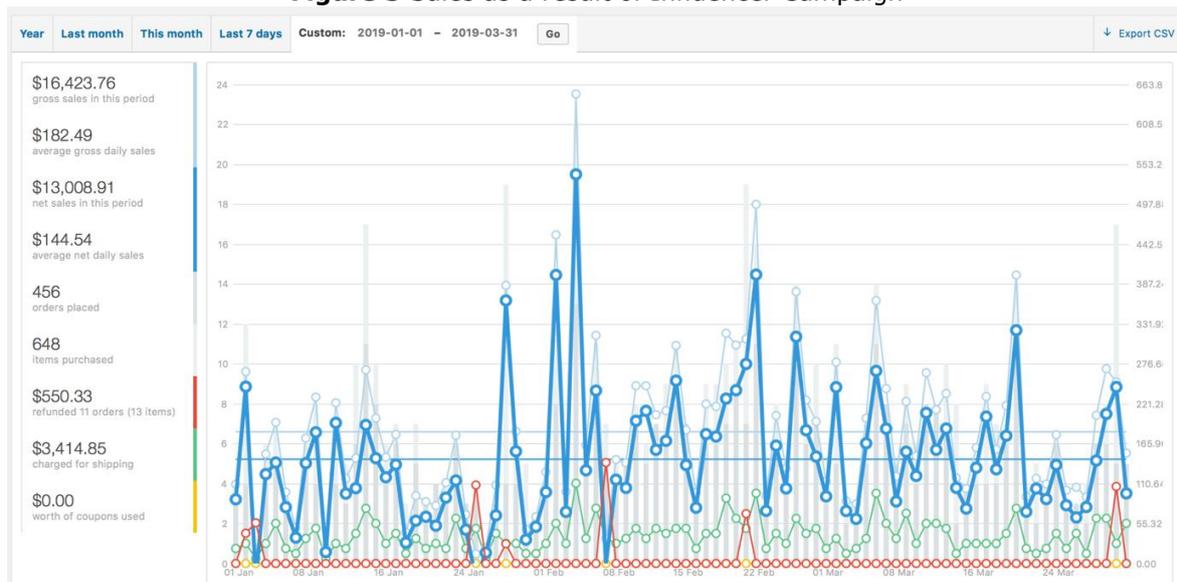
Figure 4 Traffic Recorded



Source: Own data

As a result, a total of fifty-six orders were placed and six hundred forty-eight items were being sold during the month. The gross sales amounted to 16423 \$. The total amount paid to two influencers was slightly above 2100 EUR. As indicated the total revenue recorded during this period was 16423 EUR. Out of this amount, approximately 8700 EUR was spent on fulfilling orders and paying out the Aliexpress suppliers with additional 2100 EUR dispatched to the influencers' bank accounts. The remaining amount of 5623 EUR was a subject of an income tax calculation. After deducting income tax, some 3330 EUR left as pure profit - consequently indicating a positive return on investment.

Figure 5 Sales as a result of Influencer Campaign



Source: Own data

After the careful examination of the captured metrics for respective communication channels - it is to conclude that overall results acquired through influencer marketing were significantly better than the results acquired through Pinterest promoted ads (display ads). There could be plenty of reasons

for this huge discrepancy. As per Joshi (2016), one of the main reasons for this huge difference is the significantly greater reach of influencers as compared to Promoted pins - this in terms of the dedicated resources. In the case of display ads, every click consequently implies some cost (so-called Pay Per Click payment principle). On the other hand, in influencer marketing, a fixed amount is paid upfront to the influencer and the upcoming clicks and traffic keep being generated for a longer period without any extra payment. In the case of Pinterest ads, the reach stops once the dedicated daily/weekly budget has been used. On the other hand, according to Berger and Milkman (2012), another reason for the differences in results could be the limited budget and the short time allocated to Pinterest ads. The results could have been different if a higher budget and a longer period was incorporated into the campaign plans. Worth mentioning is the fact that campaigns' plans for the current fiscal year have been developed last year.

Conclusions

As more and more social media is becoming an integral part of one's everyday life individuals are spending more time on, either through their smartphones or computers. This fact navigated many business entities to invest an ever-increasing amount of money on doing social media marketing. However, without a proper strategy and understanding of the specifics of the digital environment, these promotion campaigns do not bring any tangible and longstanding results. In general, one of the crucial steps in crafting an effective marketing campaign is a profound understanding of the target audience - and this is rather a general remark. However, in an online environment, it is becoming easier and more comfortable to capture necessary data which should pinpoint certain patterns and consumer behaviour.

Namely, Promoted pins as a type of display ads are fairly new compared to advertising options on other social networking sites. To successfully implement display ads into a marketing portfolio a solid marketing plan must be previously developed (including all essential information like demographics, interests, journey maps, etc.). In continuation, another important channel on Pinterest is influencer marketing. By finding the right type of influencers and following the right strategy, brands can make more profit than other types of online marketing. As in the case of GonChas.com, influencers were able to generate a solid revenue, profit and draw the awareness up. Online, awareness could be measured by a number of Key Performance Indicators (KPI) - for instance, monthly engaged users are the users that have clicked, liked, shared, commented, or followed the Pinterest account of GonChas.com. Before the launch of the Influencer marketing campaigns, the number of people getting engaged per month was around 14,400, but after launching the influencer marketing campaigns, the monthly engagement rose to 30,021 - more than doubled. Also, the monthly impressions for GonChas.com on Pinterest increased from 300,000 to 938,000 - threefold. One of the most important results achieved through this study was the optimization of influencer marketing. GonChas.com has been utilizing influencer marketing since the beginning but those campaigns were not all fully optimized (in terms of the season, trends, choice of influencers, choice of platform, etc). During the planning phase, profound research has been carried out to find the most suitable influencer. The type of products used, and the timing of post share was also noted. This optimization proved to be very helpful and the results achieved by these optimized campaigns have improved the overall performance of GonChas.com, in terms of a number of sales and total revenue generated. The influencer campaigns have helped GonChas.com in increasing the number of followers on Pinterest that went from 11,300 to 12,086 - however, this was not an ultimate goal of the campaigns. Although this research paper provides practical results to navigate and guide individuals to successfully market on Pinterest, it certainly has limitations. Firstly, Pinterest is a new form of social media, and there have not been many studies around it. Secondly, while identifying the characteristics of influencer marketing, the focus has been on influencers working in the niche of fashion and lifestyle, which naturally does not show the whole scope of influencer marketing on Pinterest. Another limitation while running Pinterest ads was the limited budget and time allocated for Promoted Pins (Display Ads). A more extensive and thorough campaign could have been launched with a higher budget, and more refined results could have been achieved. Nevertheless, the one-week campaign provided valuable information about Pinterest ads, and insights captured could be used in planning future campaigns. Also, Pinterest is rapidly and continuously changing, features are being added, removed or modified on almost a weekly basis.

Future research in the future can include methods on how to integrate influencer marketing with display ads. Moreover, integrating Pinterest ads with other advertising channels such as email, search engine marketing, etc. could present a promising research avenue.

Although limited by the number of resources and time, this work tried to grasp the topic of Pinterest advertising and Pinterest Influencer marketing comprehensively. The research contributed to furthering knowledge about Pinterest, as it is fairly new and does not have much research work done on it. This study also gathered valuable knowledge on how to plan, launch and evaluate marketing campaigns on Pinterest.

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Innovation, human development and enterprise productivity: evidence from transition economies

Karina Nagieva¹, Oleg Mariev², Andrey Pushkarev³, Natalia Davidson⁴

¹ Ural Federal University
Graduate School of Economics
e-mail: nagieva1995@list.ru

² Ural Federal University
Graduate School of Economics
e-mail: o.s.mariev@urfu.ru

³ Ural Federal University
Graduate School of Economics
e-mail: a.a.pushkarev@urfu.ru

⁴ Ural Federal University
Graduate School of Economics
e-mail: natalya.davidson@gmail.com

Abstract: *In our study, we address the challenges to increase productivity in order to compete on the international market faced by the firms in transition economies. We assess the impact of local innovation level on the productivity of enterprises. We employ data from Business Environment and Enterprise Performance Survey (BEEPS) for 2012-2014 covering 15883 enterprises in 30 countries of Central Asia and Eastern Europe. We measure innovations as introduction of new products or services on average by the firms in a similar-sized location of the same region and country. This aggregated indicator helps to mitigate reverse causality between performance and innovations on the firm level. While studying the impact of local innovation level on productivity, we take into account the role of human development using Human Development Index for 2014. Our results show that the effect of local innovation level is positive and significant for the enterprise productivity. Interaction of innovation level with the level of human development and its components turned out to have an even stronger effect on labor productivity. The results emphasize that human development is important for the performance of innovative firms in various countries, making it essential to improve education, health and quality of life.*

Keywords: *innovation, firms, productivity, human development, transition economies*

JEL codes: *O30, O15, O52.*

Introduction

An important role in innovation development belongs to the state and business. Firms need to introduce something new to gain competitive strengths, open new markets, to expand the range of products and in general to survive. Governments, in their turn, need to create favorable conditions for the innovation environment. Therefore it is important to study the innovation activities of firms.

In this regard, the aim of this paper is to estimate the impact of innovations on the productivity of enterprises from transition economies based on BEEPS 2012-2014. We consider the impact of innovations on productivity, taking into account the level of human development on the country level. For this, the Human Development Index and its components for 2014 are used.

The results show that average local innovations are positively significant for the firms' productivity, and the interaction effect between innovations and the level of human development has an even stronger effect on labor productivity. This highlights importance of the quality of human capital, specifically of education, quality of life and health of the population in the country for innovative activity of firms.

The rest of the work is structured as follows. In the next section, a brief review of the existing research is provided. Following section is devoted to description of data and methodology. Then we present and discuss the results of econometric analysis. The last section concludes and discusses possible policy implications.

1 Literature review

Many theoretical and empirical studies are devoted to the relationship between innovations and firms' competitiveness. Scientists pay special attention to competition as a powerful mechanism for creating innovations.

Schumpeter identified five types of innovations: the launch of a new good on the market, introduction of a new production method, opening a new market, the conquest of a new source of supply of raw materials or semi-finished products, and introduction of a new form of organization of production. He also established the difference between inventions and innovations, pointing out that not all inventions reach commercialization, i.e. become innovations, while only innovations bring real economic results to the company. Moreover, innovations do not always require introduction of inventions into the market (Lehtoranta, 2010). This approach remains relevant to this day.

In the neoclassical model of growth Solow considered the sources of the technological process as external to the activities of firms. Later, the models of "endogenous" growth were developed to provide a more in-depth analysis of the sources of growth in the long term. It was done through formation of investment that creates knowledge in the model. Investment provided a two-sided causal link between innovation and economic growth. Endogenous models present technological progress as the key to long-term economic growth, and it is internal to the economic process, dependent on investments in innovations, primarily through investments in research and development and human capital (Smith, 2011).

Teplykh (2018) investigated the impact of the 2008 crisis on the relationship between innovation and productivity. The author used data on 1500 large Western European enterprises for the period from 2004 to 2011 (before and after the crisis) based on Amadeus. To measure innovation, two indicators were used, the first one was patents, and the second one was a dummy variable, which reflects external recognition obtained by the company for its new product (innovation award). The results showed that the crisis slightly affected the innovation award: in the post-crisis period, it depends more on R&D, size and membership in the association and no longer depends on the quality of management. At the same time, the innovative factors of a firm's performance are very different. Patented knowledge matters only in the pre-crisis period, while non-formalized rewards for knowledge and innovation become important only after a crisis.

Bartz (2016) compared the impact of management practices and innovations on productivity, using firm-level data on 30 developing countries of Eastern Europe and Central Asia for the period 2011-2014. The authors adapt the well-known three-stage CDM model by linking performance with innovative activities and management practices. The results show that both the returns from innovation and the returns from management methods are important productivity factors in developing countries.

Hall et al. (2012) explored investment in R&D and ICT (information and communications technologies) at the firm level in order to assess their relative importance and to find out if they are complements or substitutes. They used data from an unbalanced panel of Italian industrial firms based on a survey. The results showed that R&D and ICT are closely related to innovation. Besides, the authors found that R&D is more important for innovation, while ICT is more important for productivity. In addition, the authors found complementarity between R&D and the skills of workers in the field of innovation.

In numerous papers, the authors emphasize the role of human capital in economic development. Mincer (1958) suggested a model aimed at estimating investment in human capital. He pointed out an important role of the non-economic factors in income distribution. Private rate of return is the main indicator that characterizes effectiveness of investment into education. It reflects the ratio between costs and benefits of education for an individual and allows determining the overall returns from investment into education.

Moretti (2004) based on USA data for 1979-1994 reveals that a 1% increase in the share of college graduates results into 0.4% increase in wages of college graduates, 1.6 % increase in wages of high school graduates and almost 1.9% increase in wages of people who did not finish high school. In other words, this study reveals both positive direct effects and positive externalities from the quality of human capital. Muravyev (2008) estimates a standard Mincer wage regression augmented by the variable reflecting the level of education in the city based on the Russian data for the years 1989-2002. He reveals an externality from human capital that is very close to that revealed by Moretti (2004): 1% increase in the share of university graduates in the cities results into 1-2% increase in the income of all citizens.

Rosenthal and Strange (2008) find the same positive externality from the share of employees – college graduates on the individual wage in the US within 5 and 25 miles distance, the effect within 5 miles distance being substantially greater. Teixeira and Queirós (2016) based on panel data for developed countries (21 OECD countries, 7 Eastern European and 2 Mediterranean countries) during the years 1960–2011 and 1990–2011 reveal that human capital and dynamics of production specialization in the countries are the most important factors of economic growth. Moreover, interaction of human capital and industrial structural change was found to substantially affect economic growth. In the long run for the developed countries this impact is positive.

The authors analyze the impact of human capital based on city (Muravyev, 2008) or country level (Teixeira and Queirós, 2015), measuring human capital in most cases as a share of college graduates (Moretti, 2004). In the models reviewed by us besides the impact of human capital on productivity, its impact on economic growth, on the other production factors and on the regional social and economic indicators was estimated. As for the impact of human capital on the enterprise performance, it tends to be positive.

To estimate the impact of human capital on various economic indicators, first it is necessary to measure it. The approaches to measuring human capital are based on a number of indicators reflecting education level, income and overall well-being of people. In our study we rely on the Human Development Index – HDI that has been published by the UN since 1990 (UN, 2019). Three indicators that form HDI are life expectancy, education and income. The index allows comparing the world countries along these dimensions reflecting the major aspects of human capital development. This way analysis of human capital is not limited by GDP per capita or real wage, but reflects other important aspects of human development as well. Therefore HDI has gained popularity as a tool for economic policy.

Having reviewed analysis of innovation process, its impact on productivity, and relevant literature on human capital, we turn to data and methodology used in our work.

2 Data and methodology

To assess the impact of innovation on productivity, we use data from BEEPS (Business Environment and Enterprise Performance Survey) for 2012-2014 for transition economies. Such countries tend to be the most vulnerable and sensitive to various crisis phenomena and fluctuations. In the survey, firms report information related to their activities, including innovation.

We use a sample of 15883 enterprises from 30 countries of Eastern Europe and Central Asia.¹ On average, 93% of companies are private, 47% are of foreign ownership, and 7% of companies are fully state-owned. The average age of surveyed enterprises is 14 years. The distribution of firms by industry, size and location in cities is presented in table 1.

Table 1 Distribution of firms

Characteristics	Number of firms	Share of firms, %
Distribution along industries		
Retail	3614	23
Wholesale	2441	15
Construction	1319	8
Food	1112	7
Non metallic mineral products	685	4
Fabricated metal products	632	4
Hotel and restaurants	623	4
Garments	573	4
Machinery and equipment	539	3
Services of motor vehicles	417	3

¹ Namely, we use data on the following countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Macedonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Turkey, Ukraine and Uzbekistan

Chemicals	402	3
Publishing, printing and recorded media	374	2
Furniture	340	2
Wood	331	2
Transport	327	2
Textiles	322	2
Plastics & rubber	300	2
Supporting transport activities	283	2
Electronics	233	1
IT	224	1
Other industries	790	5
Distribution along size		
Micro and small (less than 20 people)	8771	55
Medium (from 20 to 100 people)	5073	32
Large (more than 100 people)	2039	13
Distribution along location		
Capital	3364	21
City with population over 1 mln people (not capital)	1859	12
City with population 250000-1 mln people	4180	26
City with population 50000-250000 people	2710	17
City with population less than 50000 people	3893	24

Source: authors' calculations based on BEEPS database
(Business Environment and Enterprise Performance Survey /Official website of EBRD)

Our econometric estimation is based on the Cobb-Douglas production function. The dependent variable is the logarithm of revenue in dollars per employee. The capital-labor ratio was calculated as the logarithm of net book value of the firm's total assets (in dollars) per employee. To measure the innovation rate, we use responses to the question of whether the firm developed new products or services in the past three years. This indicator was converted into a dummy variable, equal to 1 if the answer to the above question was positive and 0 otherwise.

To control for other characteristics of firms we use the following indicators from the survey: capacity utilization, export openness (share of direct and indirect exports in the total sales in %), share of foreign capital in the firm. The capacity utilization is measured as the sum of actually produced output relative to the maximum possible output that could be produced by an enterprise (in %) - the more they produce, the greater the revenue is expected to be.

The inclusion of the export openness in the model reflects the degree of involvement of a company in foreign trade, which gives additional profit to the organization due to an increase in the number of consumers. And thanks to foreign participation in the management of the company, not only foreign technologies are transferred, but also the knowledge and experience of doing business. The model also includes industry and regional dummy variables to take into account specific features of each industry and regions within countries in which enterprises operate.

To measure the innovation, we use answers to the questions whether a firm introduced new products or services, or upgraded an existing product line in the previous years. These indicators were evaluated as dummy variables, equal to 1 if the answers to the above questions were positive and 0 otherwise. In order to mitigate the endogeneity problem associated with reverse causality between innovation and performance we use an aggregated indicator of innovation. In other words, we use the average level of innovation, i.e. introduction of new products or services, for the firms of a similar-sized location within the same region and country. Using grouped averages is one of the approaches to deal with endogeneity issues (Dabla-Norris et al., 2012; Fisman et al., 2007).

Descriptive statistics of variables involved in the model are shown in Table 2.

Table 2 Descriptive statistics of variables of the model

Variable	Mean	Standard Deviation	Minimum	Maximum
Revenue, thousand dollars	229 000	23 000 000	0	2 540 000 000

Capital expenditures, thousand dollars	1 762	27 800	0	1 300 000
Innovation, dummy-variable	0,2406	0,4274	0	1
Capacity utilization, %	73,9127	23,3243	0	100
Foreign participation, %	4,8621	19,7519	0	100
Export openness, %	9,5104	24,1715	0	100
Number of employees	64,9331	265,5488	1	11000

Source: authors' calculations based on BEEPS database
(Business Environment and Enterprise Performance Survey /Official website of EBRD)

From the table one can see large variation in the indicators (this can be seen from standard deviations). This happens, since enterprises of different sizes from different countries participated in the survey, and external effects, for example, industry-based ones, are likely to occur. The average revenue of enterprises amounts to 229 000 thousand dollars, the maximum value of sales volume is 2540 billion dollars.

On average, capital expenditures amount to 1762 thousand dollars (maximum reaches 1300 million dollars). An average share of foreign participation in the ownership of firms is almost 5%, exports in total sales are 10%, and there are also firms with a 100% share of exports and foreign capital. Production capacities of enterprises are loaded on average by 74%, for some firms they are fully loaded (maximum value is 100%). The average number of company employees is 64, maximum value is 11000. We should note that considering above-mentioned results, our estimates might be skewed towards larger firms.

In terms of innovation, it is worth noting that, on average, 24% of the surveyed firms from the countries covered by the sample introduced new products or services. This value is around the expected level, considering reports of the National Statistical Agencies of the considered countries

As a rule, the innovative activity of firms depends on the conditions in which it is carried out. More favorable conditions result in more successful and intensive innovation activity. One of these conditions is the level of human development in the country in which firms operate, and knowledge is especially important for innovation. In this study, we intend to explore the effect of innovation on productivity, taking into account the level of human progress in the country. To do this, we use the Human Development Index (HDI) for 2014, which coincides with the period of the survey of firms. The Human Development Index is calculated in the framework of the United Nations Development Program and constitutes a geometric average of three components - health and longevity (life expectancy at birth, in years and as an index), education (expected years of schooling, mean years of schooling, in years) and decent standard of living (Gross national income (GNI) per capita, in US dollars 2011 PPP).

The following formula is used to calculate each indicator needed for construction of HDI:

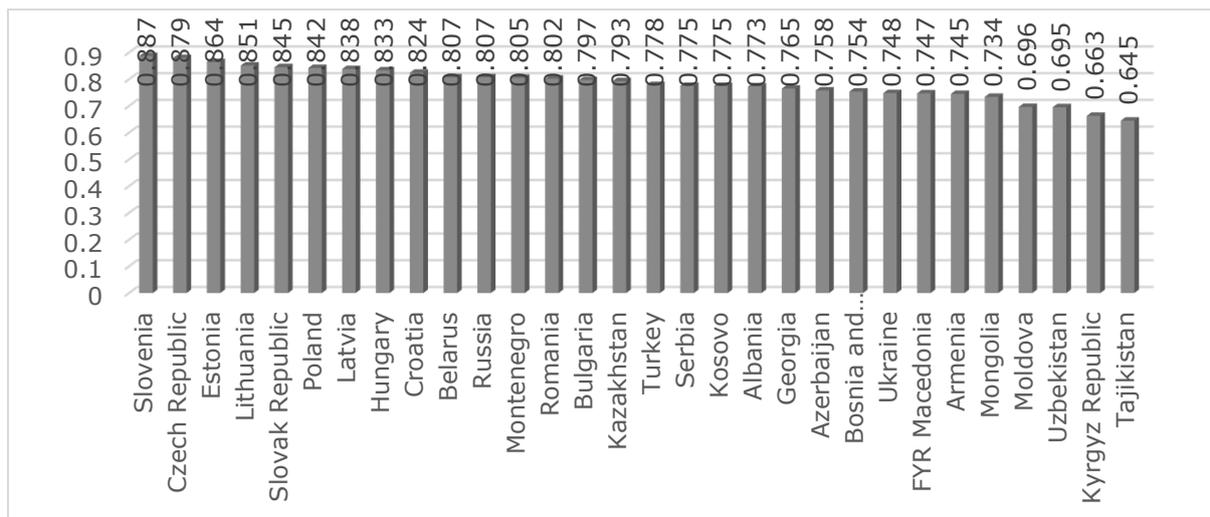
$$Dimension\ index = \frac{actual\ value - minimum\ value}{maximum\ value - minimum\ value} \quad (1)$$

UN classified countries into countries with very high level of human development (HDI not less than 0.8), high level (HDI not less than 0.7), average (HDI not less than 0.55) and low level of human development (HDI lower than 0.55).

We calculate the interaction term between the average local innovations and HDI and its components.

The graph below shows the distribution of countries by HDI.

Figure 1 The Human Development Index 2014 by country

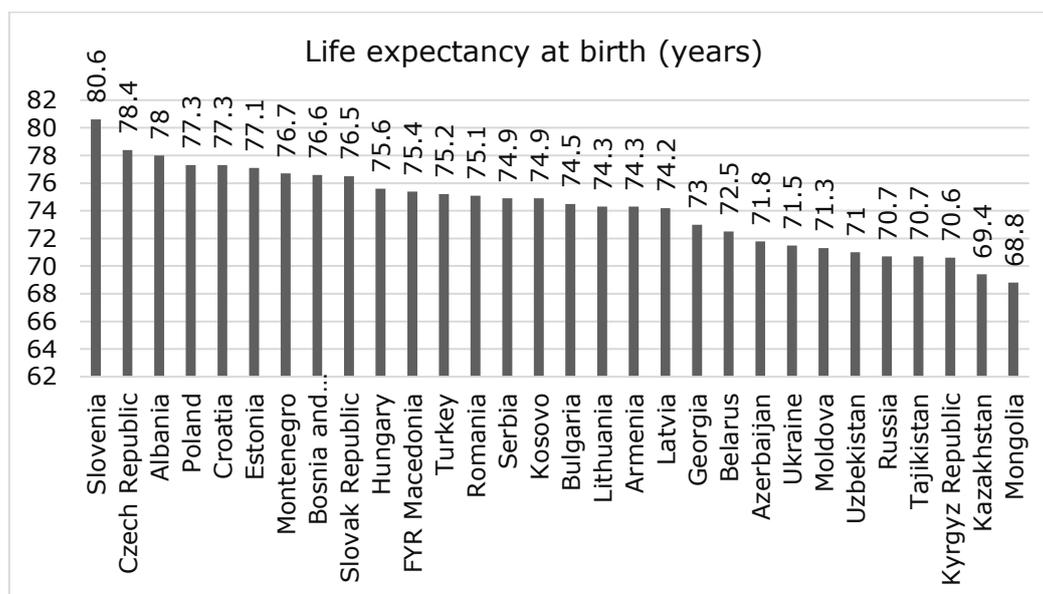


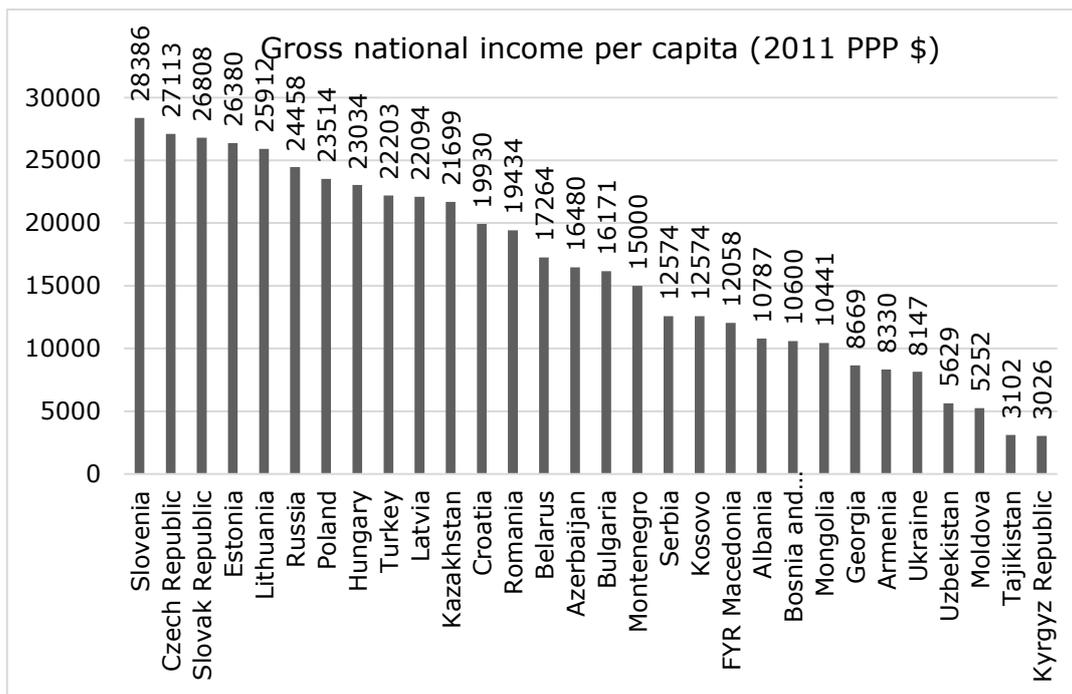
Source: authors' calculations based on Jähāna, S. (2015). Human development report 2015: Work for human development. United Nations Development Programme

As can be seen from the graph, Slovenia, the Czech Republic, Estonia, Lithuania and Slovakia are in the top five countries studied with the highest HDI. Last places belong to Mongolia, Moldavia, Uzbekistan, Kyrgyzstan and Tajikistan. According to the criteria implemented since 2014, 13 countries from this list belong to the countries with a very high human development level ($HDI \geq 0,800$), 13 countries - to countries with a high human development level ($0,700 \leq HDI \leq 0,799$), 4 countries - to countries with a medium human development level ($0,550 \leq HDI \leq 0,699$).

If we consider the HDI by components (see Figure 2), it can be noted that, in general, the highest life expectancy at birth is observed in countries such as Slovenia (80.6 years), the Czech Republic (78.4 years) and Albania (78 years). The lowest life expectancy is observed in Mongolia (68.8 years). Life expectancy is known to be determined by the conditions in which people live. Slovenia, the Czech Republic and Slovakia are also leading in terms of GNI per capita.

Figure 2 Components of the HDI 2014 by country: life expectancy at birth and GNI per capita

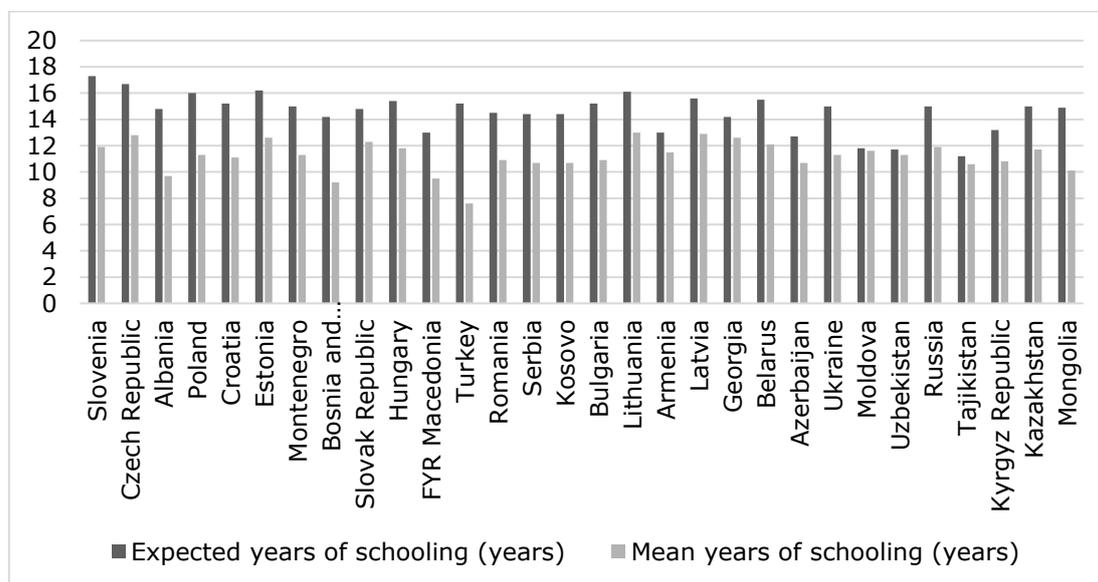




Source: authors' calculations based on Jähāna, S. (2015). Human development report 2015: Work for human development. United Nations Development Programme

The following components of the index by country show that, on average, people spend less time learning than national education system of their country allows (see Figure 3).

Figure 3 Components of the HDI 2014 by country: expected years of schooling and mean years of schooling



Source: authors' calculations based on Jähāna, S. (2015). Human development report 2015: Work for human development. United Nations Development Programme

Thus, the basic empirical model is as follows:

$$\log y_{ijrc} = \alpha_1 \log k_{ijrc} + \alpha_2 \text{averinnov}_{lrc} + \alpha_3 \text{caputil}_{ijrc} + \alpha_4 \text{forpart}_{ijrc} + \alpha_5 \text{export}_{ijrc} + \alpha_6 \text{Industry} + \alpha_7 \text{Region} + u_{ijrc} \quad (2)$$

where y - labor productivity, k - capital-labor ratio, $averinnov$ – average local innovations, $caputil$ - capacity utilization, $forpart$ - foreign participation, $export$ - export availability, $Industry$ – industry controls, $Region$ – regional controls, i, j, l, r, c – firm, industry, location (city), region and country, respectively.

When assessing the interaction effect of innovation and human development indicators, the model will take the following form:

$$\log y_{ijrc} = \alpha_1 \log k_{ijrc} + \alpha_2 averinnov_{lrc} * HumanDevelop_c + \alpha_3 caputil_{ijrc} + \alpha_4 forpart_{ijrc} + \alpha_5 export_{ijrc} + \alpha_6 Industry + \alpha_7 Region + u_{ijrc} \quad (3)$$

where $HumanDevelop$ – Human Development Index and its components.

In all specifications of the model, standard errors were corrected for greater reliability of estimates and to avoid heteroskedasticity.

3 Results and discussion

The results of the econometric analysis are presented in table 3.

Table 3 Results of the econometric analysis

Dependent variable: enterprise productivity

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Average local innovations	1,4192*** (0,2807)						
Average local innovations* HDI		2,0415*** (0,3358)					
Average local innovations* Life expectancy at birth (years)			0,0205*** (0,0037)				
Average local innovations* Life expectancy at birth (index)				1,8616*** (0,3258)			
Average local innovations* expected years of schooling					0,1058*** (0,0179)		
Average local innovations* mean years of schooling						0,1259*** (0,0236)	

Average local innovations* GNI per capita							0,0001***
							(0,00001)
Capital-labor ratio	0,2073***	0,2064***	0,2064***	0,2061***	0,2065***	0,2071***	0,2059***
	(0,0221)	(0,022)	(0,0221)	(0,022)	(0,022)	(0,0221)	(0,0219)
Capacity utilization	0,0029**	0,0029**	0,0029**	0,0029**	0,0029**	0,0029**	0,0027**
	(0,0013)	(0,0013)	(0,0013)	(0,0013)	(0,0013)	(0,0013)	(0,0013)
Foreign participation	0,0041***	0,0041***	0,0041***	0,004***	0,0041***	0,0041***	0,0041***
	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)
Export openness	0,0024**	0,0024**	0,0024**	0,0023**	0,0024**	0,0025**	0,0025**
	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)	(0,0011)
Industry dummies	YES						
Regional dummies	YES						
R ²	0,47	0,47	0,47	0,47	0,47	0,47	0,48

Source: authors' own calculations based on BEEPS and Human Development Report data

As can be seen from the table, average local innovations have a positive significant effect on the enterprise productivity. In other words, firms introducing innovations and operating in a region or city with a good innovative potential, tend to be more productive. This confirms the importance of the geographical concentration of firms' innovation activity.

The same time, it was found that the effect of interaction between average innovations and Human Development Index leads to almost 2 times greater increase in the firms' productivity. This effect is higher than in model (1). In other words, the higher the level of human potential in a country, the more intensively innovations will be introduced, and productivity will increase. The positive effect of the interaction of average local innovations and human development on the firms' productivity is also confirmed by the components of the HDI.

The results for all model specifications show a positive impact of all factors on the firms' performance. In particular, firms with higher capacity utilization tend to be more productive. The capital-labor ratio also leads to an increase in labor productivity.

Positive impact of exports and of the share of foreign capital on the firm's productivity indicates the importance of the company's involvement in international relations. Indeed, a firm not only expands the geography of sales, but also acquires other useful skills and knowledge, technologies and development strategies arising from foreign experience. Significance of industry and regional dummy variables indicates the importance of inter-industry and inter-regional differences within a country for the productivity of firms.

The results allow us to conclude that governments in transition economies need to pay attention to the quality of human capital, namely to education, standard of living and health of the population. This will help to increase global competitiveness of the firms in transition countries.

Conclusions

Analysis of thirty countries with transition economies showed a positive relationship between average local innovations and firms' productivity. That is, firms located in innovation-active cities tend to have productivity growth. At the same time, innovations have a greater effect on productivity when interacting with the level of human development in a country. Namely, we studied the Human

Development Index and its components: life expectancy at birth, expected years of schooling, mean years of schooling and standard of living.

The results emphasize the importance of the level of human development for innovation and lead to the economic policy implications aimed at human development. In particular, in order to increase life expectancy, the level of education and the national income per capita, it is necessary among other measures to combat poverty, to promote healthy lifestyle and improve healthcare system, to protect the environment, to ensure accessibility and quality of education, as well as to stimulate learning. As one can see, different spheres of life are affected if the aim is to provide opportunities for human development.

In the future we plan to explore the interaction effect between innovations and the level of human development by groups of countries based on their level of economic development. Regional level of analysis could also shed light on the issue under consideration, as regions within a country can be unevenly developed in terms of human capital, innovations and productivity.

Acknowledgments

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A bibliometric analysis of the European Union Statistics on Income and Living Conditions (EU-SILC) research (2007-2018)

Michal Novák¹

¹ University of Economics Prague
Faculty of Management, Department of Management
Jarošovská 1117, Jindřichův Hradec, 37701
E-mail: michal.novak@vse.cz
ORCID: <https://orcid.org/0000-0001-7893-7774>

Abstract: *The European Union Statistics on Income and Living Conditions (EU-SILC) provides comparable microdata on income, poverty, social exclusion and living conditions of EU households. This paper presents bibliometric analysis that provides insights into the academic usage of EU-SILC data. More than 400 studies published and indexed in Web of Science during years 2007–2018 are investigated using rigorous bibliometric methods. Research clusters, key research topics, leading journals and fundamental papers are identified. Results provide an insight into the academic usage of EU-SILC data and an overview of the current research progress and future research directions.*

Keywords: *EU-SILC, bibliometric analysis, Web of Science, literature review*

JEL codes: *M20, G00, E20, O10*

Introduction

The European Statistics on Income and Living Conditions (EU-SILC) is one of the leading data sources for comparable analytical cross-sectional and longitudinal statistics on income distribution, living conditions, social exclusion and poverty in the member states of the European Union, Iceland, Norway and Switzerland. Since 2015 the EU-SILC survey also incorporates ad-hoc year modules focusing on social and business issues like access to services, public health and children's health, well-being or intergenerational transmission of poverty. The data has growing attention of academia in the past ten years. The EU-SILC data source is used for social economics analyses directly or indirectly affecting business economics.

Papers in the past years focus on housing conditions (Dewilde, 2018), health-care systems (Connolly & Wren, 2017; Chaupain-Guillot & Guillot, 2015), poverty (Bruckmeier & Rhein, 2019; Chzhen, de Neubourg, Plavgo, & de Milliano, 2016; Lelkes & Gasior, 2018), income inequality (Hlasny & Verme, 2018) and also addresses issues of unemployment (Baussola & Mussida, 2017) and labor market (Berloff, Matteazzi, Sandor, & Villa, 2019; Matteazzi, Pailhe, & Solaz, 2018).

Unfortunately, there is no available overview of the EU-SILC implementation in academic research. This paper tries to provide a basic overview of scholarly documents indexed in Web of Science as one of the leading online scientific indexing services. The main goal is to answer questions about the volume, annual scientific production and dynamics, most relevant sources and authors, and domain topics in EU-SILC research.

The purpose is to gain an empirically based perspective on the evolution of the EU-SILC research in the last decade. This helps researchers to have an overview of the knowledge topics of EU-SILC researches, most relevant sources and documents, source dynamics, most relevant authors and most relevant institutions, including collaboration networks.

1 Methods

Data about scholarly documents on EU-SILC were mined on 29th July 2019 from the Web of Science (WoS) Core Collection. The query term "EU-SILC" in the Topic field was used, and it provides the same results as for the query "EU SILC" (space instead of hyphen). The Topic field searches within records fields Title, Abstract, Author Keywords and Keywords Plus. The time is selected from the 2007–2018. The year 2007 is the year of the first indexed paper in WoS using the word "EU-SILC" in the Topic field. The year 2019 is not included in the analysis for encapsulation of whole years as the year 2019 would be analysed only partially. The Web of Science Core Collection indexes 445 papers published in years 2007–2018. These 445 publications include paper published in journals and conference proceedings.

These 445 publications were analysed in the open-source software VOSviewer (v1.6.11) (Van Eck & Waltman, 2017) and Microsoft R Open (v3.5.3) using bibliometrix (v2.2.1) package (Aria & Cuccurullo, 2017). The main quantitative methods used are descriptive statistics and network analysis. These methods are described in more detail in the sources mentioned above.

2 Results

Primary information about the publications about EU-SILC published in a time-span 2007–2018 is structured in Table 1. The sum of all analysed publications is 445. The majority (nearly 80 %) of analysed publications are categorised as an Article (353). One publication published in 2018 is categorised as Data Paper. Two publications are categorised as Meeting Abstract and 89 as Proceedings Paper. Research about EU-SILC in 2007–2018 was published by 681 authors in 234 different sources. Based on this dilution, it can be assumed that EU-SILC provides comprehensive data-source for different research in many fields.

Table 1 Main information about the collection of EU-SILC research

	2007–2018
Documents (sum)	445
Document – Article	353
Document – Data Paper	1
Document – Meeting Abstract	2
Document – Proceedings Paper	89
Sources	234
Authors	681
Single-authored documents	105
Authors per document	1.53
Average citations per documents	6.196

Source: own elaboration

The annual scientific production of EU-SILC papers is displayed in Table 2. The first article indexed in WoS was in the year 2007. The first higher growth can be seen in 2010 with 22 new publications. The publication production grew in subsequent years. The year 2016 is a year with the highest new publications (89) in EU-SILC research topic.

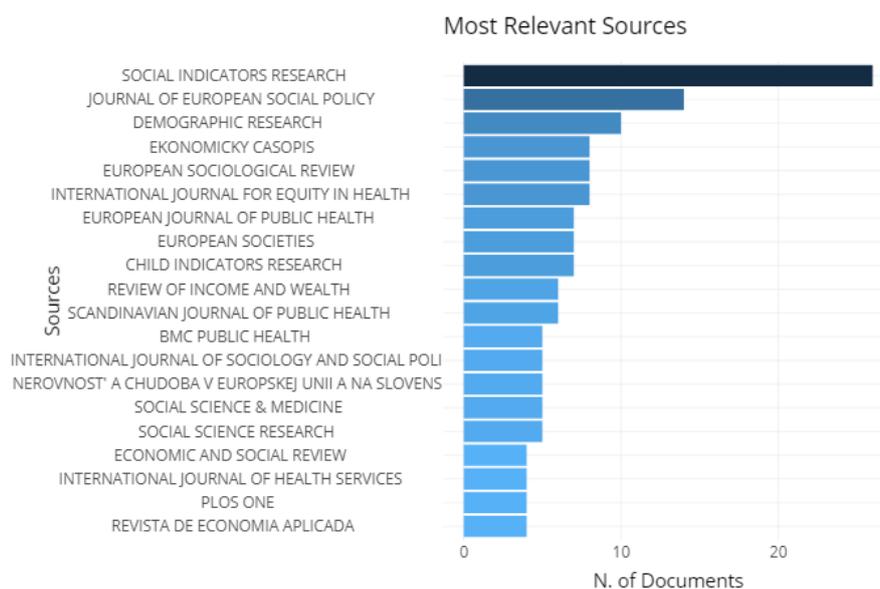
Table 2 Annual scientific production of EU-SILC research

Year	Articles
2007	1
2008	2
2009	5
2010	22
2011	16
2012	42
2013	43
2014	39
2015	58
2016	89
2017	61
2018	67

Source: own elaboration

The dilution assumption is supported based on the distribution shown in Figure 1 and by Bradford's law (Bradford, 1934) (Table 3).

Figure 1 Top 20 most relevant sources of EU-SILC research



Source: own elaboration

Bradford's law is a pattern that estimates the exponentially diminishing returns of searching for references in sources. If the sources are arranged in descending order of the number of articles, then successive zones of sources containing the same number of articles on the subject form the simple geometric series $1:n_1:n_2^2:n_3^3$. The core is composed of 20 sources which published a third of the documents of the entire analysed collection.

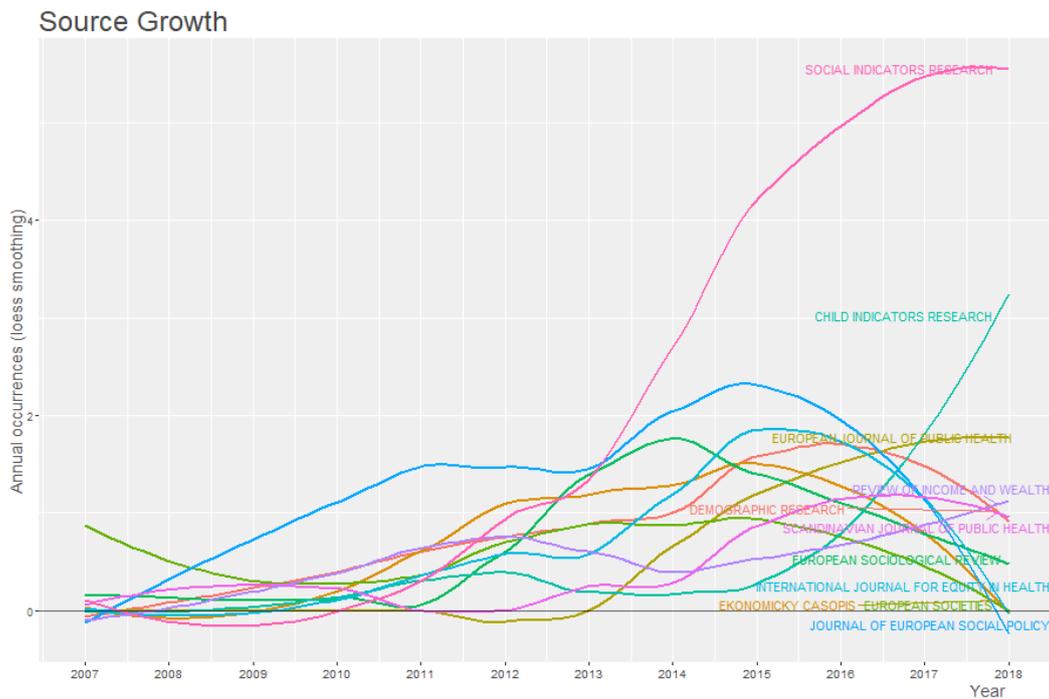
Table 3 Source clustering through Bradford's Law – core cluster

	Rank	Freq	cumFreq
SOCIAL INDICATORS RESEARCH	1	26	26
JOURNAL OF EUROPEAN SOCIAL POLICY	2	14	40
DEMOGRAPHIC RESEARCH	3	10	50
EKONOMICKY CASOPIS	4	8	58
EUROPEAN SOCIOLOGICAL REVIEW	5	8	66
INTERNATIONAL JOURNAL FOR EQUITY IN HEALTH	6	8	74
EUROPEAN JOURNAL OF PUBLIC HEALTH	7	7	81
EUROPEAN SOCIETIES	8	7	88
CHILD INDICATORS RESEARCH	9	7	95
REVIEW OF INCOME AND WEALTH	10	6	101
SCANDINAVIAN JOURNAL OF PUBLIC HEALTH	11	6	107
BMC PUBLIC HEALTH	12	5	112
INTERNATIONAL JOURNAL OF SOCIOLOGY AND SOCIAL POLICY	13	5	117
NEROVNOST' A CHUDOBA V EUROPSKEJ UNII A NA SLOVENS ZBORNIK STATI. SCIENTIFIC CONFERENCE PROCEEDINGS	14	5	122
SOCIAL SCIENCE & MEDICINE	15	5	127
SOCIAL SCIENCE RESEARCH	16	5	132
ECONOMIC AND SOCIAL REVIEW	17	4	136
INTERNATIONAL JOURNAL OF HEALTH SERVICES	18	4	140
PLOS ONE	19	4	144
REVISTA DE ECONOMIA APLICADA	20	4	148

Source: own elaboration

Figure 2 provides insight into the source dynamics of the top 10 most relevant sources of EU-SILC research. Social Indicators Research journal has the highest rise in the last five years, followed by journal Child Indicators Research and European Journal of Public Health.

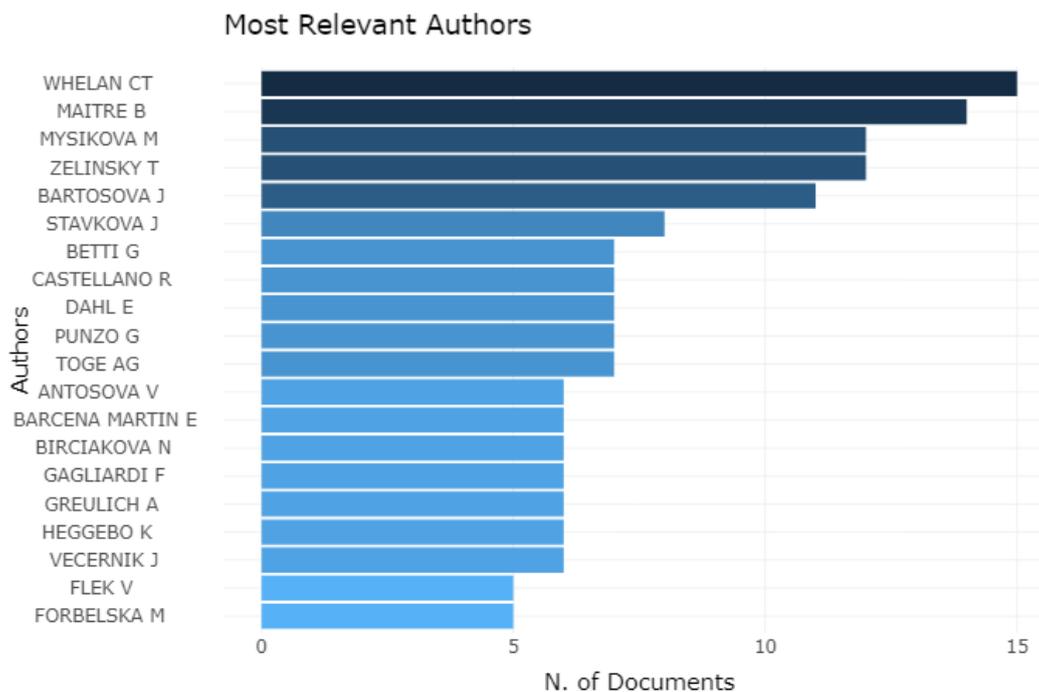
Figure 2 Source dynamics of the top 10 most relevant sources of EU-SILC research



Source: own elaboration

Most relevant authors based on the number of articles published is shown in Figure 3. Christopher Whelan is the most relevant author (15 publications) followed by Bertrand Maître (14 publications), Martina Mysíková (12 publications) and Tomáš Želinský (12 publications).

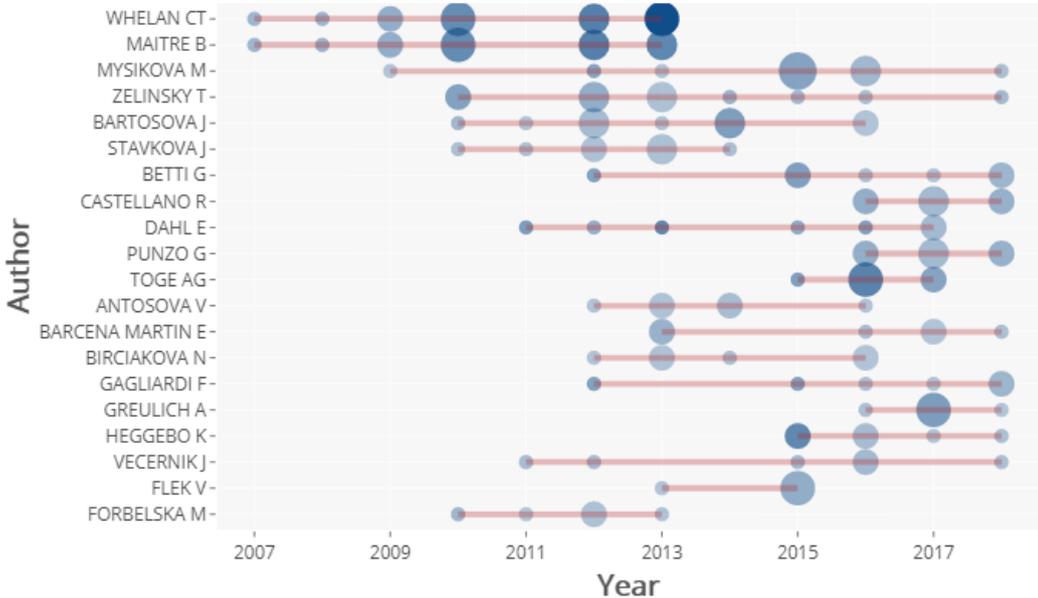
Figure 3 Top 20 most relevant authors based on articles published



Source: own elaboration

Figure 4 shows the authors' publishing dynamics. Whelan and Maître published their last research about EU-SILC in 2013 (Whelan & Maitre, 2013), a lot of other authors in top 20 researchers are still publishing in this domain.

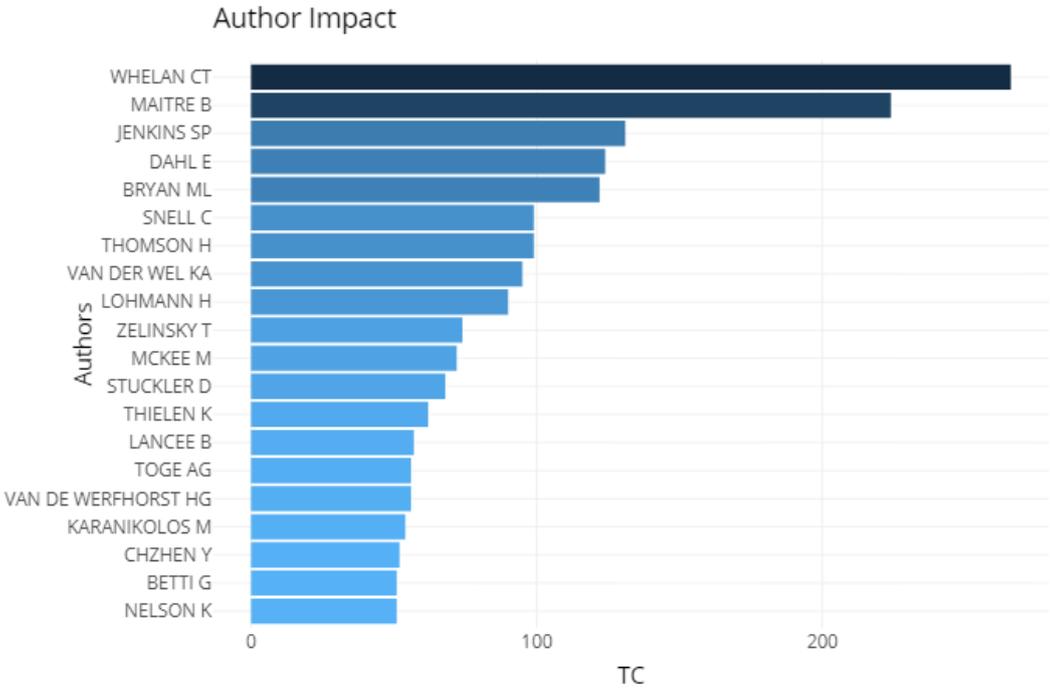
Figure 4 Top 20 authors – publishing dynamics



Source: own elaboration

As Whelan and Maître were publishing in the EU-SILC domain since 2007 (Whelan & Maitre, 2007), they also have the highest citations score and are supposed to be methodologically most influential for EU-SILC researchers. Total citation score in the EU-SILC domain for top 20 researchers is shown in Figure 5.

Figure 5 Top 20 authors – citation scores

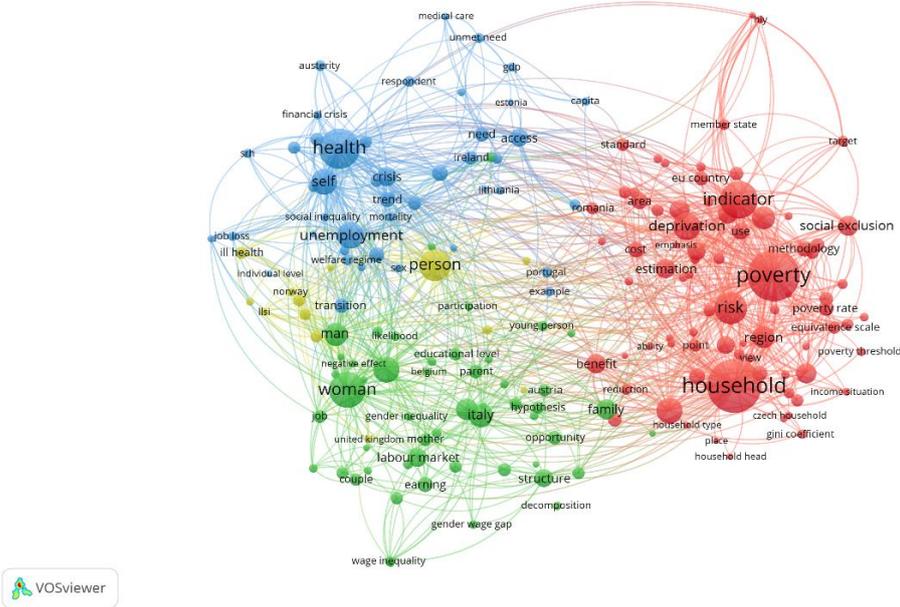


Source: own elaboration

Figure 6 shows three (red, green, blue) significant clusters of words based on abstracts in analysed publications. These clusters show core domains in which researchers published until the year 2018. Researchers in the first cluster (red) focus on households' poverty and material deprivation.

Researchers in the second cluster (green) focus mainly on the labour market, social factors of families and wage inequalities between men and women. Researchers in the third cluster (blue) focus mainly on health issues, mortality and medical care.

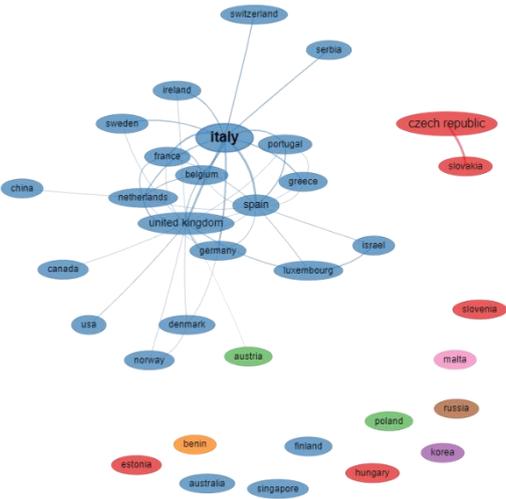
Figure 6 Topic domains in EU-SILC research



Source: own elaboration

EU-SILC data is mainly about member countries of the European Union. Researchers from these member countries collaborate to provide insightful knowledge based on comparative analysis. Figure 7 shows the collaboration network of authors' affiliated country. The network shows cooperating researchers based mainly in Western Europe. Researchers from the Czech Republic and Slovakia are cooperating mainly with themselves probably due to their similar history, language and their historical research cooperation in a vast amount of research fields.

Figure 7 Collaboration network of countries



Source: own elaboration

The Web of Science Core Collection indexes 445 papers about EU-SILC research published in years 2007–2018. The highest total citations (122) has paper "Multilevel Modelling of Country Effects: A Cautionary Tale" (Bryan & Jenkins, 2016), followed by paper "Quantifying the prevalence of fuel poverty across the European Union" (Thomson & Snell, 2013), and paper "Income inequality and participation: A comparison of 24 European countries" (Lancee & Van de Werfhorst, 2012). Table 4

shows the top 20 most cited publications in the Web of Science from the analysed collection. These publications could help researchers who want to get to know the state of the art of EU-SILC research domain.

Table 4 Most cited documents

Paper	Total Citations
BRYAN ML, 2016, EUR SOCIOL REV	122
THOMSON H, 2013, ENERG POLICY	99
LANCEE B, 2012, SOC SCI RES	56
LOHMANN H, 2009, EUR SOCIOL REV	55
SCHWANDER H, 2013, J EUR SOC POLICY	45
VIGNOLI D, 2012, DEMOGR RES	44
BOERI T, 2010, ECONOMICA	44
DAHL E, 2013, SOC SCI MED	42
PINTELOON O, 2013, J EUR SOC POLICY	42
MAKI N, 2013, SOC SCI MED	39
GOEDEME T, 2013, SOC INDIC RES	39
LENNARTZ C, 2016, POPUL SPACE PLACE	38
VAN DER WEL KA, 2011, SOC SCI MED	36
CHZHEN Y, 2012, J EUR SOC POLICY	34
MARHUENDA Y, 2013, COMPUT STAT DATA AN	32
NELSON K, 2012, J EUR SOC POLICY	31
ZAVRAS D, 2016, BMC HEALTH SERV RES	30
WHELAN CT, 2010, J EUR SOC POLICY	30
BETTI G, 2012, CAMB J REG ECON SOC	28
AASSVE A, 2013, DEMOGR RES	27

Source: own elaboration

Conclusions

Research who want to publish using EU-SILC data should get the basic knowledge about methodological aspects of the data and current state of the art of the domain base. This paper provides fundamental bibliometric analysis of EU-SILC domain based on the research indexed in Web of Science Core Collection during years 2007–2018. Main findings of this bibliometric research are that based on the data availability, there are still not many researches using the EU-SILC data. Researchers focus mainly on three typical research domain – poverty, health and labour market inequalities. The need for the development of the social systems and the convergence of the EU member states is still current. There is still massive potential for researchers in influencing domains like business research to use such valuable (EU-SILC) data and merge them with other primary or secondary data sources in their multidisciplinary or interdisciplinary business researches.

Acknowledgements

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Towards the succession process of Czech family firms

Pavla Odehnalová¹

¹ Masaryk University
Faculty of Economics and Administration
Department of Business Economics
Lipová 41a, 602 00 Brno
E-mail: odehnalova@mail.muni.cz

Abstract: *The paper presents the situation within Czech family firms, that are affected by the succession process due to the time period from the Velvet revolution in 1989. The founders are now challenging the situation when they have to find out their successors. This paper suggests that their situation is quite difficult due to the lack of knowledge and information about the succession process in comparison with the foreign family firms. Ten family firms were observed through the focus group and the results displays that the main problem are in the managerial decision area. Even if the firm is completely devolved there were still lot of questions that have to be solved within the family.*

Keywords: *family business, succession, paternalism, nepotism, managerial decision*

JEL codes: *M12, M51*

Introduction

In the Czech Republic, the question of the transfer of family businesses has recently become the subject of quite intensive scrutiny. The founding generation of owners of family businesses established in the 1990s after the revolution is now on the verge of retirement age and facing the challenging task of handing the business on. Foreign sources state that only a third of businesses survive the transfer of a business from one generation to the next, and this fact is the main reason for the interest in family business succession. Succession planning is a very underrated area: as many as 71% of family businesses do not have a succession plan (Tyee, L. N., 2007/2008), and similar figures have emerged from surveys in the Czech Republic. AMSP (Association of Small and Medium-Sized Enterprises) surveys indicate that only 47% of family firms have already begun the process of transferring the firm, while up to 50% of firms are assuming that the family firm will be passed on to successors within the next two years. The actual succession process is a relatively long-term matter and should not be underestimated. Following on from the lack of planning family businesses often suffer from, Lambrecht (2005) states that the transfer of family firms is a long-term process that implies the transfer of ownership, management and actual leadership. Underestimating formal approaches to the leadership of the company within the process of succession can even lead to the demise of the business. Similar issues are now being faced by Czech family businesses, which unfortunately lack the experience of their foreign counterparts and previous generations and are thus left to deal with this tough challenge in their own way.

1 Theoretical background

In the contemporary literature we find a unified perception of the succession process. This process more or less corresponds to the concept already stated by Lambrecht (2005), where it not only encompasses the transfer of ownership and management but also the actual leadership of the business. In family businesses this is very closely linked with psychodynamic aspects (Kets de Vries, 1996) arising from the necessity of the founder leaving their post and handing over the business. It is thus very difficult for the owner/founder of the business to come to terms with the fact that the role of main "leader", which they have occupied up until then, is to be ceded to someone else.

According to the authors Koráb et al. (2008), the actual transfer process is preceded by an analysis of the capabilities and possibilities of the business and of the family as such. Koráb et al. (2008) describe the key areas as being the analysis of the business, the entrepreneur and the family. Generational renewal represents a fundamental change in the business and in the workings of the family itself. It is often necessary to choose between several siblings with different levels of competence or qualifications. Another factor in play is the fact that some descendants might not be interested in taking over the business and might want to pursue their own path. What's more, the

process involves the transfer of considerable responsibility as well as rights, and not only from the point of view of the founder and successor: it is also necessary to consider the circumstances surrounding the process. Lukeš and Nový (2005) specifically mention the current state of the business, current situation in life, the degree of involvement in running the business up until then and the related interdependence of the successor and the entrepreneur, and the expected and feared consequences of the takeover (family conflicts, business development, etc.). Also related to this are the main problem areas which the incoming successor may have to contend with, such as the economic situation, the departure of a key longstanding employee, the renegotiation of contracts with important customers, responsibility for previous commitments or the termination of contracts with existing suppliers (Lukeš and Nový, 2005). The final phase is the actual legislative transfer of the business. Under § 704 of the relevant act, if the family enterprise is broken up, the family member involved in its operation has a pre-emptive right. In the event that a family member's participation in the operation of the family enterprise ceases, they have a right to a settlement of their share of the profits. There are a number of potential pitfalls associated with this fact, especially when it comes to the division of property between the founder and the successor or successors. In addition, owners frequently have to contend with the fact that some descendants do not wish to participate further in running the business.

1.1 Problems in the succession process

These aspects of the transfer of a family business also merge with certain characteristics of family businesses: the psychodynamic problems associated with them. Paternalism and nepotism are a common part of these processes which can make the succession process much more difficult and in extreme cases can even lead to the demise of the business.

Paternalism manifests itself as the inability of the original founder to delegate the running of the business to their successor or co-worker. The paternalistically minded founder (Kets de Vries, 1996) wants to control the situation and have an overview of everything under all circumstances. Authors typically describe the following features: a tendency towards autocracy, a strong need for control, a lack of trust in other co-workers, a need for recognition and an inability to delegate (Kets de Vries, 1996; Hanzelková, 2004). An awareness of "ownership" of the business entails certain rights and considerable responsibilities (Koiranen, 2006). A problem arises when the founder and successor have different ideas about the running of the business. This gives rise to a conflict situation which in an extreme case can even result in the successor leaving the business. The business is then condemned to be sold or cease to exist. A major problem with paternalism is a sudden departure of the founder which is unforeseeable and therefore unplanned. The business thus finds itself in a very difficult situation where the incoming owners have no overview or knowledge of the business and are therefore faced with a very difficult challenge. Often they have no experience of running a business. The lack of planning within family businesses is also apparent in the area of succession. Here a serious problem can arise in the business when the successor has no idea that all the rights and responsibilities associated with owning the business (Koiranen, 2006) will pass to him from one day to the next. Another common problem within the succession process is nepotism, i.e. favouring family members for positions in the business (Kets de Vries, 1996; Jaskiewicz et al., 2013). A problem arises with nepotism when, for example, the founder of the business attempts to bring in a descendant who lacks the education or motivation to perform activities of a more or less specialist nature (Kets de Vries, 1996; Nelton, 1998). However, even nepotism is not viewed in a purely negative way by researchers (Jaskiewicz et al., 2013). In this context, two types of nepotism are identified. Entitlement nepotism is perceived as a negative form of nepotism which is associated with the involvement of an unqualified or ill-prepared relative in running the business, either in a lower to middle management position or a position within the firm's governing bodies, or even in the post of CEO. By contrast, Jaskiewicz et al. (2013) view the success of family firms that make use of reciprocal nepotism as being due to the transfer of tacit knowledge (Nonaka, 1994), which is considered one of the key components of competitiveness and business performance. The result is the attainment of a concept of family business in which tacit knowledge in the form of unique know-how is very difficult for those outside the firm to attain or imitate and thus becomes a major competitive advantage which can actually make the succession process much easier. Shared know-how need not only relate to the product itself, but also to relationships with cooperating partners.

2 Methodology

In May 2019 a focus group revolving around a spontaneous introduction to family businesses and their succession process took place at the Faculty of Economics and Administration at Masaryk University. A total of 10 businesses took part and both founders and successors were present. This made it possible to present a more objective view of the succession process, from the perspective of both founders and successors. The group included representatives of businesses prior to transfer, in the transfer phase and in the post-transfer phase as well as a family business which will not be transferred. Within interviews lasting 4 hours, the family businesses gradually presented their story: how the succession came about, how the business was transferred and whether they regard this process as successful, and what limitations or advantages their succession model has had for them. The common denominator of all the family businesses was that they were transferring the business to someone from the immediate family. On the basis of the aforementioned research into sources, the following research question can be formulated:

RQ: What specific problems do Czech family businesses face in the succession process?

3 Results

The table below depicts the outputs of the interviews and the spontaneous reactions of the owners of family businesses and their successors.

Table 1 Results of the panel discussion

Family firm	Entrepreneurs	successors	phase	Problems and obstacles
1. A	brothers	Sons of brothers	After successful transfer	Process delayed by the fact that until the firm was completely transferred they did not feel they were working for themselves. The fact that there were more siblings made it difficult to reach agreements. In the end the firm was sold by the fathers to the sons who were interested in the business. This resolved the situation.
2. B	husband and wife	Son and daughter	In transfer phase	Descendants feel as if they are not working for themselves but for their parents, which bothers them. They lack decision-making powers and this is a problem.
3. C	father	Son and daughter	After successful transfer	The business was sold by the father to the siblings who expressed an interest in the business (2 out of 3). They are gradually paying back the amount owed to him from dividends. The father retained the emeritus right, but he says he doesn't make use of it because so far he has agreed with all the decisions taken by his successors.
4. D	husband and wife	daughter	After successful transfer	The father died suddenly, and as he was very paternalistic, he refused to initiate the other family members into the running of the firm. After his sudden death, his wife and daughter had to carry on despite having neither experience of running a company specialising in electronics and metalworking nor the education for it. They had to go through the whole process for themselves and learn everything as they went along. Today the business is doing very well.
5. E	brothers	son	Prior to transfer	The brothers have 10 descendants between them and only one has expressed an interest in the business. The business is very successful with a high year-on-year turnover in the order of 100 million crowns. The biggest pitfall for the owners is how to select a method of transferring the business that will ensure a fair distribution of property to all descendants and how to favour the one who will continue to run the business. "We're not passing on wealth, we're passing on worries"

6.F	father	sons	Prior to transfer	The father employs both sons and lets them handle all relevant matters but does not wish to fully hand over the business yet. According to both sons, this is problematic: the father has a different opinion to the two of them and it is often hard to convince him. They lack the feeling that they are making decisions for themselves.
7.G	husband and wife	?	Prior to transfer	Both of the sons of the owners of this successful business were employed in the business and also received a formal education in the field. The husband and wife planned to hand over the business to their sons, but they expressed no interest in the business, even though they had been working in it long term. In the end, they chose a different path. The couple will probably sell the business in time but don't want to force their descendants to run the business if they are not interested in it.
8. H	father	sons	After successful transfer	Both sons have worked in the business long term and expressed an interest in taking over the business. The father transferred the business to his sons and kept a minority stake so he could intervene if necessary, but so far he has had no reason to do so, because the sons' decisions have been in accordance with his wishes.
9. I	mother	daughter	Prior to transfer	The daughter has expressed an interest in the business and currently works part-time in the business, but she is still studying, so it is not possible for her to fully devote herself to the business.
10. J	father	son	In process of transfer	The father and son have worked together for a long time and the son has never doubted that he will take over the business. He is counting on succeeding his father and they are currently undertaking all the steps for a full transfer of the business including all decision-making powers.

Source: Author

Conclusion and discussion

From the conclusions of the focus group research, it emerges that the transfer of family businesses mostly takes place at the level of the immediate family: founders – direct descendants. This fact supports the theoretical conclusions of Sundaramurthy (2008), based on Rousseau et al. (1998), who state that trust promotes mutual cooperation and relations between people, reduces the risk of conflict, reduces transaction costs, facilitates effective conflict resolution and thereby supports the running of the business. When it comes to maintaining the business, founders have the highest level of trust in their descendants. Linked to this trust is a certain amount of responsibility assumed by the successor. Another interesting finding was the fact that even in cases where the overall leadership of the business was successfully transferred – both in a managerial sense and in a legal sense (when they had a majority) – successors were not fully satisfied. Even when the founders regarded the business as having been transferred, they still retained certain decision-making powers which enabled them to actively intervene in the life of the business; the successors did not feel like fully fledged directors because they did not have full decision-making powers and hence did not enjoy the founder's trust. The decision-making aspect played a very important role here and was key to a successor feeling like a fully fledged director of the business. Therefore, if the original owner got involved in key decisions, intervened in conflict situations, promoted their own interests and did not trust their successors, the latter did not feel that they were really in charge of the business. This fact supports the proposition of Kets de Vries (1996) about the paternalistic behaviour of founders who are often unable to renounce the active performance of their entrepreneurial activities, which leads to negative phenomena in the process of transferring the business. All the successors agreed that if the founder actively interferes in the firm's affairs and promotes their own interests despite the process of transferring the business having effectively been completed, this has a negative effect on their motivation to work in the business. Successors did not even object to a model in which they had to purchase the business from their father, thus entering into business with a debt. What was more important for them was their own autonomy. Another interesting finding was a case where the founders were actively working towards having their descendants take over the business but the latter had expressed no interest in it and wanted to pursue their own path. From this it can be

inferred that even if the founder promotes their own interests concerning the transfer of the business to their descendants, this may not always be achieved. In one case the business had been waiting a good 10 years for a successor, as 9 of the descendants of the two brothers had turned the business down before the last, youngest descendant expressed an interest in the business. And yet in both cases these were very lucrative and profitable businesses. By contrast, the group also included a business where the transfer literally took place from one day to the next due to the death of the founder and the owner's daughter automatically became the successor, even though she was only marginally involved in the business and had never intended to take it over. However, she was forced by external conditions to carry on running the business and is now doing so very successfully. Here it is apparent that this kind of nepotism (Jaskiewicz et al., 2013) need not necessarily have a negative impact on the succession process. The overall transfer process thus places high demands on communication and common consensus within the family – there has to be interest in cooperating on the part of the successors as well as the founder. In the words of the owners of one business, "We're not passing on wealth, we're passing on worries".

In conclusion, it can be inferred that the family businesses under investigation favour a transfer within the immediate family, i.e. to their direct descendants: no-one in the group was even considering a transfer within the wider family. From the perspective of successors, what is crucial for them is autonomy in key decision-making concerning the day-to-day running of the business and the trust in the successor manifested by the founder. In the cases cited, these appear to be determining factors for the successful transfer of the family business. However, these conclusions have only been reached on the basis of information from the focus group and it would be interesting to verify the proposed model quantitatively using an adequate sample of family businesses.

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Quality of governance as a determinant of tax evasion and tax avoidance

Cecília Olexová¹, Zuzana Rudášová², Barbora Gontkovičová³

¹ University of Economics
Faculty of Business Economics, Department of Management
Tajovského 13, 041 30 Košice, Slovakia
E-mail: cecilia.olexova@euke.sk

² University of Economics
Faculty of Business Economics, Department of Quantitative Methods
Tajovského 13, 041 30 Košice, Slovakia
E-mail: zuzana.rudasova@student.euke.sk

³ University of Economics
Faculty of Business Economics, Department of Commercial Entrepreneurship
Tajovského 13, 041 30 Košice, Slovakia
E-mail: barbora.gontkovicova@euke.sk

Abstract: The motivation factors of tax evasion and tax avoidance formation are in the interest of many researches, due to an effort to find out solutions of possible reduction, perhaps elimination of tax evasion and tax avoidance. The aim of the paper is to examine the quality of governance in a relation to tax evasion and tax avoidance in selected Central and Eastern European countries (CEECs). The variable representing tax evasion and avoidance is the level of the tax gap. As the value added tax has the most important share in the tax gap, the tax gap is expressed in percent of VAT total tax liability (VTTL). The quality of governance is expressed by the Worldwide Governance Indicators (WGI), that represent six broad dimensions of governance: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption. The main results include the identification of significant relations between the tax gap and the governance indicators across selected countries based on the correlation analysis and matrix.

Keywords: *tax evasion, tax gap, quality of governance, Worldwide Governance Indicators, CEECs*

JEL codes: *K34, H20, H26*

Introduction

Public levies are the main source of state budget revenues. That is the reason why states search for the solutions how to increase the efficiency of collection of tax revenues and the reasons of inefficiency. The factors of motivation of tax evasion and tax avoidance are still the subject of interests of many researchers and tax administrators due to its practical impact (Babčák, 2017; Torgler, 2012; Hug and Spörri, 2011; Blanthorne and Kaplan, 2008). Tax evasion and tax avoidance are not only a threat to public finances, they also distort the business environment. Many tax entities use the tax optimisation, but this can be carried out as legal tax avoidance, or, illegal tax evasion. Tax policy (Červená and Cakoci, 2018) and also, the effective system of tax collection, audit probability, probability of fraud detection, tools of punishment, and other factors may lead to increasing or decreasing the tax gap. It can be expected that the VAT gap can be completely eliminated, as the VAT gap is a broad concept that covers transactions and losses which are impossible to detect (Stavjaňová, 2014). According to Raczkowski (2015), the widespread tax gap is likely to increase when the state becomes incapable of opposing illegal tax activities conducted by the entities that commit tax crimes without being punished, because either the act was not disclosed, insufficiently penalised or not penalised at all on the grounds that the perpetrator cannot be identified. In general, the approach of state to ensuring the tax compliance, set of tax collection system, and other tools of state efficiency are reflected by the quality of governance. Frequent and repeated tightening of tax legislation, and the resulting higher degree of instability in tax law, encourages many taxpayers to avoid tax liability. Such a negative stimulus is perceived especially by the business community as disproportionate interference by the state in their business freedom (Babčák, 2018). Subsequently, lack of trust in the fairness of a tax system and the legitimacy of the government increases the likelihood of tax evasion among business (Newman, 2018).

Then, the aim of the paper is to examine, whether there is a relationship between the tax gap and selected indicators of the quality of governance. This approach should broaden the scientific knowledge on motivation factors of tax evasion and tax avoidance, with its impact on practical solution in governance and consecutively in business practice. The quality of governance is expressed by the worldwide governance indicators (WGI). The WGI project constructs aggregate indicators of six broad dimensions of governance (The World Bank, 2018): Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; Control of Corruption. These aggregate indicators are based on over 30 underlying data sources reporting the perceptions of governance of a large number of survey respondents (enterprises, citizens) and expert assessments worldwide, in industrial and developing countries (Kaufmann et al., 2010).

1 Methodology and Data

Correlation analysis is used to determine whether the values of the tax gap and the governance indicators across selected countries are associated. The scatter diagram (correlation diagram) is used to find the correlation between these two variables. This diagram determines how closely the two variables are related. Subsequently, we used the Spearman's correlation coefficient to estimate statistical dependence. Since it is a non-parametric coefficient, it is also applicable where the Pearson correlation coefficient cannot be used. Correlation is an effect size and so we can verbally describe the strength of the correlation using the following guide for the absolute value of 0.00-0.19 as "very weak", 0.20-0.39 "weak", 0.40-0.59 "moderate" (*), 0.60-0.79 "strong" (**) and 0.80-1.0 as "very strong" (***). The P-value presents the probability that we would have found the current result if the correlation coefficient were in fact zero (null hypothesis). If this probability is lower than the significance level alpha 5% ($P < 0.05$) the correlation coefficient is statistically significant.

The research included the data of selected Central and Eastern European Countries (CEECs) determined by OECD (OECD, 2001) that are also the members of the EU: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia. These countries were selected because of availability of the data needed for analysis, mostly the data regarding to the tax gap.

The Worldwide Governance Indicators (WGI) project reports aggregate and individual governance indicators for over 200 countries and territories over the period from 1996, for six dimensions of governance. The data of selected Central and Eastern European countries (CEECs) were used for the analysis (The World Bank, 2018). The interpretation of the indicators and all the other details are presented in the WGI methodology paper (Kaufmann et al., 2010):

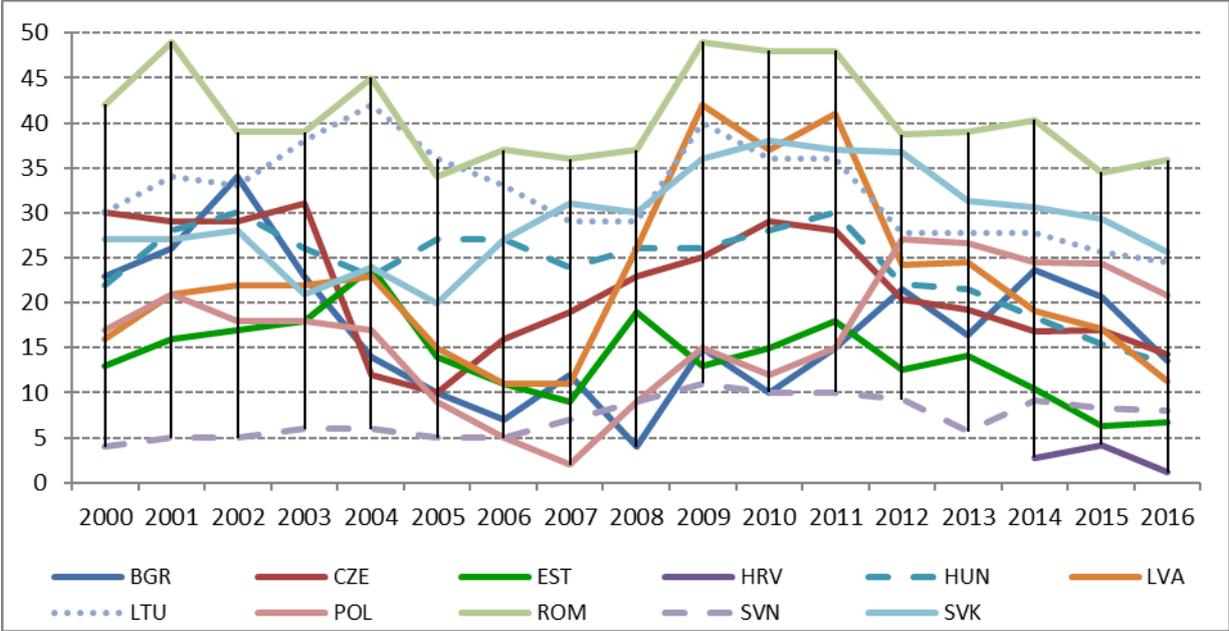
- Voice and Accountability – this indicator measures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- Political Stability and Absence of Violence/Terrorism – reflects perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism.
- Government Effectiveness – perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- Regulatory Quality – perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
- Rule of Law – perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
- Control of Corruption – perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

The variable representing tax evasion and avoidance is the level of the tax gap, expressed as a share of VAT total tax liability (VTTL), because the value added tax has the most notable share in the tax gap, along with the highest proportion in the structure of state budget revenue. The data of VAT gap was used from two reports: Study to quantify and analyse the VAT Gap in the EU-27 Member States Final Report (CASE and CPB, 2013) for the period from 2000 till 2011 and Study and Reports on the VAT Gap in the EU-28 Member States: 2018 Final Report (CASE and IEB, 2018) for the period from 2012 till 2016.

2 Results

The study and analysis of the VAT gap is critical for shaping policymakers’ strategy regarding the needed reforms to decrease tax evasion and tax avoidance. The values of VAT gap as a share of VTTL for the CEECs in the period from 2000 till 2016 are presented in the following figure (Figure 1).

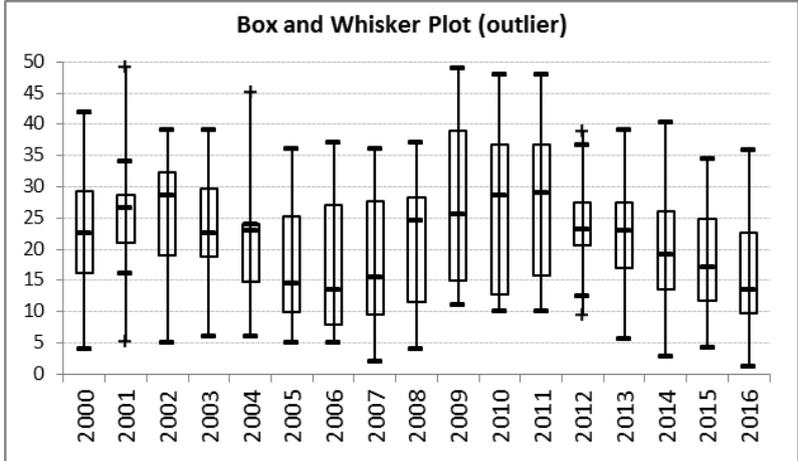
Figure 1 VAT gap (percent of VTTL) trend in selected CEECs (2000 – 2016)



Source: own processing, data from CASE and CPB (2013), CASE and IEB (2018), World Bank (2018)

As Figure 1 shows, the level of VAT gap (percent of VTTL) is from 1.15% in 2016 in Croatia till 49% in Romania in 2001. The VAT gap is the highest in Romania, the lowest VAT gap is in Slovenia, through the examined period. The trend of the VAT gap is descending last years; the average VAT gap in percent of VTTL for CEECs was 15.93% in 2016.

Figure 2 Variability of VAT gap (percent of VTTL) in selected CEECs



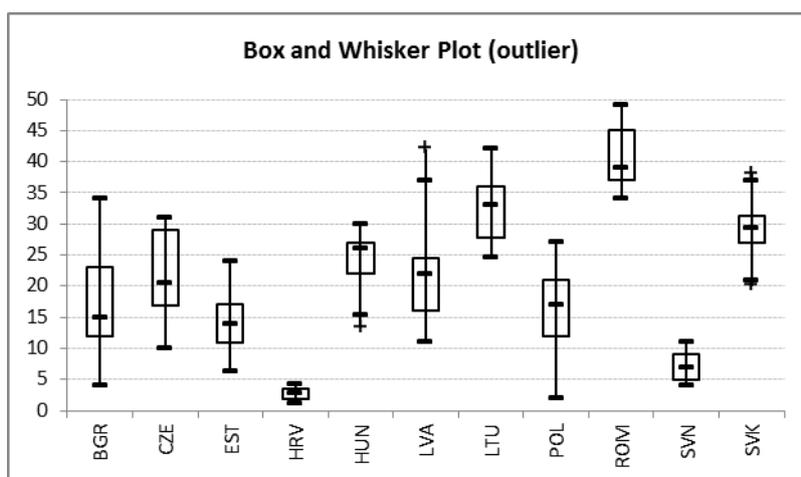
Source: own processing, data from CASE and CPB (2013), CASE and IEB (2018), World Bank (2018)

The variability of VAT gap in percent of VTTL ad also in selected CEECs is presented by Boxplots in Figure 2 (variability across all countries in single years) and Figure 3 (variability across all years in single countries).

During the monitored period (2000-2016) we observe the relatively high variability of VAT gap values in selected countries (Figure 2). Four extreme values were identified in three years. The extremely low value (compared to other countries) was achieved in 2001 in case of Slovenia. An extremely high values were achieved in 2001 and 2004, both in case of Romania. In 2012, the extremely low value of VAT gap was in Slovenia and vice versa extremely high level was reached in Romania.

Boxplot (Figure 3) presents the variability in the trend of VTTL gap values (percent of VTTL) through the whole reporting period for individual countries.

Figure 3 Variability of VTTL gap (percent of VTTL) in selected CEECs (2000 – 2016)



Source: own processing, data from CASE and CPB (2013), CASE and IEB (2018), World Bank (2018)

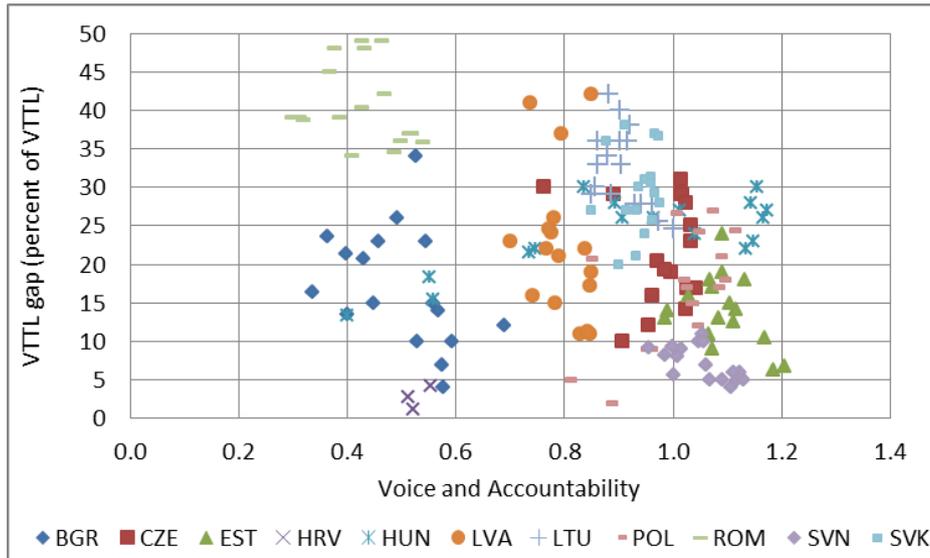
The results for Croatia are skewed due to the availability of data only from 2014. Taking this fact into account, the country with the lowest variability of values is Slovenia, with variation range between VTTL gap (percent of VTTL) from 4 till 11. Conversely, the highest variability is observed in Latvia, where the values achieved in 2009 (42) and 2011 (41) are extreme. The high variability of the VAT gap values is also observed in case of Bulgaria and Poland.

The relationships between VAT gap (% of VTTL) and individual dimensions of WGI are presented in following sections, and only significant relationships are presented in tables 1–6. Based on the separate analyses for individual countries it is possible to determine the factors that significantly affect the VAT gap in a given country and thus pose a greater risk of collision with illegal economic crime.

VAT gap in relation to Voice and Accountability

The relationship between VAT gap and Voice and Accountability is presented in Figure 3 and Table 1.

Figure 3 VAT gap (percent of VTTL) and Voice and Accountability



Source: own processing

Table 1 Relationships between VAT gap and Voice and Accountability

Voice and Accountability	Alpha	Tails	Spearman's coefficient	t-stat	p-value
BGR	0.05	2	-0.57704 (*)	-2.73642	0.015298
HUN	0.05	2	0.571082 (*)	2.694373	0.016645
POL	0.05	2	0.554056 (*)	2.577659	0.021012
SVN	0.05	2	-0.61607 (**)	-3.02911	0.008456

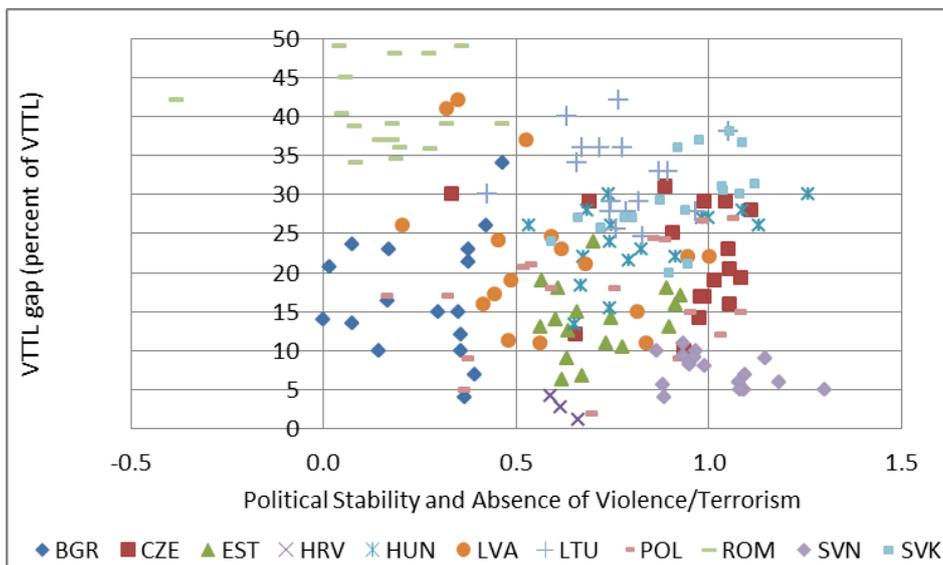
Source: own processing

As Table 1 shows, the significant relationships are in case of Bulgaria and Slovenia, i.e. with increasing voice and accountability the VAT gap is decreasing, and in case of Hungary and Poland in positive direction, what can be perceived as a paradox that with highest values of voice and accountability the tax gap is increasing.

VAT gap in relation to Political Stability and Absence of Violence/Terrorism

The perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism in relation to VAT gap is shown in Figure 4 and Table 2.

Figure 4 VAT gap (percent of VTTL) and Political Stability and Absence of Violence/Terrorism



Source: own processing

Table 2 Relationships between VAT gap and Political Stability and Absence of Violence/Terrorism

Political Stability and Absence of Violence/terrorism	Alpha	Tails	Spearman's coefficient	t-stat	p-value
HRV	0.05	2	-0.99795 (***)	-15.5885	0.040783
SVK	0.05	2	0.69042 (**)	3.696366	0.002155

Source: own processing

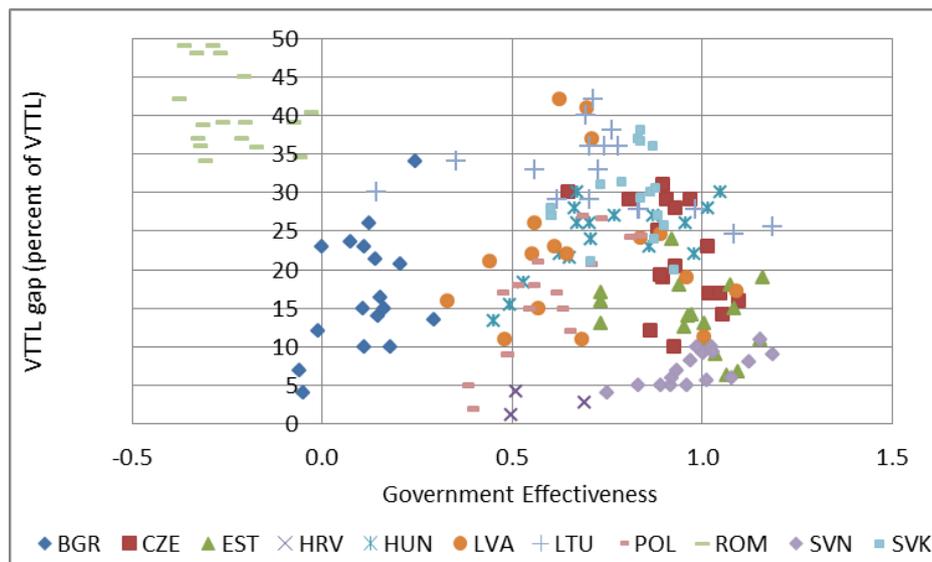
The significant relationships were confirmed in case of Croatia, where with increasing indicator of political stability and absence of violence and terrorism, the VAT gap is decreasing. In case of Slovakia, the relation is positive.

VAT gap in relation to Government Effectiveness

The relationships between the Vat gap and government Effectiveness are presented in Figure 5 and Table 3.

The statistically significant relationships were confirmed for Hungary, Poland and Slovenia, the relationships are positive. It is expected that the perceptions of the quality of public services, civil services and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies would cause VAT gap reduction, not its raise.

Figure 5 VAT gap (percent of VTTL) and Government Effectiveness



Source: own processing

Table 3 Relationships between VAT gap and Government Effectiveness

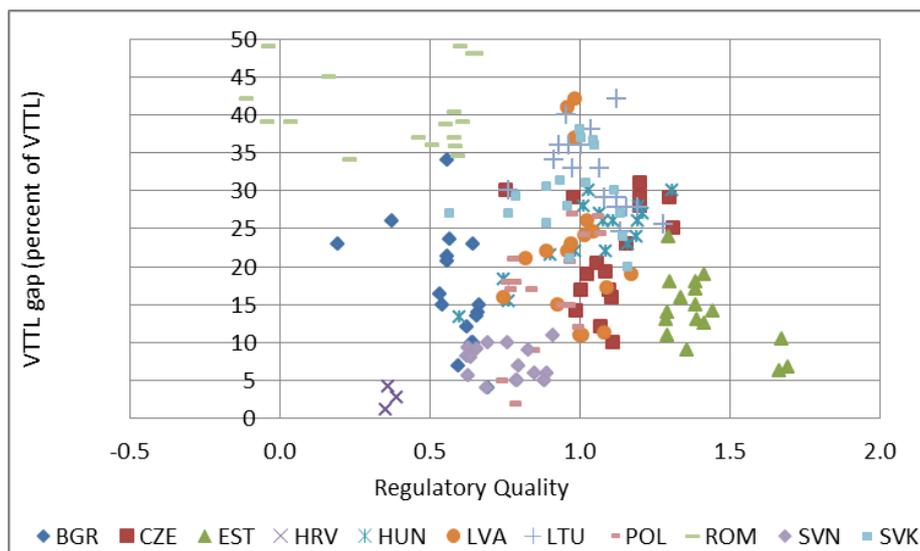
Government Effectiveness	Alpha	Tails	Spearman's coefficient	t-stat	p-value
HUN	0.05	2	0.619083 (**)	3.053124	0.008052
POL	0.05	2	0.781329 (**)	4.848553	0.000213
SVN	0.05	2	0.725946 (**)	4.088068	0.000969

Source: own processing

VAT gap in relation to Regulatory Quality

The relationships between the VAT gap and regulatory quality are presented in Figure 6 and Table 4.

Figure 6 VAT gap (percent of VTTL) and Regulatory Quality



Source: own processing

Table 4 Relationships between VAT gap and Regulatory Quality

Regulatory Quality	Alpha	Tails	Spearman's coefficient	t-stat	p-value
BGR	0.05	2	-0.63229 (**)	-3.16091	0.006461
HUN	0.05	2	0.641237 (**)	3.236491	0.005534
LTU	0.05	2	-0.59164 (*)	-2.84223	0.012359

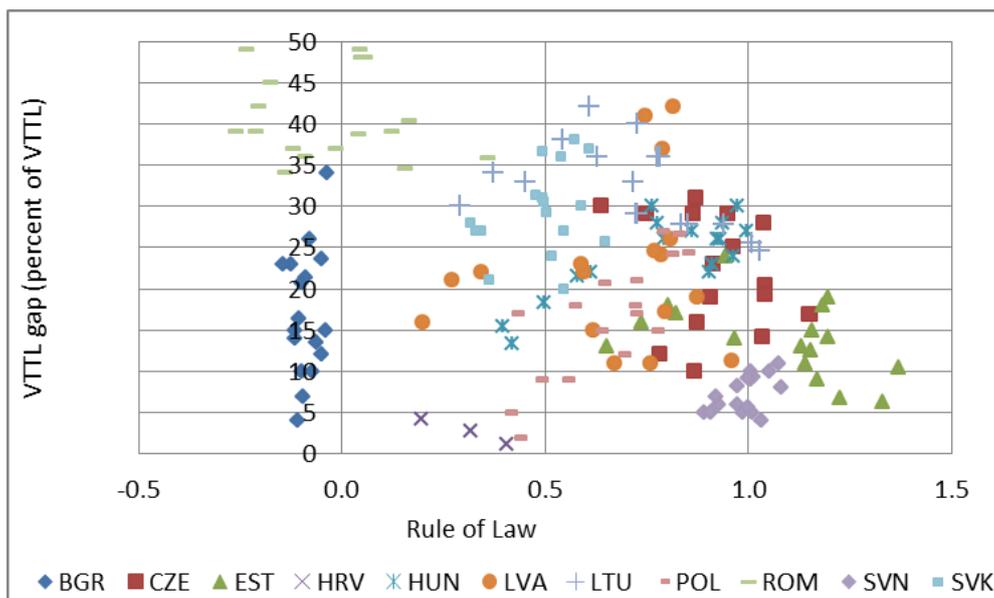
Source: own processing

Regulatory quality reflects the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The statistically significant relationship between VAT gap and indicators of the regulatory quality were confirmed for Bulgaria and Lithuania in negative direction, and for Hungary in positive direction.

VAT gap in relation to Rule of Law

The results of the tests for Vat gap in relation to rule of law are presented in Figure 7 and Table 5. The significant relations are for the countries Hungary and Poland, in positive direction. And, the higher indicator of rule of law, reflecting the perceptions of the extent to which agents have confidence in and abide by the rules of society, the lower VAT gap was confirmed for Lithuania.

Figure 7 VAT gap (percent of VTTL) and Rule of Law



Source: own processing

Table 5 Relationships between VAT gap and Rule of Law

Rule of Law	Alpha	Tails	Spearman's coefficient	t-stat	p-value
HUN	0.05	2	0.619083 (**)	3.053124	0.008052
LTU	0.05	2	-0.5941 (*)	-2.86047	0.011911
POL	0.05	2	0.785015 (**)	4.907927	0.000189

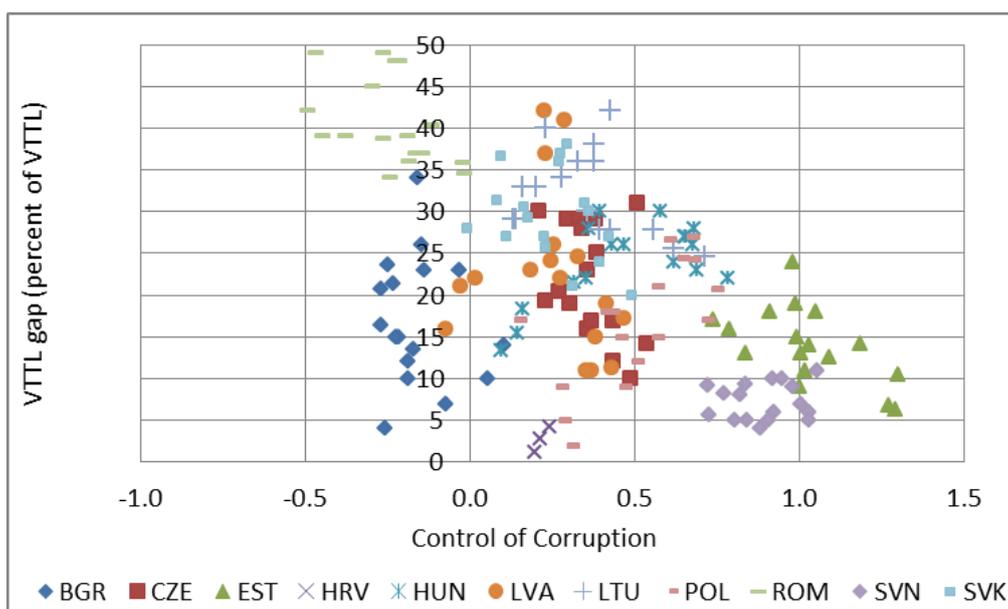
Source: own processing

VAT gap in relation to Control of Corruption

The results of the tests for VAT gap in relation to control of corruption are presented in Figure 8 and Table 6.

Control of Corruption was confirmed to be in statistically significant relation to the VAT gap in expected direction for Estonia and Romania, while in Poland, the higher level of control of corruption indicator, the higher VAT gap.

Figure 8 VAT gap (percent of VTTL) and Control of Corruption



Source: own processing

Table 6 Relationships between VAT gap and Control of Corruption

Control of Corruption	Alpha	Tails	Spearman's coefficient	t-stat	p-value
EST	0.05	2	-0.62577 (**)	-3.10712	0.007212
POL	0.05	2	0.636366 (**)	3.195064	0.006024
ROM	0.05	2	-0.5602 (*)	-2.6192	0.019345

Source: own processing

Conclusions

The paper gives a new insight into the motivation factors of tax evasion and tax avoidance research, taking into account the wider context of governance dimensions. The research focused on the relationships between basic invariants of governments and the VAT gap in the CEE countries, despite of the fact that there are differences among them, mostly in VAT rates, political systems, tax policies, and government administration. The relationships were analysed for the countries separately by using the non-parametric Spearman correlation coefficient to estimate the relationships.

Table 7 Relationships between VAT gap and Control of Corruption

Country code	WGI dimension					
	Voice and Accountability	Political Stability and Absence of Viol./Terrorism	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
BGR	- (*)			- (**)		
HRV		- (***)				
CZE						
EST						- (**)
HUN	+ (*)		+ (**)	+ (**)	+ (**)	
LVA						
LTU				- (*)	- (*)	
POL	+ (*)		+ (**)		+ (**)	+ (**)
ROM						- (*)
SVK		+ (**)				
SVN	- (**)		+ (**)			

Source: own processing

The results presented in the paper are not coherent, some of the relationships were statistically significant, in different directions (Table 7). Thus, it was not possible to make comprehensive conclusions. Interpretation of the analysis results, especially in the case of relatively high correlation positive coefficients, is an incentive for any EU country to eliminate those factors which, on the basis of the results obtained, adversely affect the widening of the VAT gap.

The results of the research can contribute to the practical suggestion for governance in the field of tax evasion and tax avoidance reduction. One of the measures taken by states is e-Government, that can help in increasing the government effectiveness and consequently in other governance dimensions. For example, in Slovakia, e-Government was initiated under the Act no. 261/1995 Coll. on information systems of public administration. The principles of e-Government are applied in tax administration using particular tools (Románová and Červená, 2017; Románová and Červená, 2015). One of the practical implications is the launch of the online cash register 'e-kasa' obligatorily from 1 July 2019, with the aim to eliminate fraud in cash receipt (Finančná správa, 2018).

In future, multicriterial analysis is needed to examine the various situation in different countries. However, the results can encourage the governments of relevant countries to determine the factors with the negative impact on the VAT gap and then to search appropriate solutions to reduce tax evasions.

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What is an Attack?

Tomáš Ondráček¹

¹ Masaryk University
Department of Corporate Economy
Lipová 507/41a, 602 00 Brno
E-mail: ondracek.t@mail.muni.cz

Abstract: *The paper is focused on the notion of an attack on organizational image regarding customers, or, more generally, stakeholders, dissatisfaction with some actions of organizations. An attack on an organizational image is structured and has at least two components: the description of an action and a claim of an organization's responsibility. But in most cases, it seems to be hard to determine for what actions exactly should the organization be blamed. Furthermore, there are usually more types of responsibility in play (e.g., legal, moral, social). This plurality of actions and liabilities is due to the involvement of many parties in the given crises. Concerned parties might differ in their concerns and aims regarding the organization's actions and reactions to crises. The main goal of this paper is to present an approach to the description of an attack on an organizational image or character based on the revision of Toulmin's model of argument. This description can capture multiple possible situations and types of responsibility used in different attacks by different parties in cases of crisis. Thus, it allows a better understanding of communication strategies in crises regarding topical choice in the given crisis discourse and furthermore better planning of actions in these situations for organizations under attack.*

Keywords: *attack, crisis management, Toulmin's model of argument, stakeholders dissatisfaction, image management*

JEL codes: Z000

Introduction

Although many texts were dedicated to problems of *apologiai*, responses of organizations to an attack, attacks, *katēgoriai*, themselves were usually aside. But *apologiai* are closely connected to *katēgoriai* (cf. Ryan, 1982). Without an attack, there is no need for an organization to proceed with *apologia* to deal with possible damage. Thus, without comprehension of attacks, any investigations of responses to it, are necessarily incomplete and unsatisfying. Furthermore, an analysis of attacks might provide useful information about what possibilities organizations have in crises communications and what is the nature of these strategies (cf. Benoit, 2015: 31).

In this paper, I would like to suggest a possible approach to the general analysis of attacks in communication. To do that, I will discuss attacks and their specific components (part 1) as they are described in texts on rhetorics and crises communication. Then I will briefly present a well-known Toulmin approach to argumentation, focusing on his model (part 2). Finally, I will introduce a revision of the Toulmin model, which should serve as a general model for an attack in crises communication regarding different involved parties (part 3). I will also show the pros and cons of my approach and how it can be further developed (part 4).

1 An Attack in Crises Communication

An attack in crises communication is a label for an accusation or *kategoria* in rhetorics. As already mentioned, most of today's text on crises communication is primarily focused on the messaging from an organization in reaction to crises. There seem to be only a few texts concerning with the messaging to which organizations react. Most prominent and quite recent work in this regard is Benoit's *Accounts, Excuses, and Apologies* (Benoit, 2015). Benoit uses the term persuasive attacks, which he defines as "messages that attempt to create unfavorable attitudes about a target (person or organization)" (Benoit, 2015: 2). This is done by accusations, *katēgoriai*.

Katēgoriai were studied from a rhetorical point of view already by Aristotle, whose theory is still quoted and used today. Aristotle distinguished three main genres of rhetorics *symbouleutikon* (deliberative), *dikanikon* (judicial), and *epideiktikon* (demonstrative) (Aristotle, 2007: 48). *Katēgoriai* and *apologiai* belonged to *dikanikon*, although *epainos* (praise) and *psogos* (blame) belong to

epideiktikon (ibid.). Regarding katēgoriai and apologiai, he also put forward an important question: "From how many and what sort of sources should their syllogisms be derived?" (Aristotle, 2007: 83)

Although other scholars, who later on wrote on accusations and defenses, follow Aristotle, they adapt these specific genres to changes of their functions in society (see Downey, 1993). But all of them agreed that apologiai come after katēgoriai. This point was also presented in the foundational essay in modern research of apologia by Ware and Linkugel (1973). Ryan (1982) even proposed to treat apologiai and katēgoriai as speech sets rather than separate communicative events. But, the study of katēgoriai was quite neglected, and only a few texts were dedicated to them in crises communication.

1.1 Components of an Attack and its General Form

There are a few exceptions regarding studies of attacks in crises communication. Benoit is a prominent one. He conducted several studies on this topic (Benoit and Delbert, 2010; Benoit and Stein, 2009; Benoit, Klyukovski, McHale, and Airne, 2001; Benoit and Harthcock, 1999; Benoit and Dorries, 1996).

In trying to find out general components of an attack, Benoit (2015: 20) is referring to work by Pomerantz (1978). Pomerantz studied sequences of responsibility attributions in transcripts of the Scarman Tribunal hearings into Violence and Civil Disorder in Northern Ireland in 1969. She found out that there are two following segments. At first, there is "an announcement or reports of an 'unhappy incident'." After this, the second segment is the attribution of responsibility. In another study on Dateline and Wal-Mart quarrel about deceptive business practices in 1992, Benoit and Dorries (1996) identified two similar key components of an attack as a responsibility and offensiveness. Benoit further explicated these two components of an attack later (Benoit, 1997: 178):

1. The accused is held responsible for an action.
2. That act is considered offensive.

Other authors interested in attacks tried to provide some additional characterization such as a saliency of an audience, or stakeholders (Ferguson, 2012: 3). Nevertheless, regarding today's literature, an attack seems to be oriented on organizational character, image, or alike, and it is done by accusing, blaming, or similar. Accusations themselves thus got two critical components of attacks which are oriented on liability, responsibility, and motivation, offensiveness.

The liability component is more critical than motivation. One might argue that even though no one is injured, there still might be wrongdoing in a play. Or the harmfulness might be only possible or presuppose. The attribution of responsibility is, therefore, primary component because it puts together the organization and the situation. The sense of wrongdoing or harmfulness is a secondary component of an attack because it puts together accusers and the situations, and it is connected more to the motivation of accusers.

From the other point, it is also possible to blame somebody for not doing something, i.e., for something for which she is not responsible. A typical example might be to blame an organization for not to be involved in different social-political-moral movements. Despite that, an organization is not, strictly speaking, responsible for the situation it still can be blamed for not to take part in dealing with it. But, this lack of direct responsibility for the unsatisfying situation might be transformed into the responsibility for maintaining this situation. Thus, I would argue that there is a tendency to satisfy liability condition after all.

Thus, the simplest general form of an attack consisting of accusations in a manner which is consistent with today's approaches can be expressed in this manner:

An organization X is responsible for a situation S, and situation S is harmful to a party Y; therefore, an organization X is to be accused.

This form also presents an accusation as something that is based on reasons, justifications. It needs to be justified, although the justification might be weak or even insufficient. Because of this, an attack as composed of accusations might be analyzed as an argument.

2 A Toulmin Model

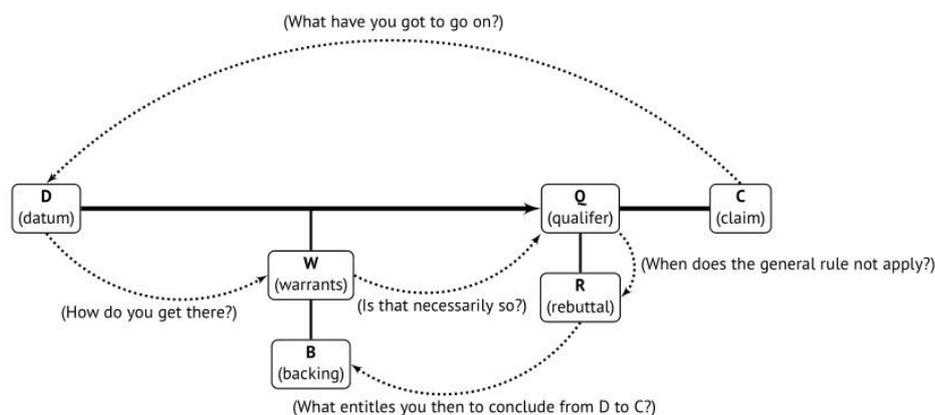
The primary tool for my proposed approach to an attack is the Toulmin model (Toulmin, 2003, Toulmin, Rieke, and Janik, 1984) of an argument and his differentiation of logical types. Although this model is an old one, it is not outdated. It is still used and developed in many different areas (see Hitchcock and Verheij, 2005). In the Toulmin model, it is possible to capture the general outline of an argument, differentiate its elements and relations between them.

Toulmin approach is also characteristics by Toulmin’s criticism of logical validity and thus privilege of analytical arguments. Furthermore, it does not necessary provides a criterion of good argument or specification for a specific domain or discourse. Therefore, the Toulmin model seems to be a useful tool for purposes of capturing arguments in heterogeneous context. Furthermore, with the slight revision, there is a way to capture in one model more possible arguments.

2.1 The Model of an Argument

An argument can be analyzed regarding its six elements: a *claim*, a *data*, a *warrant*, a *qualifier*, a *rebuttal*, and a *backing*. Toulmin also understands an argument as a process. An argument is constructed by the assembling of its elements in discussion with an audience. There are five questions following the claim and connected to each element of the argument (see fig. 1).

Figure 1 The Toulmin Model of an Argument



Source: Author’s own figure based on Toulmin (2003, 1984) and van Eemeren et al. (2014)

The claim is what the party wants to be accepted. It is the statement which should be justified and which is the product of the process of justification in an argument. The claim might be of various types. It might be a factual judgment, value judgment, policy statement, or anything else. The justification of the claim is done by data and connected through the warrant. Data might also be of various logical types.

Warrant, on the other hand, can be in the simplest form “If data are accepted thus, the statement is acceptable” (cf. Toulmin, 2003: 92). Data are usually given explicitly and warrant implicitly in the conversation (ibid.). But data and the given warrant does not need to justify claim necessarily, but there might be degrees of force to accept the claim. Furthermore, there might be exceptional situations when the justification does not apply, i.e., rebuttals. The whole justification is done in a certain domain, simply, under a certain system of acceptability which is given by backing. Such a system might be law, or general morality, or even general reasoning. The selection of warrant by backing can be further described by legitimation inference (see Goodnight, 1993).

2.2 Logical Types

Logical types are connected to the problem of analytical (or geometrical) validity of an argument. It might be hard to determine how exactly define logical types in Toulmin's approach (O'Connor, 1959, s. 244). Toulmin probably took this notion from Russell theory of types or Ryle's theory (van Eemeren et al., 2014: 213). Thus, for this paper, the logical types will be seen as groups of statements with the same rules for their acceptance (cf. Ryle, 2009, s. x). An example of these types might be the following list of statements (van Eemeren et al., 2014: 214):

1. The ministers handed in their resignations.
2. The government has just lost the confidence of the House.
3. Early elections will probably be held.
4. The guilty party has behaved improperly.
5. It is difficult to make out who is responsible for the crisis.
6. Measures will have to be taken to avoid a repetition.
7. Beethoven's later quartets are to be preferred over his earlier ones.

Each of these statements does have a different rule for acceptance (van Eemeren et al., 2014: 214). There are factual statements on the past (1), present (2), and future (3). To accept statement considering future facts, there are different rules than to accept statements considering past or present facts. Furthermore, judgmental statements on morals (4), causality (5), policy (6), and aesthetics (7) do also have different conditions for acceptance.

The differentiation between logical types is necessary regarding warrant which might be used in given arguments. The move between different logical types in argumentation is possible, it is called type-jump (Toulmin, 2003: 150, 155, 202), but it needs to be carefully examined. E.g., to provide data considering one's feelings might be problematic if the logical type of claim is factual. Such justification might be seen as the ought-is problem. But even this might be in certain domains acceptable.

3 A Revision of the Toulmin Model

A Toulmin model of an argument is only a model, and it should not be preferred over the given material, texts, and real arguments (cf. Gasper and George, 1998). Thus, this model itself does not serve as a tool for deciding if some arguments are correct or incorrect. Instead, it serves as a useful way how to present an argument, or its analyses reasonably. As such, this model is ordinarily modified (see Hitchcock and Verheij, 2006). Not all elements are necessarily explicit or even present in real-life discussions; therefore, some of them might be omitted. Furthermore, some elements might need bit more clarification or further justification. In the presented revision, I would like to show a Toulmin model as a tool for capturing possible arguments for an accusation.

3.1 Heterogenous Audience and Arguments

A simple way how to approach an accusation as an argument is to take two components of an attack as separate arguments which claims together constitute data for the main claim, an accusation. It depends on the individual interpretation, whether the liability and motivation constituents will be seen as coordinative or multiple arguments for the claim.

Regarding the nature of an attack in crises communication, it is possible to modify the Toulmin model further. In cases of crises, organizations usually do not react to one specific attack but to several accusations connected to a specific situation and attack. There are often more parties involved in blaming organizations for their acts. There might be customers, shareholders, but also politicians, prosecutors, the general public, and other groups attacking organization for some actions from different points of view, with different goals, and using different channels. Thus, e.g., customers might look for compensation or corrections, and prosecutors might demand legal actions against organizations. These goals will be built upon backings of their arguments if these backings are based on moral, legal, or other ground providing further warrant between presented data and claims.

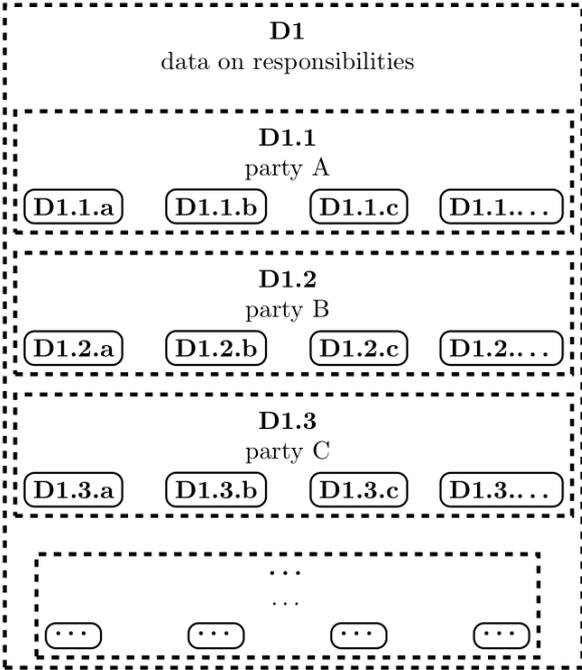
On the other hand, organizations public reactions should acknowledge a variety of the involved parties. Although organizations might adjust their message to a specific audience constitute by a selected party, they should always remember that public reaction to crises will be heard by other involved parties. Furthermore, organizations might select from presented data from various sources

and reacts to only that data which are in favor of their position. Also, organizations will prefer to deal with arguments using specific rather than with another. Thus, it is better to look at accusations as somehow *heterogeneous arguments*. It means that it involves a variety of claims, data, warrants, qualifiers, rebuttals, and backings, which are put forward in given communication situation by a variety of parties. But all of these accusations are pointed to a similar conclusion, i.e., to damage to the organizational image.

My proposal is based on Toulmin model. But unlike in that model, elements are not necessarily connected with each other, even though all of them might be used to justify given claim in the given structure. To capture this, I used a dotted line for boxes and arrows. This layout should symbolize that even though all parts are used, not all of them are necessarily used together (see fig. 2).

Furthermore, I would suggest to further structure each element in the given accusation regarding its source. Also, each statement used in data or claims should be differentiated regarding its logical type to provide information on the rules of their acceptability. As an example of how this can be done, see fig. 3.

Figure 3 Data Structuring

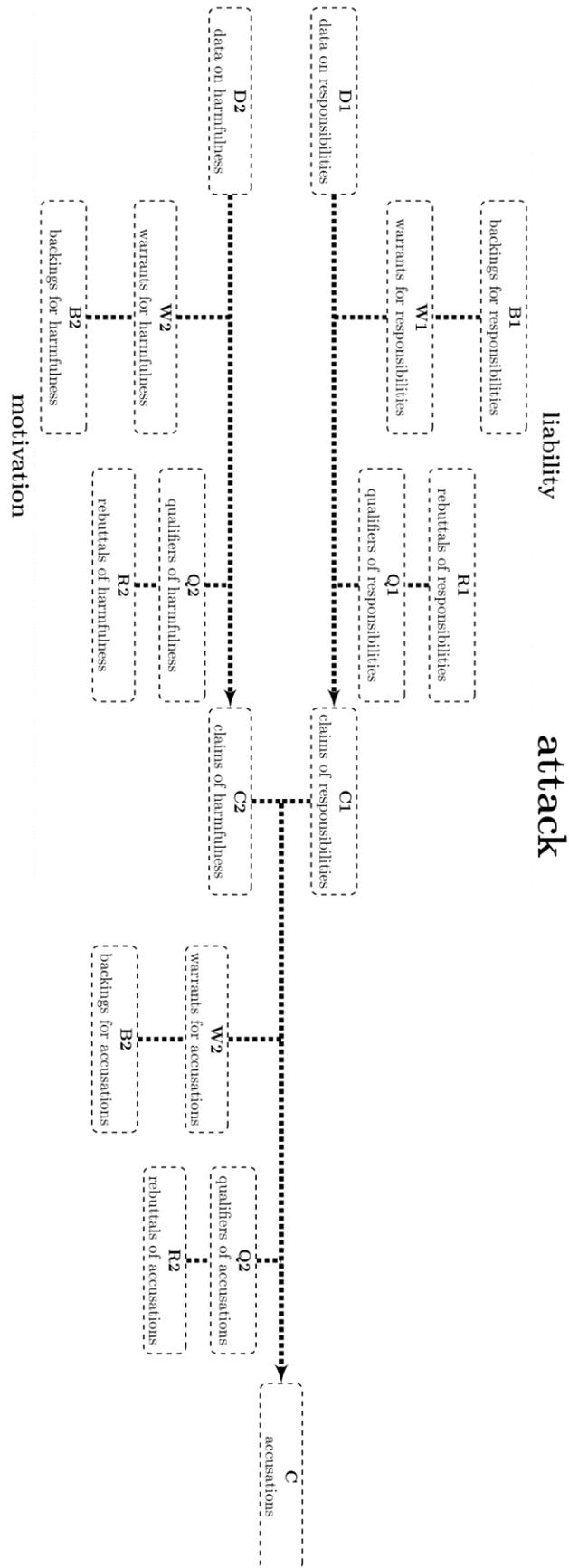


Source: Author's own figure

The basic idea behind this revisited Toulmin model is that all elements and their parts are taken as a class of objects which only possibly play a role in the particular argument. Therefore, it is possible to choose what presented data will be counted as justification for the given claim under a chosen warrant and backing. Such layout should enable to better analyses of given attack and reaction to it. All presented claims, data, warrants, and backings will be visible. Thus, it would be easy to see if responses of organizations are pointed only to specific sets of data or warrants, etc.

It should also be pointed out that each element or its parts might have further justification, that is another argument attach to it. E.g., the acceptance of data might be further justified by appeal to nonpartisan authority. It is also for an organization in response to attacks to bring in new data which can be used for its defense.

Figure 2 Revisited Toulmin Model of an Attack



Source: Author's own figure

4 Discussion

Probably the most obvious objections to this approach might be that given model of an attack would be too large to be comprehensible. That might be true, but that is the nature of crises communication in the public domain. Variety of parties, a variety of channels are used, and too much simplification might leave aside essential features. Furthermore, the model of an attack might be presented only in general form. Further analyses might deal with just some of its elements as it is done in figure 3.

It might also be hard how to determine who are the accusers in the given attack. It seems adequate to distinguished them regarding sources of data and even regarding particular communicative acts such as letter, article, complaint, etc. Regarding parties, it also seems useful to divide them into the primary accusers and secondary reporters. This division might be helpful, especially when there is an attack on messenger in organizational reactions.

The presented approach is just a proposal on how to deal with attacks using the Toulmin model and emphasizing a variety of involved parties. It is no regard finished work. There is a lot more to be studied. But this approach seems viable because it enables to connect organizational reactions to specific elements of accusations.

E.g., Benoit considers organizational reactions regarding two key components (Benoit, 2015: 31). Using this revisited model, it is possible to focus these strategies much more precisely. E.g., reduce offensiveness might happen in data in motivation component using reframing reasons and thus changing its logical type. Or it might be done by choosing data to justification with a weaker qualifier. Benoit also presents possible ways how to increase possible attack (Benoit and Dorries, 1996; Benoit and Stein, 2009). Also, this can be connected to the specific elements in the model.

Another way how to further develop this approach regarding its practical application might be in considering the presented model as a manual for practical orientation in the given crises communication. There might be a following suggestion of steps:

- Identify accusers.
- Identify their claims, liability, and motivation compound.
- Determine logical types of these claims.
- Identified reasons for claims.
- Determine logical types of these reasons.
- Determine warrants between reasons and claims.
- Determine qualifiers.
- Determine backing (is this a legal matter, is this moral, or different).

Identification of logical types also provides possible moves how to deal with specific statements. E.g., statements of logical types such as feelings, emotions, and so on cannot be easily disproved. It often seems better to accommodate them. But these statements also do not play a role in justification with usual legal backing.

There are also other ways how to elaborate on this approach. One of them is using inferentialism as a tool to determine the meanings of used sentences (this was proposed by Kupś (2019)). Further study in semantics would also help when there are strategies in organizational responses using ambiguity or vagueness of language. Or it might be useful to added credibility assessment to given source and use this to evaluating persuasiveness force of the given attack. And even if this approach proves itself in future as unfruitful, there is still a lot to do in studying crises communication at least from the point of argumentation theory.

Conclusion

Attacks, or rather persuasive attacks, on organizations are created by accusations from various sources usually involving multiple parties. Accusations are consisting of two key components: liability and motivation. The liability component connects an actor, organization, to a specific situation in a way that an organization is somehow responsible for the situation. The motivation component connects the situation and accuser that the situation is unwelcome or even harmful for the accuser. Accepting these two components gives ground for blaming and organization, which leads to threatening its image. Because both liability and motivation components are not simple claims, but there might be justifications for them, it is possible to analyze them as arguments. Moreover, both are further used as reasons for an attack.

The Toulmin model of an argument provides a simple way how to represent provided reasons, data, and their connections to claims under particular warrant in the specific context, backing. Due to the

number of involved parties on the side of accusers, it is possible to revisit this model and see him not as a strict connection between specific data and claim but rather as a possible connection between multiple data and multiple claims with different warrants and backing but serving the same goal, i.e. accusing an organization.

This approach might help to see reactions of organizations in a much broader way. Organizations do not necessarily publicly react to one specific accusation but instead to a multiple of them provided by different accusers. Therefore, organizations respond to a heterogeneous audience. Due to the variety of accusations, organizations might apply strategies such as choosing specific data, warrants, backings, or even claims, which gives them an advantage for their position. They might do that regardless of the particular arguments provided by specific parties. If we treat all of these accusations separately, we would be unable to see how organizations try to maneuver throughout the crises and satisfy multiple goals which they have. An organization usually wants to calm down the public and shareholders but not to expose themselves to prosecution or further legal restriction. There is much more to be done regarding the heterogeneous nature of the audience and accusers in organizational crises.

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The Use of the Facebook Social Network in Selected Czech Companies

David Prantl¹, Michal Mičík²

^{1,2} University of West Bohemia, Department of Marketing, Trade and Services
Univerzitní 8, Plzeň
E-mail: ¹ prantld@kmo.zcu.cz, ² micikm@kmo.zcu.cz

Abstract: *The use of social media gives companies an opportunity to strengthen the relationship with their stakeholders. However, companies in the Czech Republic use them below average in comparison with other EU countries. The aim of our research was to evaluate the use of social media in selected Czech companies with the focus primarily on the Facebook social network. The research was conducted on a sample of several Czech companies that successfully and unsuccessfully use social media. The sample covered both the B2B and B2C markets. The results of our research show that companies reach very different engagement rates, which depend on several factors that are identified in our research. Based on the results, we encourage businesses to use social media and always set specific marketing goals.*

Keywords: *social media, Facebook, personal, communication, marketing*

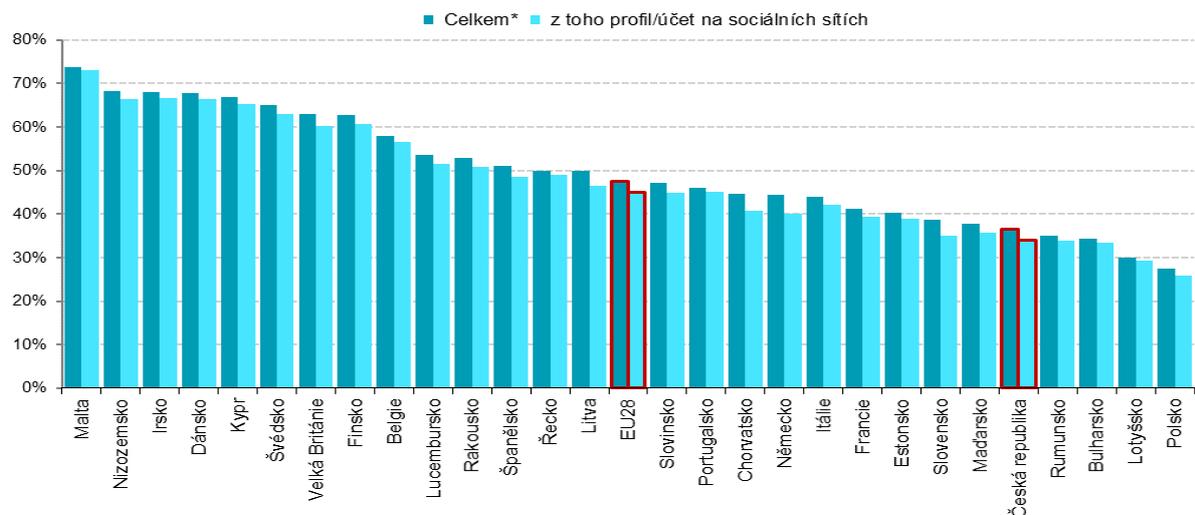
JEL codes: *M37, M31*

Introduction

A definition of social media says that they are online applications that allow people to share information and learn from others (Wilson, 2010). The use of social media presents companies a competitive advantage which enables them primarily to develop a relationship with their customers (Grizane and Jurgelane, 2017; Nascimento and Silveira, 2017; Alalwan et al, 2017).

However, the Czech Statistical Office indicates (2018) that only a fraction of companies use social media. For example, only about 30% of companies in transportation, construction or power engineering actively use social media to attain their business goals. In those industries, the use of social media is reported by less than 25% of small enterprises. In 2017, Czech enterprises were in the EU among those countries that used social media to a low degree. That communication channel would be less frequently used only by companies in Romania, Bulgaria, Latvia, or Poland (Figure 1). Czech companies are now discovering social media, as the year-to-year growth of social media use suggests. While an average of 37% of companies used social media in 2017, the number rise to 44% in 2018. Furthermore, the share of companies operating a user profile on social media has nearly doubled in the past five years; the trend has been most visible in small enterprises with less than 50 members of staff (Czech Statistical Office, 2018).

Figure 1: Companies in EU countries using social media in 2017 - share in all companies with 10+ employees, per country



* companies in said country having a user profile/account with at least one type of social media

Source: Czech Statistical Office (2018), Eurostat

Therefore, it is necessary to further develop knowledge on using social media in companies (Kim et. al., 2015). A multiple case study will be conducted on the subject of the use of social media in companies (Hendl, 2016; Flyvbjerg, 2006; Hyett et al. 2014). Each case is examined for a short time in the study. During the observation stage, images will be acquired on communication on social media by each company. Duggan's study (2015) suggests that the most frequently used social media platform is Facebook. Therefore, our study will focus on this social media outlet. Examination will focus on 2018 posts issued on Facebook by the companies. The purpose of conducted case studies is a description of the status of social media use by selected Czech companies. The research includes a subsequent discussion and suggestions to improve communication of those companies. The research questions have been selected as follows:

1. What method of communication do companies use on Facebook and for what purposes?
2. How many visits does Facebook deliver to the websites of the selected companies?
3. What other social media outlets do the companies use?

1 Literature Review

Facebook social network was founded by Mark Zuckerberg in 2004 originally as a university network at Harvard University (Weinberger, 2018). After the initial success (within one month from launch, one half of all Harvard students registered at the network), Zuckerberg would gradually make Facebook available to all people in the world and it began to grow rapidly. One of the first important acquisitions was the 2012 purchase of Instagram, a photograph sharing platform. Facebook bought Instagram for approximately \$1bn and considerably increased the number of its users.

Both Facebook and Instagram allow to establish profiles to individuals and companies. Profile establishment and administration is offered free of charge. Facebook is financed from the sale of advertisement. Unlike advertisement in search engines, it offers certain benefits especially in the targeting possibilities (Tran, 2017). Facebook holds immense pools of data on its users; the information is provided voluntarily (hobbies, education, favourite music, etc.). Therefore, advertisement targeting a population with certain interests is easy. Companies can communicate with users via their own Facebook pages, messages via the Messenger, stories (Insta Stories), as well as various formats of traditional advertisement such as video clips, images and text (Facebook, 2018).

The number of advertisement formats offered on Facebook is very large. In their research of user interest in specific formats in Indonesia, Tikno (2017) indicates that the most efficient format is the video clip as it scored higher in user interaction than still images. On the other hand, Sabate (2014)

in an examination of 164 posts by Spain's 5 most popular travel agencies indicated that the most efficient posts were those containing still images. However, both authors agree that the richer and more varied the content, the higher the captivation of the user. Each company should test what type of posts are most effective on Facebook.

The principal parameter for evaluation of the success of individual posts on Facebook is the *engagement rate*. This is a metric which is calculated as the number of users who have responded to the post (commented, shared, added a response, etc.) divided by the number of users watching the profile. Feehan's study (2018) states that the average *engagement rate* on Facebook amounts to approximately 0.16%. Therefore, only 1.6 out of 1000 users interact in any manner to a post. The highest *engagement rates* (0.24%) are recorded in the food and drink segment. On the other hand, the lowest rates are received in news coverage (0.08%). The *engagement rate* is much higher on Instagram where the average number is 1.73%. The research was conducted on 150 randomly selected companies in January 2017.

Fáborský (2019) analysed the use of Instagram by Czech e-shops. The analysis states that approximately 8% of Czech e-shops have an Instagram profile. About one half of those e-shops have more than 1,000 followers (the highest number of followers from the Czech Republic is recorded by Queens, an e-shop with fashion). On average, they publish one post a day; no correlation can be established between the frequency of publishing new posts and the total number of followers (some of the successful profiles may publish as little as one post per week). Fáborský (2019) also indicates that the effort exerted by companies to follow other Instagram accounts (e.g. those of other companies, celebrities and other users) in order to attract new followers is futile and does not result in a considerable growth of followers of the profile in question.

Sabate (2014) also defines the factors which affect the popularity of posts on company profiles. The research identifies three groups of variables that affect popularity. They are the post type (still images, videos, or links), the time frame when the posts were published, and the controlling variable (post length and the number of fans of the page). From these variables, the time frame has the lowest impact. However, the controlling variable and the post type have a considerable impact. It is logical that the more followers a page has, the higher is the popularity of the post. However, the relationship is not a linear one. The composition of the follower crowd is always important. The most popular are especially images and long posts where users can learn details about the topic under discussion. The research suffers from a limitation as the content of the posts (communication style, use of emoticons, etc.) was not examined.

Broeck et al. (2018) report that the efficiency of advertisement on Facebook is also affected by the purpose under which people visit the platform. When users are looking for specific information, they often ignore advertisement in general; however, when they are passing time thoughtlessly browsing on Facebook, advertisement can be very efficient with some users. Users can further interact with some formats – they can add responses, comments, as well as share the advertisement itself. This also means that the most successful formats on Facebook are those which do not resemble advertisement too much and either bring useful information or are entertaining. Windels et al. (2018) also recommend that Facebook advertisement use the function of the specific advertisement unit being liked by the friends of the given prospective customer. If the customer then sees any of their friends having interacted with an advertisement, that advertisement is more likely to attract their attention.

Mynář and Stříteský (2017) performed a comparison of performance tools used in Internet marketing. The study included Facebook advertisement, AdWords, Sklik and SEO. Subsequently, each tool was assessed against the costs and the quality and attracted visits. Data was collected from 74 pages from 2014 to 2016. The research shows statistically significant differences in the costs related to each of the tools. From the tools analysed, Facebook advertisement showed the lowest price per visit. However, a problem of Facebook advertisement was a low conversion rate. Therefore, the study indicates Facebook users to be an audience rather than customers. The study concludes that Facebook advertisement should not be utilised at the end of the purchase decision process but in its early stages.

Proposed Methodology

An analysis of social media is conducted to answer the research questions. Qualitative and quantitative data are used, as suggested by the case studies conducted by Yin (2013). Non-structured questioning is also used. E-mail was used to contact managers from the selected companies with questions on the goals of using social media (*With what goals and in what areas do you use social media?*).

Selecting the Companies

The companies are selected intentionally from businesses operating in the Czech Republic. They are companies which cooperate with the authors and are willing to offer insider information. Two groups of companies have been established according to the efficiency of social media communication: successful and unsuccessful. Success is assessed by the ratio of the average number of interactions to Facebook posts to the overall number of posts in 2018 (successful have more than 20 interactions whereas unsuccessful less than 10). Subsequently, successful and unsuccessful companies are selected from the group so that one half of the sample have B2C and the other B2B companies. A total of 8 companies have been selected (see Table 1) with a majority of successful (using the best practice procedure). Therefore, the selection is based on the indicators of communication success, nature of business (B2B or B2C), and the companies' willingness to share insider information.

In the B2B group, the selected companies are COMTES FHT (unsuccessful), Ackee (successful), DAÑHEL AGRO (successful) and Beneš & Michl (successful). In the B2C group, the selected companies are Hotel Slavia Brno (unsuccessful), Kosmas (successful), Field restaurant (successful) and CrossCafe (successful).

Table 1: List of companies in sample

Company	Segment	2017 sales (CZK mil)	Facebook communication success
COMTES FHT	B2B	35.8	unsuccessful
Ackee	B2B	33.7	successful
DAÑHEL AGRO	B2B	539.9	successful
Beneš & Michl	B2B	8.5	successful
Hotel Slavia Brno	B2C	24	unsuccessful
Kosmas	B2C	507.7 (2014)	successful
Field Restaurant	B2C	40	successful
CrossCafe	B2C	55	successful

2.1 Analyses Conducted

The analyses mentioned below will be conducted to answer the research questions, which are based on the literature review:

Analysis 1) What method of communication do companies use on Facebook and for what purposes? Using descriptive statistics, posts published on Facebook by the companies are examined (the analysis excludes posts which used paid advertisement). Posts (including information on the number of shares, comments and reactions) are downloaded from Facebook API using the Netvizz tool and further analysed in Microsoft Excel. Examination will focus on the overall number of sent posts and/or the number of followers. The engagement rate (Feehan, 2018) will also be calculated using Formula 1.

$$\text{Engagement Rate} = \frac{\text{number of 2018 reactions}}{\text{total followers}} \quad (1)$$

The questioning will serve to assess the goals of using Facebook in selected companies.

Analysis 2) How many visits does Facebook deliver to the websites of the selected companies? The selected sample will be evaluated using the SimilarWeb tool (2018) to record the number of visits to the company websites from Facebook. The percentage share of visits from Facebook will be compared to the overall number of website hits.

Analysis 3) What other social media outlets do the companies use? The websites of the companies will establish what social media the companies actively use and what is the number of people following them on social networks.

3 Results

Question 1) The highest number of followers on Facebook, from the companies in the sample, is scored by Kosmas (19,754), the lowest by COMTES FHT (72). It is important to monitor the average number of interactions per post (Table 2). The highest values in this parameter is scored by DAÑHEL AGRO. Each post received an average of 132 interactions in 2018. DAÑHEL AGRO also scores best in the engagement rate indicator (4.5%). The runner-up in this indicator is COMTES FHT (3.3%). However, this result is affected by the low number of followers (72), which makes it not quite conclusive. Having conducted a comparison of the results for the individual companies, it appears that the most successful ones are those who have clearly established a strategy to use social media. On Facebook, companies can also be addressed directly via personal messages. The conducted test shows that the companies responded within 3 days. Slavia Hotel Brno was the only one who showed no response. The communication style was similar to an e-mail message.

Table 2: Results achieved on Facebook in 2018 per individual companies

Company	Total number of followers	Number of posts submitted	Engagement rate	Average interactions* per post	Reason for using Facebook
COMTES FHT	72	51	3.3%	5	Public communication
Ackee	2,400	128	1%	25	Hiring new staff
DAÑHEL AGRO	4,437	153	4.5%	132	Brand promotion and hiring new staff
Beneš & Michl	892	27	0.8%	26	Hiring new staff
Hotel Slavia Brno	728	73	0.4%	4	None presented
Kosmas	19,754	497	1.4%	55	Establish long-term rapport with customers
Field Restaurant	11,157	58	0.7%	129	Win new customers
CrossCafe	25,625	78	0.45%	84	Establish long-term rapport with customers

* An interaction is sharing, commenting, and responding (a like, love, wow, etc.)

Companies publish 4 types of posts on Facebook – still images, links, videos or a status (a post created only from text). Most often, they publish posts with an image (67% of cases) while a status is presented least often (5% of cases). The most successful posts are those with an image; the engagement rate then amounts to 2.6%. In the other post types, the average engagement rate ranges from 1.5 to 1.8%.

Table 2: Results achieved on Facebook in 2018 per post type

Post type	Number of posts analysed	Relative frequency of post type	Average engagement rate
still image	649	67%	2.6%
link	229	24%	1.7%
video	70	7%	1.8%
status	45	5%	1.5%

Successful communication by the examined companies is distinctive in having its specified goal the concept of which is maintained across the posts. Another characteristic of successful communication is the high-quality preparation of its content, using own photographs and stories. On the other hand, what is typical of unsuccessful communication is the absence of a goal and low-quality preparation of the posts.

The companies use Facebook in the matters of personnel agenda and marketing. In marketing, the most important goal is the creation of the company brand. In personnel agenda, the goal is new personnel acquisition. B2B companies often focus on acquiring new employees via Facebook. On the other hand, B2C companies focus primarily on preserving their customer relations and finding new customers. The examined B2C companies also received a much higher number of followers than B2B.

Question 2) The examined companies receive an average of 3% for the total visits from Facebook (most visits are delivered from search engines). Therefore, Facebook delivers only a negligible number of visits to company websites. The lowest values (nearly zero) were recorded by DAÑHEL AGRO and Hotel Slavia Brno. However, DAÑHEL AGRO scores good results on social media. All the while most of the published posts contain photographs of farming machinery and do not present the visitors with a reason to go to the company website. The companies themselves however comment that they do not administer their Facebook pages for the purpose of acquiring a higher number of visits to their company websites.

Most of the visits (95%) are delivered via Facebook. Other social media exhibit a quite negligible share in the delivered number of visits.

Question 3) All of the analysed companies use Facebook (Table 3). Other social media are used differently, depending on the focus. The companies use at least 3 social media outlets (an exception is Hotel Slavia Brno which only uses Facebook). The companies receive the highest number of followers on Facebook and Instagram. Kosmas also has a high number of followers on Twitter. None of the companies have more than 1,000 followers on YouTube or LinkedIn. Field Restaurant also uses the special social network TripAdvisor. On the other hand, Kosmas has a Google Plus profile; this is a network which people do not use much and Google is planning to discontinue it.

Table 3: An overview of social media used and the number of followers at the end of 2018

Company	Facebook (number of followers)	YouTube (number of followers)	LinkedIn (number of followers)	Twitter (number of followers)	Instagram (number of followers)
COMTES FHT	72	46	45	x	x
Ackee	2,400	x	518	260	1,523
DAÑHEL AGRO	4,437	570	x	x	1,331
Beneš & Michl	892	50	65	96	253
Hotel Slavia Brno	728	x	x	x	x
Kosmas	19,754	132	114	1,620	4,110
Field Restaurant	11,157	x	x	202	7,200
CrossCafe	25,625	x	96	110	2662

Discussion and Conclusions

Communication on social media varies greatly from one company to another. The companies in our sample actively use social media (especially Facebook). However, they often make mistakes which are based on not possessing an adequate concept of social media communication. The companies have shown different results in the engagement rate. In the selected group, the engagement rate ranges from 0.4 to 4.5%. Higher numbers are scored by companies who publish visually attractive Facebook posts and who have established a clear goal of communication. Moreover, it appears that the most successful profiles on social media have companies which have clearly established a strategy to use social media.

Most often, the companies publish posts with an image (67% of cases) while a status is presented least often (5% of cases). The most successful posts are those with an image; the engagement rate then amounts to 2.6%. The companies appropriately use the type of post which is most popular with their users. Posts containing video or a simple status tend to be less successful. The examined companies receive an average 3% of the total visits from Facebook (most visits are delivered from search engines). Therefore, Facebook delivers only a negligible number of visits to company websites.

All of the examined companies use the Facebook social network. Other social media are present randomly, depending on the communication goals. The companies use Facebook in the matters of personnel agenda and marketing. In marketing, the most important goal is the creation of the company brand, whereas in personnel agenda, the goal lies in new personnel acquisition. Communication goals differ depending on the industry in which the company operates. B2B companies are trying to use Facebook to primarily attract new personnel, while businesses in the B2C segment use social media to establish rapport with their customers.

Our findings show, that is always necessary to set specific goals of the communication and to adjust the strategy on social media. General recommendations may fail in these cases as each company is unique and possesses its own competitive advantage which it must apply in its communication.

The conducted case study was limited primarily in the selection of the companies. As the sample was rather small, the findings may be partly distorted. The selected companies do not contain any micro-enterprises that could use social media for other purposes. Further research could therefore analyse other companies or suggest a more systemic data processing routine to include more companies in the sample. The conducted research however, in spite of the presented limitations, does portray practical use of social media in Czech companies and serves to further expand the findings acquired through previous research.

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Effects of regional factors on productivity in Russia

Andrey Pushkarev¹, Oleg Mariev²

¹ Ural Federal University,
Graduate School of Economics and Management
E-mail: a.a.pushkarev@urfu.ru

² Ural Federal University,
Graduate School of Economics and Management
E-mail: o.s.mariev@urfu.ru

Abstract: *Productivity growth is an essential part of the economic development of a country and, in many ways, determines this development. However, over the last years, economic growth of Russia has been slowing down and has been rather low. In this research, we try to see what regional factors limit the productivity of Russian firms by focusing on the human capital, as a driver for innovation and research and a quality of institutions, representing easiness of operation on the market and some others. We employ dataset of more than 50 thousand manufacturing firms from 2006 to 2015 located in all regions of Russia; we use firm level data on labor productivity and main economic indicators. It is expanded with regional level data regarding quality of human capital and institutional climate. We construct several econometric models for entire dataset and several size subsets. Estimations suggest significant effects of external indicators on the productivity growth, which vary across considered subsets. Based on the obtained results, we propose several policy recommendations that can be used to facilitate faster economic growth in Russia.*

Keywords: *productivity, competition, human capital, firms*

JEL codes: J24, E24

Introduction

Productivity and its growth on the level of firms is essential component of the economic development of any country. Meaning that it determines core economic indicators of the country, such as aggregate productivity, GDP per capita, and others.

This paper aims to uncover what external and internal factors affect productivity of Russian firms and tries to uncover what factors are limiting the productivity and may be a cause for such low levels of labor productivity and its growth. For this, we use an unbalanced panel of more than 50 thousand manufacturing firms from 2006 to 2015 located in all regions of Russia expanded, which is further expanded with a variety of external indicators on the regional level. More detailed description of the dataset and indicators is given in the Data and Methodology section

Case of Russia is especially interesting due to a low level of labor productivity of Russian firms. OECD reports that during the period from 2005 to 2015, average labor productivity never surpassed 25 USD per working hour, which is two times lower than in G7 countries and is one of the lowest values among all OECD countries. Another point is that productivity growth rate was also rather low staying within 2-5% a year and even actually declining during the last years. This growth rate is comparable with the developed countries, who have much higher levels of labor productivity. However, since Russia is one of the developing countries, it is to be expected that the growth should be substantially faster. We theorize that such results may be due various external factors affecting Russian companies, thus limiting their productivity growth.

Current economic situation in Russia is also characterized by the uneven development of regions and the growing gap between regions in terms of economic activity and other factors (Demidova (2015)). With that being said, number of research suggests that this gap has negative effect on the lagging regions; further limiting their development and catching up processes (for example, see Bufetova (2016)). Considering that modern research suggest that differences in productivity levels are one of the key determinants of the regional inequalities (see Dettori et al (2012); Caselli (2005)), it is important to understand what may fuel the growing gap in productivity in Russia and why some regions perform much better than others.

That being said, understanding how external factors on the regional level are connected to actual productivity of Russian firms may be important to suggest relevant policy improvements that can facilitate further economic growth.

To our knowledge, this research is the first to consider multi-level effects on the micro-level productivity for the case of modern Russian firms. We also consider what share of firm-level performance can be explained by the regional factors, compared to the unique characteristics of the firm. We also consider differences between size subsets of firms, allowing to see if SMEs experience external effects differently, compared to large enterprises.

The rest of the paper is structured as follows; in the Section 1, we review relevant existing research, highlighting used methodologies and the results. In the Section 2 we describe our data and used methodology for the econometric estimation. Then, results of the initial modelling as well as a consideration of the subsets are presented and discussed in the Results section. We follow up with the conclusion, suggesting possible policy implications of the research.

1 Existing research

Current research considers two main groups of factors affecting productivity – internal factors and external factors. Internal factors are firms own characteristics and resources, that affect should affect productivity. On the other hand, external factors are connected to the environment in which firm operates, those can be estimated on different levels, ranging from local area to the macro level. As noted by Amara and Thabet (2016) most of the studies regarding productivity has been carried out for developed economies, such as the USA, Germany, France, the UK and others.

Internal factors are usually have stronger explanatory power and include such variables as: capital, labour, age, size, internal spending. Even though these factors are mainly well researched, there are several factors to consider.

For example, Nilsen et al. (2006) consider effects of investment on productivity. They use employer–employee panel data set for two manufacturing industries and one service industry and focus on the variations of output, capital, labour and others related indicators. Even though investment is usually considered beneficial for the productivity, authors find that investment spikes have little to no effect on the productivity.

Research have also found tight positive connection between involvement in export activities and productivity. Wagner (2016), through the extensive analysis of the research on this topic, highlights that the direction of the connection is ambiguous and several mechanisms might be in the play, including self-selection of enterprises, technology transfer, and others.

Other micro level indicator is firm size. Larger firms are able to achieve higher economies of scale, thus utilizing their resources more efficiently, resulting in higher productivity (see. Buckley et al. (2007)). Therefore it is important to take into account the size of the firm when considering factors affecting productivity.

External factors are frequently connected to the location of the firm, agglomeration effects and competition. For example, Aiello et al. (2014) consider TFP of Italian firms for the period from 2004 to 2006 and find that location of the firm matters, more so does the context of this location. Authors specifically mention such characteristics as regional endowment of infrastructure and the efficiency of local administration.

Andersson and Lööf (2009) have considered manufacturing firms in Sweden with 10 or more employees over the period 1997–2004 and found that firms are usually more productive in agglomerations. They also find that agglomeration increase productivity through a learning effect. Moreover, firms benefit even more if located in larger regions, thus being exposed to a larger market. Andersson and Lööf do not find any connection between these effects and firm size.

As for the competition, research usually finds weak explanatory power of the competitive selection in regards to productivity dynamics (see Dosi et al. 2015). Even so, it is still an important factor to consider.

Some factors may be both internal and external. For example, Griliches (1979) considers R&D investment on the level of a certain firm, but also finds connection between individual productivity and the spillovers from the R&D firms in the sector. We will be considering R&D investments on the regional level, to localize them at least geographically.

Human capital also can be both internal and external as presented by Backman (2014). Her findings on the dataset of Swedish firms suggest that productivity is highly dependent on the quality of human capital inside the company. Apart from that, companies also benefit from the access to qualified workforce, however this indicator has much lower explanatory power compared to the firm-level ones. These results are also in line with the theoretical findings of the human capital (Blundell et al. (1999); Ballot et al. (2001); Hitt et al. (2001)).

As for Russian-specific results, Kapelyushnikov (2014) suggests that productivity growth in Russia is not limited by the wage growth, but still considers labor connected with the productivity. Dolzhenko and Malyshev (2019) as a result of the comparative analysis highlight the following factors that may cause low productivity: poor technological and managerial competences, insufficient use of outsourcing and connections between firms, specifics of environmental conditions. It is worth noting, that empirical estimations of factors affection productivity for Russian data are rather scarce, so we are aiming to expand current research.

Based on the current state of the productivity research, we can outline the following factors that are frequently considered: capital, human capital, age and size of the firm, FDI, export activities, firm location, R&D investment, agglomeration effects, and competition.

2 Data and Methodology

2.1 Data

We employ an unbalanced panel dataset of 50 thousand manufacturing firms in Russia for the period from 2006 to 2015. All financial indicators are given in constant 2005 prices. The used dataset covers all regions of Russia and all manufacturing industries at NACE rev.2 two digits. Key indicator of productivity is calculated as operational revenue minus cost of sold goods and labour then divided by the number of employees.

We exclude all firms with less than 20 employees to avoid micro-firms, as their indicators might be highly volatile. We also have to exclude observations where at least one of the core indicators (revenue, cost of goods, or number of employees) is absent. We have to do it so the dependent variable can be calculated.

In the Table 1 below micro-level indicators are presented for the whole dataset as well for the size subsets. In this research, we consider all firms with less than 250 to be SMEs and Large companies otherwise. We also estimate a number of close competitors as a number of firms in the same industry and same region in a given year.

Table 1 Descriptive statistics of the micro level indicators.

	All firms		SME		Large firms	
	Avg.	S.D.	Avg.	S.D.	Avg.	S.D.
Productivity, USD	13370.18	137590.30	12860.90	148815.40	15845.29	57437.61
Total Assets, mln USD	18.80	183.00	5.67	69.40	82.90	410.00
Labour	202.94	712.02	65.14	52.40	872.66	1554.59
Competitors	85.89	100.47	87.51	101.90	78.01	92.84
Corporate group	134.63	950.29	68.00	661.22	460.41	1747.23
Age	12.98	18.61	10.76	14.74	23.72	28.87

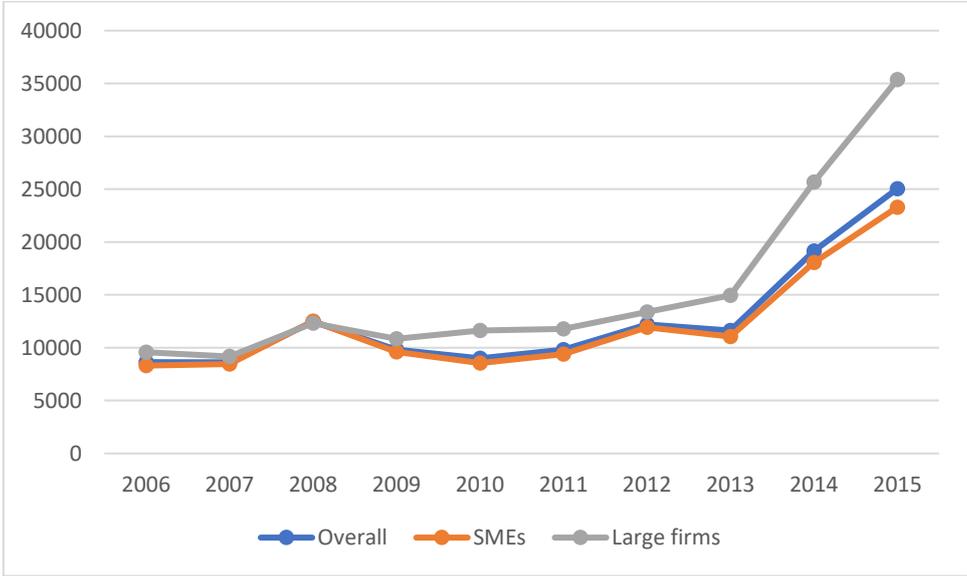
Source: own estimations based on the Ruslana data

We find several important characteristics of Russian firms. First there is significant variation of productivity in the data, meaning that there are extremely productive firms that can be on par with the firms in developed countries, however, there are a number of less productive firms, even with negative productivity (due to negative profits). We see significant variations within other variables as well.

As for the differences between size subsets, we see that larger firms are slightly more productive, however this difference is within expected values. What is more interesting is that Standard deviation of productivity for SMEs is much higher, indicating extreme heterogeneity among them. It is also worth noting that number of competitors is usually lower for large firms. This is logical result, since larger firms may take larger market share, limiting the number of competitors. We also suggest that this may be to the industrial specifics. All other differences are to be expected. We also find that large companies are usually more involved in the export activities, with 52% participating. This share is only 15.6% for SMEs.

Figure 1 below displays dynamics of the average productivity in the considered dataset.

Figure 1 Dynamics of the average productivity



Source: own estimations based on the Ruslana data

We observe steady growth over the last years, which is steeper for larger companies, while SMEs follow the average dynamics. It is worth noting that before 2012 differences are almost non-existent. We have also considered dynamics of the average productivity of the separate industries and the dynamics is usually similar to the aggregated estimation.

Table 2 below presents key statistics for the regional factors that are used in the estimation. All regional factors are obtained from the Russian Statistical Agency Rosstat and presented in constant 2005 prices

Table 2 Descriptive statistics of the micro level indicators.

	Mean	Std. Dev.	Min	Max
GRP, mln USD	16133,67	35046,02	414,9804	362432,6
Railroad density	160,2783	195,2032	0	3076
Road density	203,8152	288,365	0	2453
Economically active population, thousand	968,9892	958,0689	85	7087
Share of unemployed	0,036078	0,01378	0,004642	0,101925

Share of urban population	0,699925	0,123775	0,257282	1
Researchers per 1000 inhabitants	2,956838	3,679853	0	24,6726
Share of educated workforce	0,253995	0,077121	0,026	0,5
Average income, USD	502,6881	195,5038	128,3061	1657,193
Spending on innovations, mln USD	250,3347	530,2945	0	5623,14
Share of export in GRP	0,179275	0,171901	0,00042	0,865583

Source: own estimations based on the Rosstat data

There are several things that should be noted. We observe rather substantial heterogeneity in all variables, namely we find regions without roads and researchers, those are northern regions like Chukotka region, for example. We also observe regions with only urban population, namely Moscow and Saint Petersburg. We also see extremely high variation with the share of export in GRP, with some regions having no involvement and several regions where its share is over 70%.

2.1 Model specification

We estimate several models based on the data described above. First, we estimate overall model (1), which includes both micro level and regional level indicators, as well as fixed effects on the regional and industry levels.

$$prod_{i,t} = \beta_0 + \alpha MICRO_{i,t} + \beta Regional_{j,t} + fe_{reg} + fe_{ind} , \quad (1)$$

Where $prod_{i,t}$ is a labour productivity of the firm i in the period t , $MICRO_{i,t}$ is a vector of indicators on the firm level and $Regional_{j,t}$ is a vector of indicators of region j in the period t . fe_{reg} and fe_{ind} are fixed effects on the regional and sector level. This equation is estimated for the overall dataset as well as for the subsets.

Then components are estimated separately with variables of micro level and then with the variables of the regional level. We also additionally check for the explanatory power of the fixed effects alone.

The following indicators are included in the $MICRO_{i,t}$ vector: total assets, mln USD; Number of workers; number of close competitors; number of firms in a corporate group; age. $Regional_{j,t}$ vector includes: GRP, mln USD; railroad and automotive road density; economically active population, thousand; share of unemployed; share of urban population; researchers per 1000 inhabitants; share of educated workforce²; average income, USD; spending on innovations, mln USD; share of export in GRP.

Results are presented in the next section.

3 Results

Table 3 presents results of the econometric modelling of the equation (1).

Table 3 Overall model estimation

Productivity	Overall	SME	Large firms
Total Assets	0.0000971*** (82.54)	0.000350*** (103.57)	0.0000630*** (122.80)

² We calculate this indicator as a share of economically active population with tertiary education or higher in total economically active population

Labour	-8.224*** (-14.23)	56.63*** (7.42)	-4.453*** (-16.40)
Competitors	23.66*** (4.07)	20.11** (3.05)	21.59*** (3.40)
Corporate group	-0.0399 (-0.11)	-1.069 (-1.91)	-0.681*** (-3.43)
Age	42.53* (2.42)	38.80 (1.84)	89.59*** (4.67)
GRP	-0.0219* (-2.13)	-0.0131 (-1.16)	-0.0367*** (-3.36)
Railroad density	-3.273 (-1.07)	-1.583 (-0.44)	-10.27** (-2.97)
Road density	1.837*** (4.44)	1.186** (2.60)	2.893*** (6.77)
Economically active population	2.320*** (3.83)	2.316*** (3.33)	3.476*** (4.96)
Share of unemployed	-196616.4*** (-7.56)	-154841.5*** (-5.37)	-249168.4*** (-10.31)
Share of urban population	10245.1 (1.86)	4384.8 (0.68)	18366.7** (2.77)
Researchers per 1000 inhabitants	-639.2*** (-4.48)	-535.1** (-3.22)	-788.6*** (-4.83)
Share of educated workforce	20888.9*** (7.87)	16938.3*** (5.80)	21176.7*** (8.54)
Average income, USD	-14.15*** (-8.05)	-13.61*** (-6.97)	-13.13*** (-7.83)
Spending on innovations	0.311 (1.21)	0.00424 (0.02)	0.572* (2.11)
Share of export in GRP	6212.9** (2.61)	7232.1** (2.67)	6087.2* (2.43)
Regional fixed effects	YES	YES	YES
Industry fixed effects	YES	YES	YES
R.sq.	0.04	0.11	0.25

Source: own estimations based on the Rosstat and Ruslana data

When estimating overall model we find several important results. First, we see significant differences between subsets. For example labour, is positively significant for SMEs, while it produces negative effect for the large enterprises. Such result may suggest that larger firms cannot use the labour effectively and, essentially, may benefit from reducing staff to a certain level. We also find that the age is less significant for smaller firms, which may be linked to the fact that these firms are generally younger. Even though spending on innovation on the regional level have positive effects in all three instances, we see that this indicator is not significant for SMEs. We theorize that these firms have harder time using the spillovers form innovation investments.

We find positive effects of the following productivity factors: total assets, number of competitors, road density, economically active population, share of urban population, share of educated

workforce, and share of export of export in the GRP. These results are expected and go in line with the previous findings for other countries.

As for the negative effects, some of them require additional comments. We find negative effects of GRP and average income that may seem surprising. However, we suggest that this result may be due to a fact that many low-productive firms are located in the regions with high GRP created by the oil, natural gas and mining industries. We also see negative effect of the share of researchers, which may happen to low quality of their training.

In the Table 4 the second part of the empirical estimation is presented

Table 4 Estimations of the explanatory power (indicated by the R squared) of the different level factors

R.sq	All firms	SMEs	Large firms
Base model	0.043	0.110	0.251
Only firm level indicators	0.040	0.110	0.209
Only regional level indicators	0.006	0.005	0.071

Source: own estimations based on the Rosstat and Ruslana data

Analyzing explanatory power of the nine equations, we can draw several important conclusions. First, we see that explanatory power is always higher for the subsets, compared to the overall model. This is due to the fact that observations of Russian enterprise are rather heterogeneous and factors affecting productivity do differ for SMEs and large enterprises.

Second, we see that firm level indicators work much better explaining the productivity variation. Since regional level indicators are a bit more informative for larger enterprises, we theorize that such outcome is due to different exposure of firms to the processes on the regional level. Smaller companies are focused on their local market, which can be as small as a city or even a district. Larger firms are more exposed to the regional factors, since their market is larger.

Conclusions

In general results of the modelling confirm previous findings for other countries and highlight the fact that institutional climate and human capital are extremely important for the productivity of Russian firms. We find significant positive effects of infrastructure, human capital, availability of labour force, and number of close competitors.

We also find substantial differences between factors affecting SMEs and Large enterprises. With large enterprises being more sensitive to the regional factors. We also find that large firms benefit more from the firm age, which implies accumulated competences, informal connections and market power. On the other hand, we also find that large firms may have too much employees, in some cases, as additional workers have negative effect on the productivity of these firms.

With that being said, we want to highlight the necessity of the diversified policy aimed at increasing productivity in Russia. We suggest that more direct methods, such as subsidies and tax benefits, should be used for SMEs, while larger firms can benefit from the industry- or region-wide policies and overall improvement of the institutional climate.

This research can further be expanded with more careful consideration of the factors representing institutional conditions, as well as assessing the effects of the same factors affecting total factor productivity.

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The Influence of Cross-Cultural Thinking Styles on Perceived Price Fairness: An Experimental Approach

Sayanti Shaw¹, Miloslava Chovancová²

^{1,2} Department of Management and Marketing, Faculty of Management and Economics
Tomas Bata University in Zlin, Mostini 5139,
76001 Zlin, Czech Republic
E-mail: shaw@utb.cz

Abstract: *Individuals belonging to diverse cultures are characterised by different cognitive styles of thinking. Styles of thinking can act as the driving force leading to differences in cultures, which eventually influences consumer behaviour across a range of diverse domains. This article attempts to assess the cultural differences (Eastern versus Western) in perceived price fairness as a function of styles of thinking (holistic versus analytic). As expected, we found cultural differences in the perceived price fairness. Findings of this research provide support for thinking styles as the driver of cross-cultural differences in perceived price fairness. Consumers belonging to Eastern cultures with holistic style of thinking perceive a price increase as fairer in compared to consumers belonging to Western cultures with analytic style of thinking. When exposed to negative and/or undesirable incident such as price increase, culture influences cognitive attribution, which, in turn influences price fairness perceptions. This research adds to the growing literature in cross-cultural consumer behaviour and price fairness by exploring the influence of culture on perceived price fairness from the perspective of styles of thinking that has not been examined before. From a pragmatic viewpoint, this difference can play a vital role in building marketing-management strategies.*

Keywords: *styles of thinking, holistic, analytic, cultural differences, perceived price fairness*

JEL codes: M31

Introduction

Over past couple of decades, cultural aspects of consumer behavior has received considerable theoretical and empirical attention (Monga and Williams, 2016). The current research has widened our understanding regarding how consumers from varied world parts get involved in diverse consumption actions. This article concentrates on thinking styles deriving from cultures with diverse social organisations. Social differences among cultures foster particular cognitive processes above others. With the view that Easterners give emphasis to the object – environment associations and are more field/context oriented in compared to Westerners, a substantial body of literature advocates the standpoint that Western and Eastern cultures promote different styles of thinking. Eastern cultures foster holistic style of thinking. In contrary, Western cultures foster analytic style of thinking.

A product/service's price has substantial impact on customers' perceptions and behaviours, hence pricing decisions are not only important but also exigent (Chung and Petrick, 2015). Pricing decisions while providing the prospect to make a distinction from contenders also bring about the peril of displeasing consumers (Diller, 2008). Not merely economic motives but also subjective preferences with perceptions also play crucial part in consumers' price perceptions and purchase decisions. For determining fairness perceptions, consumers have to go through a series of cognitive steps (Campbell, 1999). A substantial body of literature supports the view that making a price/ price increase appear to be fair or lessening unfairness perceptions can bring about increased levels of consumer satisfaction and loyalty (Hassan *et al.*, 2013; Han and Hyun, 2015; Izogo and Ogba, 2015; Kasiri *et al.*, 2017). Thusly, it is vital for managers and marketers to grasp the underlying cognitive processes that form perceptions of price fairness.

Fairness has been defined as "a judgment of whether an outcome and/or the process to reach an outcome are reasonable, acceptable, or just" (Bolton, Warlop and Alba, 2003). As the concept of fairness is complicated, consequently rendering judgements about fairness are not simple. According to literature, perceptions of price fairness significantly influence consumer behaviour. It is essential for business organisations to comprehend when consumers perceive a price/price change to be unfair/fair. Consumers assess the approach by which products/services' prices are fixed (Garbarino and Maxwell, 2010; Ferguson, Ellen and Bearden, 2014) and thereby form perceptions of price fairness (Kukar-Kinney, Xia and Monroe, 2007; Rondan-Cataluña and Martin-Ruiz, 2011). As per

price fairness literature, the facets of price increase/higher price has significant influence on consumers' perceptions of price fairness. In today's ever-changing, complex, highly competitive, digitally enhanced and increasingly transparent world, organisations are increasingly embracing customer centricity (Shaw, 2017). Thereby, customer-oriented business strategies are increasingly gaining importance (Shaw, Chovancová and Bejtkovský, 2017). Therefore, deep understanding of consumers' needs, expectations and perceptions are becoming crucial for the development of effective business strategies (Shaw and Chovancová, 2018). Perceived price fairness is a vital attribute of consumers' responses to prices (Reavey and Suri, 2015). Perceived price fairness has positive influence on customer's purchase intentions (Eid, 2015; Bettray, Suessmair and Dorn, 2017), loyalty (Hassan *et al.*, 2013; Kasiri *et al.*, 2017), satisfaction (Li, Ye and Law, 2013; Gorodutse and Hilman, 2014), and attitudes towards the seller (Narteh *et al.*, 2013; Chung and Petrick, 2015). In contrast, perceived price unfairness can induce negative outcomes like complaints, negative word of mouth switching to competing firm, return of goods/services, or reprisal in court (Jin, He and Zhang, 2013; Lymperopoulos, Chaniotakis and Soureli, 2013; Xia *et al.*, 2004).

1 Research Problem

A considerable body of literature supports the view that thinking styles (holistic vs analytic) can be regarded as a significant predictor of consumer behaviour over a range of varied domains. Researchers are progressively recognising the role of thinking styles (holistic vs analytic) as the driving force leading to cross-cultural differences in consumer behaviour. This article highlights a gap in the existing pricing literature by focusing on cultural differences in perceived price fairness as a function of styles of thinking. This study points to a unique and important path for research where thinking styles drives the cross-cultural differences in perceived price fairness.

2 Literature Review

2.1 Price Fairness Perception

Customer's evaluation of a product/service's price relies on nominal facet along with perception of price. As fairness relies on the outcome, consequently who/what is accountable for that outcome influences perception of price fairness. The price increase impelled by internal costs or internal factors is perceived as more unfair (less fair) than those impelled by external costs (Chung and Petrick, 2013; Vaidyanathan and Aggarwal, 2003) or external factors (e.g. inflation). Consumers' perceived motive concerning seller's choice of price increase plays a significant role in price fairness evaluation (Somervuori, 2014). Business organisations who are required to rise prices may augment consumers' perceptions of price fairness by imparting the price increase and communicating an appropriate explanation relating to the price increase (Rothenberger and others, 2015). Today's world of dynamic market is typified by unremitting price changes, by this means customers can end up expending different prices for the same product/service, regardless of the seller being same (Petro, 2015; Li, Hardesty and Craig, 2018). The discriminatory price setting strategies (for instance, differential vs. uniform pricing, auction vs. posted pricing) have their effects on perceptions of price fairness (Haws and Bearden, 2006; Ahmetoglu, Furnham and Fagan, 2014). Perceived price fairness has its effect on consumer attitudinal and behavioural outcomes. Fairness process may ensue price fairness/unfairness perceptions, which thereby engender several positive/negative consequences.

Attribution theory states that individuals are likely to seek the causal reasoning of an event, especially in case of negative, surprising and/or undesirable event (Maxwell *et al.*, 2013). In understanding an individual's fairness perceptions, the comprehension of his/her attributions of cause and responsibility are essential. Consumers can extrapolate the cause(s) of an event/action pertaining to any or all three attributional dimensions: locus of causality, controllability, and temporal stability (Bhowmick, 2010; Chung and Petrick, 2009; Young Chung and James, 2016). In the context of external (internal) locus of causality, price increases are perceived as less (more) fair. Similarly, controllable (uncontrollable) price increases are perceived as less (more) fair (Vaidyanathan and Aggarwal, 2003; Chung, 2010). When individuals encounter certain incidents particularly negative/undesirable, they infer cause(s) of the incidents and subject to cognitive attribution (how the causes are attributed), different kinds of emotional responses are engendered, which thereby bring about their responses to the incidents. As per literature, locus of causality and controllability are the key causal dimensions that effect cognitive attributions and resulting behaviours (Chung and Petrick, 2013; Pallas, Bolton and Lobschat, 2017; Voester, Ivens and Leischnig, 2017).

2.2 Holistic and Analytic Style of Thinking

Prior literature has presented several instances where styles of thinking (holistic versus analytic) have significant influences on perceptions of consumers (Monga and John, 2007; Lalwani and Shavitt, 2013; Hossain and Bagchi, 2018). Analytic thinkers are inclined not to give attention to contextual and/or situational factors of event/behaviour and allocate causality of the event/behaviour to the object/individual. In contrast, holistic thinkers are more prone to focus on the field with taking into account external contextual and/or situational influences as important determinants of event/behaviour (Monga and John, 2008; Dikici, 2014).

Individuals belonging to Western and Eastern cultures exhibit different thinking style, which stem from different social structures (de Oliveira and Nisbett, 2017). Individuals belonging to Eastern cultures being entrenched in copious and/or complex social relations are likely to be holistic thinkers, whilst individuals belonging to Western cultures with fewer and/or less complex social relations are likely to be analytic thinkers. Easterners show more dependency on field than Westerners (Monga and Williams, 2016). Consumers from Eastern (holistic thinking) cultures display better fit perceptions amid parent brands and brand extensions besides respond more favourably than consumers belonging to Western (analytic thinking) cultures (Monga and John, 2010).

Holistic and analytic thinkers employ different cognitive processes in their endeavour to predict and explain the reasons for events/behaviours (Choi, 2016). While drawing attributions, thinking styles (holistic versus analytic) are likely to determine the individuals' level of contemplating contextual and/or situational factors (Choi, 2016). Styles of thinking can effect individuals' cognitive process of forming causal attributions, i.e. cognitive attribution to an event/behaviour. Holistic thinkers are more prone in ascribing causes to broader context and focus more on interrelationships amid event/person and context and/or situation, i.e., external attribution tendencies (de Oliveira and Nisbett, 2017). Analytic thinkers favour ascribing causes to internal object/disposition cored factors by disregarding the role of contexts and situations, i.e., internal attribution tendencies (Monga and John, 2008). These attributions besides letting consumers to foresee and determine their environment, can also control consumer satisfaction, perceptions, behavioural outcomes (such as complaining, demanding refunds), emotions (such as anger), and brand evaluations (Song, Swaminathan and Anderson, 2015). During cognitive attribution process, consideration of external (internal) factors divert (attribute) blame from (on) company and thus holistic (analytic) thinkers are less (more) likely to revise their brand evaluations in a negative manner (Monga and John, 2011; Pallas, Bolton and Lobschat, 2017; Monga and Hsu, 2018).

3 Methodology

3.1 Hypothesis

Easterners assume the presence of complex causalities and give more importance to the interactions and associations amongst actors and their envioning situations. In contrary, Westerns predominantly take into consideration actors' internal dispositions (Choi, Koo and Choi, 2007; Choi 2016; Hossain and Bagchi, 2018). Thinking styles lead to the differences among consumers (from Eastern and Western culture) in propensity to be contingent on contextual information for forming perceptions. During cognitive attribution process, consideration of external (internal) factors divert (attribute) blame from (on) company (Monga and John, 2011; Pallas, Bolton and Lobschat, 2017; Monga and Hsu, 2018) and thus it can be said that consumers from Eastern (Western) cultures are less (more) likely to revise their brand perceptions and evaluations in a negative manner. Based on above explanations, we would like to propose that culture influences price fairness perceptions from the perspective of thinking styles (holistic vs analytic). When exposed to negative and/or undesirable incident such as price increase, culture (Eastern vs Western) influences cognitive attribution, i.e., consideration of external or/and internal factors. Moreover, this cognitive attribution would thereby influence price fairness perceptions. Furthermore, the cultural differences in perceived price fairness can be attributed to styles of thinking. This leads to the following hypotheses:

H₁: Consumers from Eastern cultures will perceive a price increase as fairer than consumers from Western cultures.

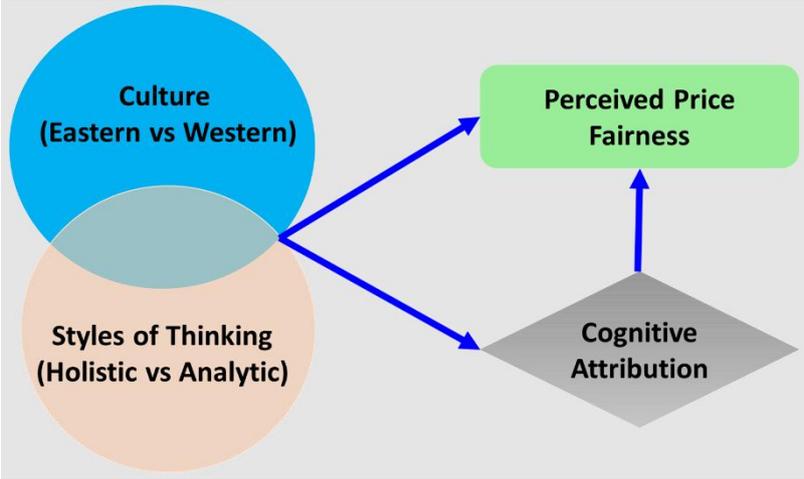
H₂: Cognition attribution mediates the relationship between cultures and perceived price fairness.

H₃: Cultural differences in perceived price fairness can be attributed to styles of thinking.

3.2 Conceptual Frame Work

In accordance with the identified research problem, the following conceptual framework of perceived price fairness (Figure 1) is developed. In order to achieve specific objectives of the research, the conceptual framework would be analysed via an experimental study. Figure 1 illustrates the conceptual framework for the current study.

Figure 1 A Conceptual Framework of Perceived Price Fairness

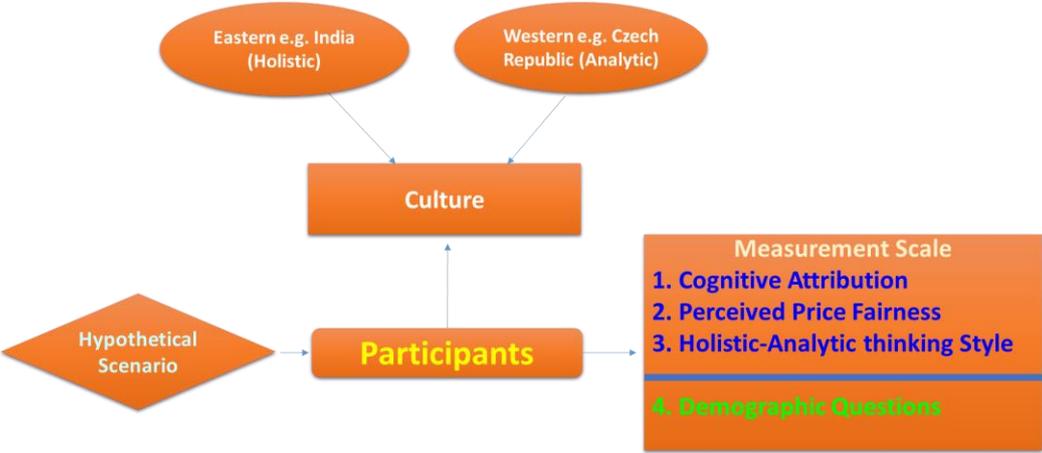


Source: Authors' Research

3.3 Research Methods

H1, H2 were examined via an experimental study. Nine three students of public universities in India and the Czech Republic participated in this study. Participants from India and the Czech Republic were considered as representatives of the Eastern cultures and Western cultures respectively. Participants were provided hypothetical scenario in the context of restaurant's price increase. After reading the scenario participants completed cognitive attribution, perceived price fairness, holistic-analytic thinking styles measurement scales along with certain demographic questions.

Figure 2 Research methods of current study



Source: Authors' Research

All the measurement scales that were used in this study were adopted from the literature and modified according to the concerned study. Perceived price fairness was assessed via six-item, five-point Likert scale (Chung and Petrick, 2015; Chung and Petrick, 2013). An example of items included in perceived price fairness measurement - the price increase is acceptable. Cognitive attribution was measured using five-item, bipolar rating (semantic differential) scale from 1 to 7 (Chung and Petrick, 2013). An example of items included in cognitive attribution measurement - the cause(s) of price increase is something inside/outside the restaurant. Holistic-analytic styles of thinking was assessed via twelve-item, five-point Likert scale (Song, Swaminathan and Anderson, 2015; Choi, Koo and Choi, 2007). An example of items included in holistic-analytic styles of thinking measurement - everything in the universe is somehow related to each other.

3.4 Data Analysis

The data collected from the study were analysed via statistical analysis/tests techniques. The following table summarises the techniques.

Table 7 List of statistical analysis/tests techniques, description and software used in the research

Analysis/Tests	Description	Software
Cronbach's Alpha	Measure of scale reliability	SPSS
Independent-Samples t-Test	Determine if a statistically significant difference exists between the means of two independent groups	
Linear Regression	Use to predict the value of a dependent variable based on the value of an independent variable	
Multiple Regression	Use to predict a dependent variable based on multiple independent variables	
Sobel Test	Determine statistical significance of mediation effect	Calculation for the Sobel Test QUANTPSY.ORG)

Source: Authors' research

4 Results and Discussions

According to the reliability analysis, the Cronbach's alpha values (0.787) and (0.913) suggests that items used to measure cognitive attribution and perceived price fairness had acceptable and reliable internal consistency respectively. An independent samples t-test was performed to test the effect of culture on cognitive attribution. As expected, the effect of culture was significant, $t(91) = 5.041, p < .0005$. An independent samples t-test was performed to test the effect of culture on perceived price fairness. As expected, the effect of culture was significant, $t(91) = 3.676, p < .0005$. Easterners exhibited higher perceived price fairness than Westerners did ($M_{\text{Easterners}} = 3.42, M_{\text{Westerners}} = 2.76$). Next, whether cognition attribution mediates the relationship between cultures and perceived price fairness was tested using Baron and Kenny's (1986) procedure. In separate regression equations, culture (dummy coded 0 =India, 1 = Czech Republic) predicted perceived price fairness ($b = 0.661, t(91) = 3.68, p < .0005$) and cognitive attribution ($b = 1.127, t(91) = 5.04, p < .0005$). Finally, when perceived price fairness was regressed on both culture and cognitive attribution, the effect of culture became non-significant ($b = 0.23, t(90) = 1.28, p = .204$), whereas cognitive attribution was significant ($\beta = 0.38, t(90) = 5.13, p < .0005$). A Sobel test supported the mediation (Sobel's $z = 3.98, p < .0005$). These findings suggest that cognitive attribution mediated the effect of cultures on perceived price fairness. To provide further evidence that cultural differences can be attributed to styles of thinking, a median split was performed on measure of holistic-analytic processing to obtain a group of holistic thinkers and a group of analytic thinkers irrespective of culture. Comparing these groups on perceived price fairness should mirror the cultural differences between Easterners and Westerners. An independent samples t-test showed significant effect of holistic-analytic processing measure for perceived price fairness, $t(65.77) = 12.18, p < .0005$, with higher perceived price fairness for holistic thinkers than analytic thinkers ($M_{\text{holistic}} = 4.20, M_{\text{analytic}} = 2.86$).

Conclusions

Results of the experimental study provide support for our research hypotheses. Our findings show differences in the perceived price fairness across cultures. Our results provide support for styles of thinking (holistic vs analytic) as the driver leading to the cross-cultural differences among consumers in the context of perceived price fairness. When exposed to negative and/or undesirable incident such as price increase, Easterners (with holistic thinking style) are likely to consider contextual and/or situational factors i.e. external factors while deducing causes of the event, leading to higher cognitive attribution and perceived price fairness. In contrast, Westerners (with analytic thinking style) are likely to ignore contextual and/or situational factors while deducing causes of the event, leading to lower cognitive attribution and perceived price fairness. From practical standpoint, this difference can play an important role in forming marketing-management strategies. Rather than communicating information about price increase indiscriminately, marketers and managers should take into consideration the influence of cultural differences on perceived price fairness.

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An Assessment of the Relationships between Customer Satisfaction, Quality Management and Customer Knowledge Management Measures

Petr Suchánek¹, Alena Klapalová²

¹ Masaryk University

Faculty of Economics and Administration, Department of Corporate Economy
Lipová 41a, 60500 Brno, Czech Republic
E-mail: suchy@econ.muni.cz

² Masaryk University

Faculty of Economics and Administration, Department of Corporate Economy
Lipová 41a, 60500 Brno, Czech Republic
E-mail: klapalov@econ.muni.cz

Abstract: *The importance of customer satisfaction for a firm's competitiveness is indisputable. To reach the maximum needed and required level of satisfaction to support and secure competitiveness, satisfaction must be managed through various processes and operations across the organization and beyond its boundaries. One of these processes is quality management, which has been empirically proven in many studies to be a precondition for customer satisfaction. Another of these is knowledge of customers, with regard to their needs, expectations, beliefs, and experiences, which has until now been a rather unexplored area in terms of theory. This study examines the associations between different approaches to customer satisfaction management, quality management, and customer knowledge management with the aim of enhancing the understanding of the relationships between them. It presents part of the results of a survey of Czech and Slovak manufacturing and service firms that was carried out in 2018. Applied correlation analysis reveals a strong relationship between approaches that can be assigned to Total Quality Management and active and both intensive and extensive information management related to customer satisfaction which helps to obtain and manage knowledge about customers and utilize this knowledge in related processes.*

Keywords: *customer satisfaction, quality management, total quality management, customer knowledge management*

JEL codes: *D22, L15, L21, L23, M11*

Introduction

Empirical research has confirmed that customer satisfaction with the products and services of a firm is among the most important factors in efforts to achieve competitiveness and business excellence (Dubrovski, 2001; Hanif et al, 2010). Firms also use **customer satisfaction** as a performance measurement of both success and competitive position when benchmarking with competitors (Sun and Kim, 2013). One of the most often cited definitions of customer satisfaction conceptualizes it as the customer's post-consumption evaluation of a product or service (Mittal and Frennea, 2010, p. 4). The evaluation concerns the perceived discrepancy between prior expectations related to the functions, features, dimensions or attributes of the product/service and its actual performance as perceived during the purchase, delivery and after the consumption (Tse and Wilton, 1988; Kobylanski et al, 2011). If the expected quality is delivered, customers are satisfied and improved quality reduces product returns, increases satisfaction and can promote loyalty and repeated purchases (Guo et al, 2004).

Product functions, features, dimensions or attributes are at the core of quality management. Jamali (2007) points to the discussion of scholars regarding the considerable overlap between the concepts of customer satisfaction and quality whereby they are even conceived as being synonymous and interchangeable. However, Jamali (2007) considers them to be "twin concepts", that is to say, closely related. In the securing and enhancing of customer satisfaction, quality management plays an important role. However, quality management is understood differently by different actors, and different approaches are used in practice based on quality management maturity, ranging from quality control through quality assurance to Total Quality Management (Calingo, 1996; Dale and Smith, 1997; Mangelsdorf, 1999; Evans et al, 2014; Fundin et al, 2019). The implementation of Total

Quality Management philosophy is regarded to have the best effects in achieving customer satisfaction, as it is strongly customer focused if properly carried out (Yong and Wilkinson, 2010; Hietschold et al, 2014).

Customer satisfaction is the result, or – as Muffatto and Panizollo (1995) argue – even the culmination of all the efforts that firms make in performing the many different activities and processes within the value chain (Nagel and Cilliers, 1997), and thus it has to be managed consciously and on a strategic level (Mittal and Frennea, 2010). This is the task for top management commitment: the inclusion of customer satisfaction in the mission statement, strategic objectives and policies to implement the strategy (Nagel and Cilliers, 1997).

From the value chain perspective, customer satisfaction management is highly interfunctional (Muffatto and Panizollo, 1995). This is also in accordance with the Total Quality Management approach. Total Quality Management seeks the organisation-wide commitment to customer satisfaction and embraces all organisational operations (Santos-Vijande and Álvarez-González (2009).

However, customer satisfaction as a result, in the form of knowledge of the level, of the attributes leading to both satisfaction and dissatisfaction, also represents the starting point and the input information for the value chain and future customer satisfaction (Nagel and Cilliers, 1997). The better firms know their customers, their needs and expectations, and to what extent and level their needs and expectations have been met by the the firm's product/service, the better the information can be used for new value added processes (Agus and Abdullah, 2000; Zairi, 2000). Customers' needs and expectations and solutions to product/service failures ascertained from customer feedback should be fully integrated into the design and development of products and services (Mehra and Ranganathan, 2008) to avoid dissatisfaction. As McCall-Kennedy and Schneider (2000) claim, customer feedback helps continuously improve performance and helps to develop and implement an efficient quality program (Kobylanski et al, 2011). Customer feedback is one part of customer knowledge management, which encompasses the management of knowledge about customers, from customers and for customers (Alryalat and Al Hawari, 2008). Sharing knowledge with customers is a proactive socialization process that helps involve customers in improvement and innovation activities and represents a pillar of customer relationship management (García-Murillo and Annabi, 2002).

To determine and understand customer satisfaction, an effective measurement should be designed and implemented. Effectiveness should tackle the issues of formalization, of the frequency of measurement, of the measures themselves, and also of sampling (Morgan et al, 2005). Measurement should be a continuous process and a wide range of methods, tools and measures brings better insights into the complex area of customer satisfaction (Grigoroudis and Siskos, 2009). Customer satisfaction is not static, as consumption goals change (Mittal et al, 2001) and needs and competitive forces are dynamic (Nauman et al, 2001; Porter, 1991). As Kanji and Wallace (2000) stress, to achieve customer satisfaction firms have to improve continuously in all aspects of their operations, which is in harmony with the philosophy of Total Quality Management.

Nguyen et al (2018) summarized existing quality management practices that are regarded as critical for the high performance of firms and which have been repeatedly investigated in a more or less replicated manner and supported by findings. These are as follows: top management support, leadership and quality strategy and policies; training and learning; product and service design; process management together with external and internal cooperation; problem solving; continuous improvement; customer satisfaction; customer relationship; supplier relationship; quality data and measurement; and recognition and reward of employees.

When reviewing the theory on the issues outlined above it can be seen that some challenges exist for future research, which this paper will try to address.

First, Muffatto and Panizollo (1995) claimed that a) interdependencies between processes related to customer satisfaction management across the relevant functions must be examined and analysed in order to adopt the right actions for improvement, and b) the most widespread concept of customer satisfaction is mainly based on factors relating to the monitoring of customer satisfaction itself and is thus largely unconnected to internal processes. They also identify seven key factors (supported later with empirical research) for effective (and efficient) customer satisfaction management. These are: customer focus; the role of product and process design and continuous improvement; top management commitment (especially the importance of mission, planning and policies, along with

interest from managers); the necessity of monitoring and measurement; data and information processing about customers, their behaviour and satisfaction; and finally the inevitability of process orientation and ongoing organizational changes to be able to meet customer expectations continuously. It is obvious that these factors have many commonalities with the critical quality management practices outlined above. Second, almost 20 years ago, Butler (2000) warned that there is a lack of attention paid to customer knowledge and believed that firms only rarely fully capitalize on customer knowledge. Third, Morgan et al (2005) argued that there is little understanding of how to design and implement a customer satisfaction measurement system successfully.

The purpose of this paper is to investigate two primary research questions:

1. How do managers rate the status of their customer satisfaction management, quality management and customer knowledge management approaches?
2. What relationships exist between the approaches within customer satisfaction, quality and customer knowledge management?

Apart from the critical practices of customer satisfaction and quality management that have already been introduced (excluding the reward and recognition of employees, as it has been researched to a sufficient level), this paper also examines other approaches which have not yet been sufficiently explored.

1 Methodology

A survey was conducted for data collection in the autumn of 2018. The questionnaire was primarily constructed for a much broader topic to understand various managerial approaches leading to the reduction of reverse flows of products (product returns) and how these efforts are interlinked with customer satisfaction and continuous improvement. Questions related to the factors analysed in this paper thus represent only part of the whole research topic.

Table 1. The numbering and wording of statements, and abbreviations of category

No	Wording	Abbreviations of category
1	Customer satisfaction is our top priority	QM
2	We use several methods and tools to determine customer satisfaction	Meas
3	Customer satisfaction is measured continuously	Meas
4	Methods and tools for measuring customer satisfaction are used within the work of various departments and work positions	Meas
5	We have a quality policy that focuses primarily on customer satisfaction	QM
6	Quality management in our firm is implemented in accordance with the philosophy of Total Quality Management	QM
7	Quality management is aimed at reducing any return flows (material and information)	QM
8	To ensure customer satisfaction, we use different methods of identifying their needs and wishes already at the design stage	Meas
9	Quality management is focused on continuous improvement	QM
10	Information about customer dissatisfaction is primarily an important input for product improvement or innovation	CKM-QM
11	The knowledge needed to determine product quality is acquired through knowledge sharing with customers	CKM-QM
12	By sharing information and knowledge, we often come up with new ideas that can be used for continuous improvement	CKM-QM
13	Measurement of our customers' satisfaction brings us exactly the information we need	Meas-CKM

Source: Empirical survey – questionnaire

Explanation of the abbreviations – codes: Meas = customer satisfaction measurement; QM = quality management; CKM = customer knowledge management

There were 13 questions formulated as statements (see Table 1) focusing on customer satisfaction, quality and customer knowledge management approaches. The perceived reality in the firms was evaluated by managers on 7-point Likert scales from 1 = I totally disagree to 7 = I totally agree. The questionnaire was distributed using a combination of the purposive convenience and snowball sampling techniques (Onwuegbuzie and Leech, 2005; Tongco, 2007). Only managers responsible for customer care, quality, logistics and related functions were interviewed. 355 completed questionnaires entered the data analysis, but due to some missing data, listwise deletions resulted in 338 cases. This is in harmony with Graham (2009) concerning the potential problems of biases and loss of power. If the loss of cases is less than around 5%, such problems are considered to be inconsequential.

Frequencies and relative frequencies, means, medians and standard deviations were calculated to obtain information on how managers evaluated the situation in their firms, and Spearman's rho correlation coefficients were used to determine the relationship between measures. Due to the ordinal character of data, means and standard deviations are only presented for better visualization (Jamieson, 2004). For an explanation of the ratings, a Kruskal-Wallis test was also applied comparing firms according to size.

Table 1 also shows distribution of categories related to the approaches. Some of approaches are in mutual relationships. No approach is a pure customer knowledge management approach.

2 Results

In terms of size, of the 355 firms surveyed, there were 85 firms(24,4%) in both the micro (0-10 employees) and the middle-sized (11 to 50 employees) categories; 113 (32,4%) were in the category of small organizations (51 to 250 employees); and 66 (18,9%) were classified as large organizations. Most firms were production oriented (155 firms, 43,7%), 17 firms (4,8) were from the building construction industry, 58 (16,3%) from retail and wholesale, 29 (8,2%) from HORECA, tourism and entertainment, 25 (7,0%) from IT and the rest 68 (19,2%) were comprised of other services such as transport, financial services, education, consulting, repairs etc.).

2.1 Managers' rating of status of customer satisfaction management, quality management and customer knowledge management approaches

Table 2 shows how managers rate their approaches to all the examined areas. As can be seen, the highest agreement is given to the importance of customer satisfaction in the firms' efforts, which is followed by the focus of quality management on continuous improvement and coherent processes, specifically the utilization of the feedback from customer dissatisfaction for product improvement and constant measurement of customer satisfaction. In contrast, the lowest agreement was expressed with the existence of Total Quality Management, probably because it is perceived as a rather complex issue. Customer satisfaction is probably mainly the issue of only one department or function and the need to understand this performance indicator from a different perspective is not considered to be so important. The third lowest ranked variable concerns the understanding of quality management as being focused on reducing product returns. According the results of the analysis, this is not so in practice.

Table 2. Descriptive analysis – means, medians and SD (N=355)

		Mean	Median	SD
1	Customer satisfaction is our top priority	6,39	7,00	0,910
2	We use several methods and tools to determine customer satisfaction	4,77	5,00	1,801
3	Customer satisfaction is measured continuously	5,32	6,00	1,615
4	Methods and tools for measuring customer satisfaction are used within the work of various departments and work positions	4,09	4,00	2,152

5	We have a quality policy that focuses primarily on customer satisfaction	4,48	5,00	2,060
6	Quality management in our firm is implemented in accordance with the philosophy of Total Quality Management	3,75	4,00	2,088
7	Quality management is aimed at reducing any product returns	4,31	5,00	1,940
8	To ensure customer satisfaction, we use different methods of identifying their needs and wishes already at the design stage	4,61	5,00	1,854
9	Quality management is focused on continuous improvement	5,42	6,00	1,548
10	Information about customer dissatisfaction is primarily an important input for product improvement or innovation	5,39	6,00	1,606
11	The knowledge needed to determine product quality is acquired through knowledge sharing with customers	4,63	5,00	1,612
12	By sharing information and knowledge, we often come up with new ideas that can be used for continuous improvement	4,72	5,00	1,623
13	Measurement of our customers' satisfaction brings us exactly the information we need	4,94	5,00	1,498

Source: Empirical survey results

The size of firm undoubtedly influences the rating of the statement on the application of methods and tools for customer satisfaction measurement across the whole organization. Apart from the first and the last statement, in all other cases the larger the firm was, the higher level of rating was given. In other words, managers from larger firms apply the examined approaches more often and with greater intensity or, at least, they evaluate their efforts to be higher in these approaches.

2.1 Relationships between customer satisfaction management, quality management and customer knowledge management approaches

Table 3 exhibits several highly significant positive relationships ($\rho \geq 0,500$) between approaches, which can be interpreted as following:

- the more continuously customer satisfaction is measured, the more methods and tools for such measurement are used; **(Meas/Meas)**
- the more measurement is provided by various departments and positions, the more methods and tools for such measurement are used; **(Meas/Meas)**
- the more measurement is provided by various departments and positions, the more a quality policy is focused on customer satisfaction; **(Meas/QM)**
- the more a quality policy is focused on customer satisfaction, the more methods and tools for such measurement are used; **(QM/Meas)**
- the more a quality policy is focused on customer satisfaction, the more measurement is provided by various departments and positions; **(QM/Meas)**
- the more quality management is implemented in accordance with the philosophy of Total Quality Management, the more measurement is provided by various departments and positions; **(QM/Meas)**
- the more quality management is implemented in accordance with the philosophy of Total Quality Management, the more a quality policy is focused on customer satisfaction; **(QM/QM)**
- the more quality management is aimed at reducing any returns, the more a quality policy is focused on customer satisfaction; **(QM/QM)**
- the more quality management is aimed at reducing any returns, the more it is implemented in accordance with the philosophy of Total Quality Management; **(QM/QM)**
- the more quality management is focused on continuous improvement, the more a quality policy is focused on customer satisfaction; **(QM/QM)**
- the more quality management is focused on continuous improvement, the more continuously customer satisfaction is measured **(QM/Meas)**
- the more quality management is focused on continuous improvement, the more quality management is implemented in accordance with the philosophy of Total Quality Management; **(QM/QM)**

- the more quality management is focused on continuous improvement, the more different methods of identifying customer needs and wishes are used already at the design stage; **(QM/Meas)**
- the more information about customer dissatisfaction is perceived as an important input for product improvement, the more continuously customer satisfaction is measured; **(CKM-QM/Meas)**
- the more information about customer dissatisfaction is perceived as an important input for product improvement, the more different methods of identifying customer needs and wishes are used already at the design stage; **(CKM-QM/Meas)**
- the more information about customer dissatisfaction is perceived as an important input for product improvement, the more quality management is focused on continuous improvement; **(CKM-QM/QM)**
- the more the measurement of customer satisfaction is perceived as bringing needed information, the more quality management is focused on continuous improvement; **(Meas-CKM/CKM-QM)**
- the more the measurement of customer satisfaction is perceived as bringing needed information, the more the importance of sharing information and knowledge is perceived for coming up with new ideas for continuous improvement **(Meas-CKM/CKM-QM)**.

This list also shows frequencies of relationships between categories of approaches. The strongest relationships are most often detected between customer satisfaction measurement approaches and quality management approaches (6x), and between the various quality management approaches themselves (5x). There are also relationships between the various customer satisfaction measurement approaches themselves (2x), between customer knowledge management connected to quality management and measurement (2x) and customer satisfaction measurement connected to customer knowledge management (2x). Only one statistically very high significant correlation was found between an approach of quality management and customer knowledge management connected to quality management

Significant correlations with medium effect ($\rho \geq 0,400$) were also identified in many other relationships, as presented in Table 3. Two approaches seem to have only relatively weak relationships with many other approaches, despite the existence of some strong relationships with several others, as seen above. The first is following the philosophy of Total Quality Management in the quality management of firms and the second is the focus of quality management on reducing return flows.

Table 3. Correlations (N=338)

	1	2	3	4	5	6	7	8	9	10	11	12
1	1,00 0											
2	,424 **	1,00 0										
3	,439 **	,589 **	1,00 0									
4	,245 **	,657 **	,501 **	1,00 0								
5	,291 **	,606 **	,468* *	,667 **	1,00 0							
6	,216 **	,456* *	,372* *	,558 **	,681 **	1,00 0						
7	,183 **	,383* *	,308* *	,386 **	,502 **	,540 **	1,00 0					
8	,316 **	,469* *	,467* *	,491 **	,494* *	,464* *	,429 **	1,00 0				
9	,404 **	,465* *	,506 **	,418 **	,573 **	,506 **	,463 **	,592 **	1,00 0			
10	,437 **	,466* *	,545 **	,410 **	,444* *	,395* *	,347 **	,530 **	,640 **	1,00 0		
11	,315 **	,293* *	,440* *	,190 **	,219* *	,134* *	,115 *	,242* *	,319* *	,340 **	1,00 0	
12	,340 **	,483* *	,499* *	,401 **	,450* *	,374* *	,335 **	,409* *	,488* *	,462 **	,461 **	1,00 0
13	,318 **	,445* *	,400* *	,414 **	,426* *	,350* *	,315 **	,425* *	,530 **	,476 **	,408 **	,549 **

* if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$ (two-tailed tests)

Source: empirical survey results

A weak correlation was found between considering customer satisfaction as being priority and the focus of quality management on reducing returns ($\rho=0,183$), and with following the philosophy of Total Quality Management ($\rho = 0,216$). There was also a weak correlation between the acquisition of knowledge needed to determine product quality through knowledge sharing with customers on the one hand, and the implementation of quality management in accordance with the philosophy of Total Quality Management ($\rho = 0,134$) and, again, the focus of quality management on reducing returns ($\rho = 0,115$) on the other. Both practices of Total Quality Management and reducing returns are, in practice, applied to a lesser extent (or less frequently), which could be the reason for the weak relationship. Overall, weaker associations are detected in the case of the prioritization of customer satisfaction and the other evaluated approaches, and also in the case of knowledge sharing with customers for determining product quality and most of the other evaluated approaches.

From the results it is obvious that the utilization of approaches from one category is in a strong or relatively strong association with the approaches from the other categories. If firms intensify their efforts in one of the areas examined, they usually tend to do the same in the others.

Conclusions

This paper empirically investigates how managers of Czech firms evaluate customer satisfaction management, quality management and customer knowledge management approaches that their companies apply in practice, and the existence of the relationships between these approaches and strength of them. The results show that the position of customer satisfaction is highly prioritized and ranked as the most agreed-with statement in the list evaluating the researched approaches. Managers also evaluate relatively highly their efforts aimed at continuous improvement, practices linking knowledge of customer dissatisfaction with the product improvement or innovation, and their firms' practices of measuring customer satisfaction, which is considered as an important source of information. In contrast, the philosophy of Total Quality Management is probably not widely implemented among the firms, nor is the utilization of methods and tools to obtain knowledge about customer satisfaction from different perspectives across the firms' activities. As stated above, if firms pursue efforts in one of the examined areas, they also tend to do it in the others.

This research, despite its limitations (sample, methods of analysis, formulation of questions etc.), supports existing knowledge and brings also some new insights into customer satisfaction, quality management and customer knowledge measurement in firms. Advanced statistics and an analysis of certain other relationships and with certain other variables from the survey are needed to better understand the complexity of this management area.

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Financial Distress Prediction: Zmijewski (1984) vs. Data Mining

Ladislav Šiška¹, Martin Štěrba²

¹ Masaryk University
Faculty of Economics and Administration
Lipova 41a, 602 00 Brno
E-mail: lsiska@mail.muni.cz

² Masaryk University
Faculty of Economics and Administration
Lipova 41a, 602 00 Brno
E-mail: martin.sterba@mail.muni.cz

Abstract: *The study re-estimates the Zmijewski's (1984) prediction model of financial distress with techniques offered by data miners. Namely logistic regression, neural network and decision tree models are applied to the training dataset consisting of approx. 130 thousand annual observations of financial ratios from non-financial companies residing in Czechia. Area under ROC curve (AUC) computed from similarly large independent testing set served as a measure of the predictive power of each alternative model. Our findings reveal the potential of neural networks to slightly, but statistically significantly increase the prediction power of the model. But this benefit goes in expense of complexity and lower interpretability of neural networks.*

Keywords: *data mining, bankruptcy, financial analysis, Zmijewski, prediction*

JEL codes: *G11, G17, G32, M21, M41*

Introduction

Predicting financial distress has been focus of many studies over the past six decades. One of the first studies, and perhaps the most popular one, was done by (Altman, 1968) who focused on 33 firms, which defaulted during the 1946–1965 period, and contrasted them with closely matching counterparts of 33 non-defaulted firms. Using the time series on financial statements, Altman calculated typical ratios of financial analysis covering liquidity, profitability, leverage, solvency and activity, and, finally, he derived the famous discriminant Z-score function which combines the 5 most differentiating ratios.

The Altman's study has been revisited for many times, even by the author himself (Altman et al., 2017). Different models and approaches emerged as well. "These range from the univariate and multivariate discriminant analysis of the 1960s and 1970s, through the logit and probits of the eighties and the artificial learning models of the 1990s, to the recent crop of contingent claims models in the 2000s." (Jackson and Wood, 2013, p. 186) Regarding artificial learning models, (Jones et al., 2017) concluded that "AdaBoost, generalized boosting and random forests sharply outperformed all other classifiers on cross-sectional and longitudinal test samples" (p. 29). (Zhou et al., 2015) documented on data of Chinese listed firms that data mining helps to select appropriate predictors of corporate financial distress prediction models.

In the context of the above-mentioned findings, we have decided to test how one selected "classical" financial distress predicting model performs on data of Czech firms and compared to application of more advanced data mining techniques such as a neural network or CHAID decision tree. Due to accounting data available to us, we have chosen a model introduced by (Zmijewski, 1984). Our choice was underpinned by (Wu et al., 2010) who proved that Zmijewski's model performs adequately well on their data sample of 887 bankruptcies and 49,724 non-bankrupt firm-year observations from years 1980 to 2006.

1 Methodology

The following sections present the aim of the study, main concepts used, data sample characteristics and finally data processing.

1.1 Research question and hypotheses

The central question to be answered in this study sounds:

"Is it possible to improve the predictive power of the original Zmijewski's (1984) model?"

Similarly to the previous studies (Altman et al., 2017; Jackson and Wood, 2013; Wu et al., 2010), we have decided to measure the predictive power of the models by *Area under the Receiver operating characteristic (ROC) curve* (hereinafter referred to as "**AUC**"). AUC avoids the subjectivity in the selection of the probability threshold, from which the model predicts default. For all possible thresholds, the ROC curve visualizes the false positive rate (FPR) against the true positive rate (TPR). So the area under the curve summarizes the model performance over all possible probability thresholds.

Our considered solutions how to improve AUC of the Zmijewski's model correspond to the following hypotheses:

H1: "Applying *logistic regression* to re-estimation of Zmijewski's model on data from financial statements of firms domiciled in *Czechia* significantly improves its AUC."

H2: "Applying *selected data mining techniques (neural network, CHAID decision tree)* to re-estimation of Zmijewski's model on Czech data significantly improves its AUC."

H3: "*Adding predictors* to the models on top of Zmijewski's ratios will significantly improve its AUC."

1.2 Zmijewski's model specification

Zmijewski (1984) included three accounting ratios to his analysis:

- ROA (net income to total assets),
- FINL (total debt to total assets) and
- LIQ (current assets to current liabilities)

These variables were inputs for probit regression on different samples. We opted for the most cited parameters estimated by (Zmijewski, 1984, p. 69) on unweighted sample of the 40 bankrupt and 800 nonbankrupt firms:

$$Z_i = -4.336 - 4.513 \times ROA_i + 5.679 \times FINL_i + 0.004 \times LIQ_i \quad (1)$$

From the estimates of Z_i , the predicted probabilities of default p_i can be derived by formula:

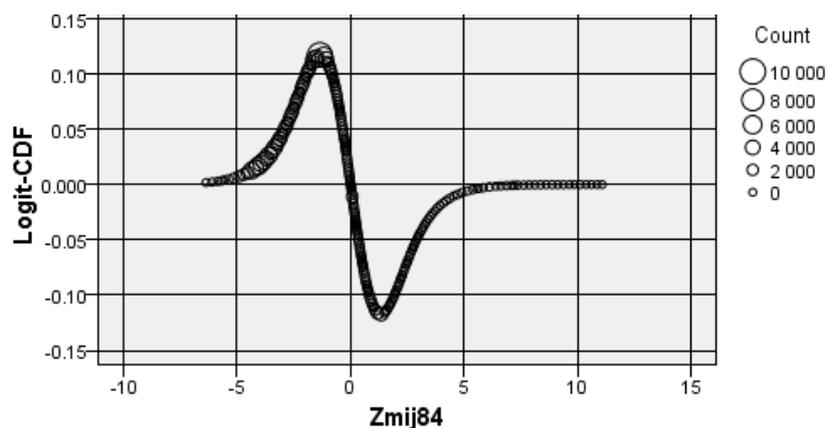
$$p_i = F(Z_i) \quad (2)$$

where F is the cumulative normal distribution function. Because according to (Finney, 1952), relationship between logit and probit is almost indistinguishable ($Logit \approx (\pi/\sqrt{3}) \times probit$), some author e.g. (Jackson and Wood, 2013) prefer the logit transformation to probit function:

$$p_{i\logit} = \frac{1}{1+e^{-Z_i}} \quad (3)$$

We have test both transformations. The difference between probabilities of default calculated by formula (2) and formula (3) are depicted on the vertical axis of the Figure 1, where the differences are plotted against appropriate Z_i on the horizontal axis.

Figure 1 Difference between probabilities calculated with logit and probit for each Z_i



Source: Authors in IBM SPSS Modeler.

Despite the prove in Figure 1 that both transformations slightly differ in the resulting probabilities, that did not greatly affect the final overall AUC of both Zmijewski's models: *Zmij84Prob* based on probit sigmoid function and *ZmijLogit* using logit function (see Discussion section below).

1.3 Zmijewski's model reestimation

Instead of just substituting data of Czech companies to the Zmijewski's formula, pursuing the goal of improving AUC, we have decided to construct new models using the same or extended set of indicators as Zmijewski (1984). From the plethora of techniques offered by data mining and machine learning advocates we have chosen logistic regression, neural network and decision tree. The reasons for this choice were:

- The selected models are relatively simple (and that is why easier to interpret) contrary to "black-box" metamodels such as random forests favored by (Jones et al., 2017).
- The selected techniques are deemed to be fundamental by data miners, e.g. (Wendler and Gröttrup, 2016).
- The software IBM SPSS Modeler and IBM SPSS are at disposal at our university.

Names of our alternative models consist of letters at the beginning and they are followed by number. The letters are abbreviation of the applied technique for model construction:

- "LR" for logistic regression,
- "NN" as neural network and
- "Tree" for CHAID tree.

The number after initials of the applied technique stand for slowly enlarging sets of predictors:

- 1 = just three Zmijewski's ratios *ROA*, *FINL*, *LIQ*,
- 2 = same predictors as in model 1 + added predictors of *Size* and *Legal_form*,
- 3 = same predictors as in model 2 + predictor *Year*,
- 4 = same predictors as in model 3 + added predictor of industrial sector according to *NACE* classification.

1.4 Data sample

Data for this study were extracted from MagnusWeb database provided by BizNode. Our sample covered non-financial profit seeking companies with more than 10 FTEs, annual sales over 10 millions CZK and registered office in the Czech Republic. In addition to information about the size, legal form and main activity classified in NACE2 industries, all financial ratios available in the MagnusWeb for the years 2008 to 2018 were extracted as well. The final set was complemented with variable *Default* equal to 1 in case MagnusWeb in its bankruptcy events marked the firm ("konkurs", "úpadek") and equal to 0 in all other cases.

The total of 33,221 firms was randomly splitted into similarly large Training and Testing sets. The node "Partition" of IBM SPSS Modeler was used for this task with seed equal to 1234567 to ensure repeatable portion assignment. Only the Training set served for estimating parameters of our models. Then AUC of our models was tested on the Testing set.

Details about counts of analyzed firms and their financial ratios are in Table 1.

Table 1 Sample characteristics

Set	Firms (N)			Fin. Statements (N)		
	Training	Testing	Total	Training	Testing	Total
Non-default(0)	16,022	16,269	32,291	128,968	130,483	259,451
Default(1)	466	464	930	1,781	1,745	3,526
Total	16,488	16,733	33,221	130,749	132,228	262,977

Source: Authors based on data from MagnusWeb.

1.5 Data processing

Data processing was done primarily in IBM SPSS Modeler 18.1.1, complementary IBM SPSS 25.0 was used for ROC curve construction and AUC confidence intervals calculations.

The three independent variables of Zmijewski model were winsorized at 2 and 98 per cent to minimize outliers. Zmijewski's Z-scores were calculated according to formula (1) and transformed to probability scores following formulas (2) and (3) leading to variables *Zmij84prob* and *ZmijLogit*, respectively. Due to very low ratio of defaulted firms (2,9%), the training set was balanced. Categorical variables were converted to dummy indicators for the purposes of logistic regression. The nodes "Logistic", "Neural net" and "CHAID" were the tools for estimating parameters of the models *LR1*, *LR2*, *LR3*, *LR4*, *NN1*, *NN2*, *NN3*, *NN4*, *Tree4* and estimated models were applied to the Testing set to get the estimates of the raw propensity scores. Eventually, the probabilities of default estimated by each model were exported to the IBM SPSS to generate ROC curves and to estimate the bounds of 95% confidence intervals for AUC.

2 Results

Table 2 presents resulting parameter estimates for alternative logistic regression models. In the last two rows, there are the analogies of Rsquare expressing by the model explained variance in linear regression.

Table 2 Parametres of the Logistic regression models

Parametres / Model	LR1	LR2	LR3	LR4
ROA	-3.41	-3.22	-3.30	-3.49
FINL	2.19	2.18	2.09	2.06
LIQ	-0.07	-0.07	-0.07	-0.06
SME(1)		-0.14	-0.77	-0.56
NACE_Trade(1)				0.37
NACE_Agricultural(1)				1.80
NACE_Utility(1)				0.94
NACE_Construction(1)				-0.23
NACE_Transport(1)				0.59
NACE_Services(1)				0.41
Year_2009(1)			0.18	0.17
Year_2010(1)			0.36	0.34

Year_2011(1)			0.61	0.59
Year_2012(1)			0.93	0.95
Year_2013(1)			1.32	1.43
Year_2014(1)			1.73	1.78
Year_2015(1)			1.99	2.09
Year_2016(1)			2.42	2.58
Year_2017(1)			3.05	3.64
Year_2018(1)			3.12	4.41
LegalForm_coop(1)		1.46	1.60	0.69
LegalForm_a.s.(1)		-0.51	-0.40	-0.55
Constant	-1.35	-0.03	-17.33	-22.12
Cox & Snell R Square	0.22	0.23	0.32	0.34
Nagelkerke R Square	0.29	0.31	0.42	0.46

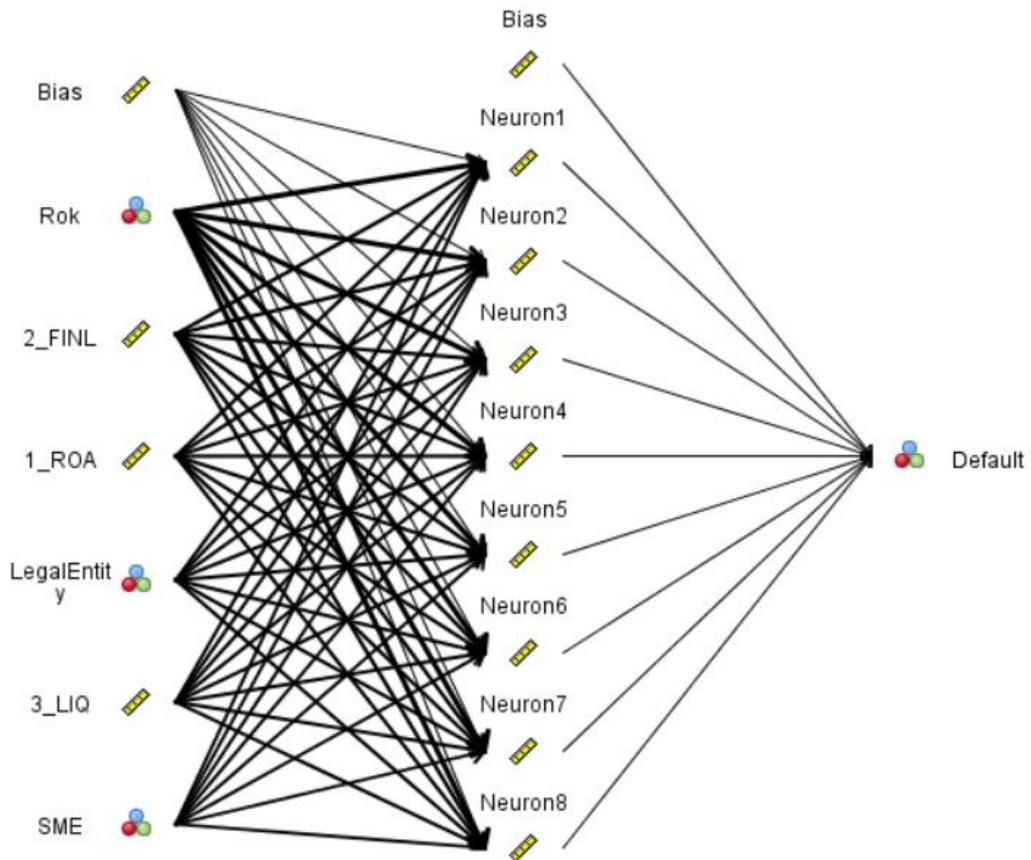
Coefficients are all statistically significant at 0.001

Source: Authors

Majority of logistic regression coefficients in Table 2 meets expectations, e.g. in model *LR4* the coefficient *LegalForm_coop* equal to -0.55 indicates that under otherwise same condition the odds of default of the company with legal form "joint stock company" (a.s.) is 0.58times lower ($e^{-0.55}$) then the odds for the company with legal form "limited liability company" (s.r.o.), which was the base category. Similar interpretation have the *NACE_* coefficients telling e.g. if firm is doing business in agriculture (*NACE_Agricultural*=1) then the odds of default are 6times ($e^{1.80}$) higher than the odds of the firm doing business in manufacturing, which was the base category. At first glance, increasing values of dummy indicators for years of observations might seem paradoxical in Table 2. These correspond to the decreasing counts of the defaulted firms in more recent years of the sample. Model *LR4* just adjusts to the scarcity of observations, especially in the latest years.

Figure 2 presents our *NN3* model as an example of the neural network data mining technique. It is obvious that we have applied just 1 hidden layer in our Multi-Layer Perceptron. The strength of the solid lines reveals that predictor *Year (Rok)* is quiet influential but otherwise even relatively simple net presented in Figure 2 is difficult to interpret in more detail, which is big disadvantage in comparison to logistic regression models.

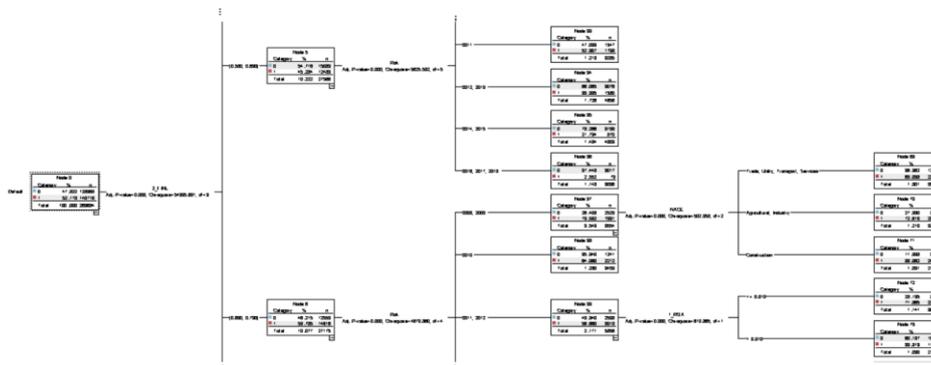
Figure 2 The *NN3* model



Source: Authors in IBM SPSS Modeler.

Figure 3 documents part of the resulting decision tree. The CHAID algorithm builds the tree after categorization of the predictors using Chi-square characteristic. The first node on the left hand side starts with the most distinguishing variable *FINL*. One of the following branches is e.g. characterized: if *FINL* is in interval from 0.37 to 0.48 (incl.) then look at *LIQ* value, if *LIQ* > 2.51 predict non-default etc.

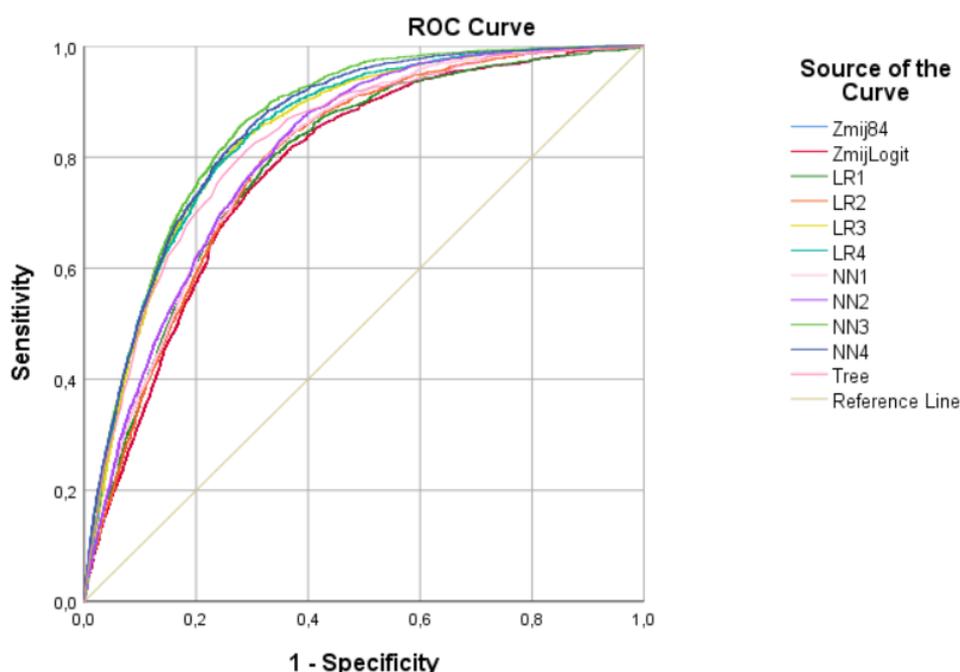
Figure 3 The *Tree4* model



Source: Authors in IBM SPSS Modeler.

Based on predicted scores from the Testing set, the ROC curves were generated for each model in IBM SPSS combining for each cut-off point the false positive rate (i.e. 1-Specificity) on the horizontal axis with the true positive rate (i.e. Sensitivity) on the vertical axis. Figure 4 presents results in graphical terms.

Figure 4 ROC curves for each model



Source: Authors in IBM SPSS and MS Excel.

The higher is a ROC curve in Figure 4, the better is the corresponding model in its overall prediction and the higher is its AUC value (i.e. Area under ROC curve). For each model, the 95% confidence intervals of AUC were estimate in IBM SPSS and depicted in chart captured in Figure 5. The number on the left-hand side of the bars are the lower bounds of the confidence interval (CI), the number on the right-hand side of the bars express the upper bounds of the CI.

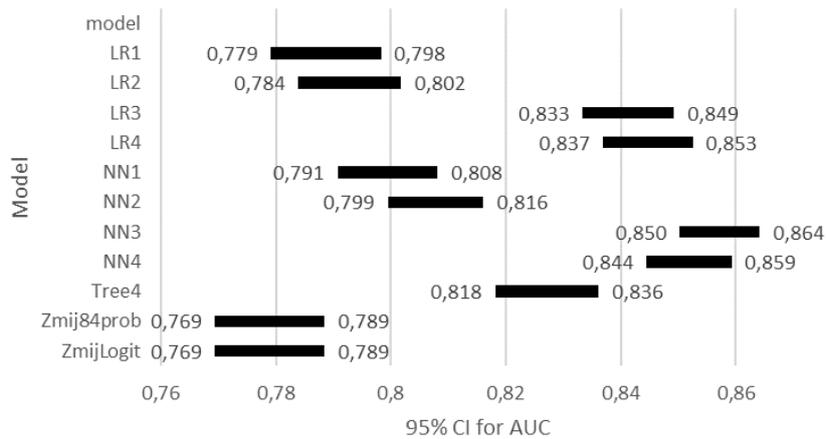
3 Discussion

The 95% confidence intervals of AUC in Figure 5 offer the answer to our research question aiming at improving predictive power of Zmijewski's bankruptcy model and the validation of our hypotheses.

As far as hypothesis *H1* (re-estimation with *logistic regression* helps AUC) is concerned, the overlaps of AUC confidence intervals for model *LR1* with models *Zmij84prob* and *ZmijLogit* reveal, that logistic regression did not significantly improve the prediction power. In other words, our *LR1* model performed slightly better than original Zmijewski's model, but it might have been just work of chance.

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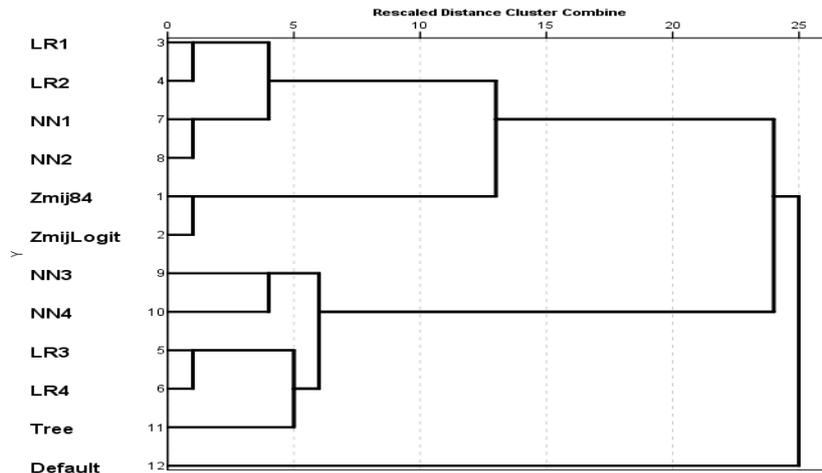
Figure 5 The 95% confidence intervals of Area under ROC for each model



Source: Authors in IBM SPSS and MS Excel.

The hypothesis *H2* (re-estimation with *other data mining techniques* helps AUC) held true for the case of neural network in our model *NN1*. At 5% significance level, AUC for prediction model *NN1* was better than AUC of the pure Zmijewski's models. However, the narrowness of the upper CI bound for Zmijewski and lower CI bound for *NN1* shows that the improvement was not very strong in its scale. In case of the hypothesis *H3* (adding more predictors on top of Zmijewski's ratios helps AUC), the answer could have been expected, because adding new valid information into models should have always led to better results. The shifts of AUC confidence intervals to the right-hand side with the increasing number of the model are obvious in Figure 5. The distances between CI show that especially inclusion of the year of observation helps a lot due to unbalanced counts of defaulted firms in each year. Such *NN3* model was even better than *NN4* model with industrial affiliation. This finding is in accordance with the cross-sectional nature of neural networks emphasized by (Jones et al., 2017).

Figure 6 Dendrogram for clustering (Ward's method, Euclidian distance)



Source: Authors in IBM SPSS.

Eventually, the hierarchical clustering (Ward's method, Euclidian distance) - which we have carried out over the default predictions of each model and which is depicted in Figure 6 - displays similarities in default prediction done by models with 1 and 2 at the end versus models with 3 and 4 at the end. This again demonstrates the influence of the *year* predictor, which was stronger than different data mining techniques applied. Beside this division, the dendrogram in Figure 6 reveals standalone position of actual default variable, which corresponds to only 46% Nagelkerke R Square and still huge potential for model improving, above all by incorporating other independent predictors.

Conclusions

The values of AUC about 0.8 for Zmijewski's bankruptcy model indicate a relatively good prediction power and are comparable with AUC reported by similar studies (Altman et al., 2017; Jackson and Wood, 2013).

Data mining techniques (namely neural network models) proved to be solution how to slightly increase the predictive power of Zmijewski's model. In case of neural networks, our findings support even statistically significant increase in AUC. But this benefit goes in expense of complexity and lower interpretability of neural networks, which practitioners are likely to view as pure black-box models where it is impossible to decipher the link between predictors and the bankruptcy prediction outcome.

Even better improvements of predictive power were achieved by inclusion of additional predictors, especially the year of observation. But this finding could be caused by limitations of our study, which we are going to address in our future research.

The limitations comprise at least:

- For each year, the indicators were considered to be independent observation although in reality they are intertwined.
- The 11-year long series of observations seems be too long. The same defaulted firm at the end of period could had been a financially strong firm at the beginning of the period.
- The binary dependent variable of default does not take into account the severity of bankruptcy, length of legal proceedings, a percentage of liabilities paid off to creditors, etc.

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Critical evaluation of selected bankruptcy models when applied to Czech logistics

Martin Štěřba¹

¹ Masaryk University
Faculty of business and administration
Department of corporate economy
Lipova 41a, 602 00 Brno
E-mail: martin.sterba@mail.muni.cz

Abstract: *The subject of this article is the critical evaluation and comparison of bankruptcy models used by businesses and other entities in the Czech Republic. The aim of this article is to compare the prediction of selected bankruptcy models. As the following models were selected for comparison: the Altman model Z-score adapted to Czech conditions, Index IN05 created from the Czech financial statements, the Taffler model created in Great Britain and the Kralickuv quick test, which is used by the German banking sector. The individual models were evaluated on a sample of 350 enterprises operating in the logistics and transport sector 2014-2015. The values for individual bankruptcy models have been calculated and then with using mathematical and statistical methods compared the individual models. On the basis of the identified differences, specific enterprises were selected, when the in-depth financial analysis revealed the main differences between bankruptcy models. The structure of the models and their advantages and disadvantages were examined.*

Keywords: *bankruptcy, insolvency, bankruptcy models, corporate performance, Altman's Z Score, IN05, Taffler Index's*

JEL codes: *G17, G32, G33*

Introduction

In the current Czech economy there are many different companies. They have Czech or foreign owners, they are of all sizes and operate in all possible business sectors. This together with the developed foreign trade confirms that the Czech economy has successfully undergone transformation and can be talked about as a market economy. The market economy is characterized by more turbulent changes that affect the financial performance of businesses. It is therefore essential for businesses to have an overview of their own financial health and the financial health of their business partners.

The use of bankruptcy and creditworthiness models is an appropriate and relatively inexpensive way to measure the financial health of businesses. They serve both business managers, owners, investors, or business partners. All these groups can gain basic insight into the stability and outlook of a particular business by using freely available financial data. It therefore addresses the problem of measuring the performance of businesses in the Czech Republic.

Models have been used in financial analysis since the 1960s, thanks to the successful Beaver (1966) and Altman (Altman, 1968) models. Nowadays, a number of bankruptcy and creditworthy models are used in the Czech Republic and they have different informative value for different industries.

In this article, the author focuses on selected bankruptcy models (Altman's Z-score, index IN05, Kralickuv Quick test and Taffler model), which are most mentioned in the Czech literature from the bankruptcy models. In this article, the author brings a comparison of models of a foreign origin coming from different countries but applied to domestic companies. The purpose of this article is to find out whether the bankruptcy models mentioned above, which have the same purpose for the same purpose, provide the user with comparable information. For this, the **first Ha0 hypothesis** is formulated: *Bankruptcy models assess enterprises in the same category with a correlation of at least 0.8*. The category of bankruptcy models is used by three basic authors: Low threat of bankruptcy, Gray zone, High threat of bankruptcy.

In connection with the first hypothesis, the author formulates the **second hypothesis Hb0**: *Bankruptcy models show a similar rigor to the enterprises*. The severity is the inclusion in worse categories.

Assuming hypothesis calculations will present a high degree of disagreement between bankruptcy models, the author proceeds to in-depth analysis of the models and examines their structure, what are the differences, and which model has the most appropriate parameters. Such conceived research will bring insights into the use of bankruptcy models and will contribute valuable information to the creation of new models.

Methodology

The methodology consists of several step-dependent steps. First, the author obtains data through the Magnusweb database Bisnode. Subsequently, it will evaluate the relevance of the data obtained in terms of representativeness of the sample to the whole sector, in other words, whether the necessary data has been published by a sufficient number of companies.

The next step is to examine the financial data in terms of its quality, obvious mistakes and completeness. Based on these data, the author calculates the necessary calculations in the spreadsheets and prepares the data for their use in selected models.

1.1 Almans Z-score Specification

Altman's Z-score was created for businesses in the US, where bankruptcy growth was seen as a result of risky management decisions. The Altman model aimed to capture the financial situation of enterprises (Altman, 2006). For the Czech conditions it was adjusted (Neumaier, 2002), when it was added, a member that considers overdue liabilities. The revised Altman Z-score can be used for both non-trading and non-trading companies (Altman, 2002). It is widely used in the Czech Republic. It can be calculated using the following formula:

$$Z = 0,717 * \frac{\text{current assets} - \text{short term liabilities}}{\text{assets}} + 0,847 * \frac{\text{accumulated profit}}{\text{assets}} + 3,107 * \frac{\text{EBIT}}{\text{asset}} + 0,42 * \frac{\text{Equity}}{\text{long term liabilities} + \text{short term} + \text{bank loans etc.}} + 0,998 * \frac{\text{sales}}{\text{assets}} \quad (1)$$

1.2 Index IN05 Specifications

It is a combined bankruptcy model that is designed to predict the threat of bankruptcy and also to teach the amount of value creation for the owner (Neumaier, 2000). It is a Czech model that best fits the local conditions. It can be calculated using the following formula:

$$Z = 3,3 * \frac{\text{EBIT}}{\text{asset}} + \frac{\text{sales}}{\text{asset}} + 0,6 * \frac{\text{market value asset}}{\text{acc value asset}} + 1,4 * \frac{\text{accumulated profit}}{\text{asset}} + 1,2 * \frac{\text{net working capital}}{\text{asset}} + \frac{\text{overdue liabilities}}{\text{sales}} \quad (2)$$

1.3 Quick test Specifications

It is a combined bonitous bankruptcy model that evaluates the financial health of an enterprise according to the financial statements (Kralicek, 1991). The Kralickuv quick test has the advantage that it is not influenced by one extreme factor, but all factors have the same weight, which helps to more accurately assess the financial health of the enterprise (Sedláček, 2007).

It consists of four indicators, the result of which is quantitated to 0-4, which reduces the possibility of affecting the result by one extreme value.

1.4 Tafflers model Specifications

It was created in the UK in 1977 to predict the probability of bankruptcy of the business. His authors conducted a review in 2007 (Agarwal, Taffler, 2007) and found that during 1979 - 2003, 232 companies listed on the London Stock Exchange were bankrupt for at least 2 years. From this sample, 223 companies showed <0. It can be calculated using the following formula:

$$T = 0,53 * \frac{\text{EBIT}}{\text{current liabilities}} + 0,13 * \frac{\text{current asset}}{\text{liabilities}} + 0,18 * \frac{\text{current liabilities}}{\text{asset}} + 0,16 * \frac{\text{sales}}{\text{asset}} \quad (3)$$

Table 8 – Models description

Model	Country of origin	Type of model	Specifics
Altman Z-score	US	Bankruptcy	The most used model, focused on the detection of financial health
Index IN99	CZ	Combined	It can accurately trace the ability of an enterprise to create value for the owner
Kralicek Quicktest	GER	Bankruptcy	It is not susceptible to an error in extreme values, it includes the entire information value of the financial statements
Taffler Index	GB	Combined	Focused on the prediction of bankruptcy, it puts emphasis on liquidity

Source: Author

The results attributed to each business were coded as follows: Company at high risk of bankruptcy (-1), gray zone business (0), and low-risk bankruptcy (1).

On the basis of the evaluated models, the match between the models and their descriptive statistics will be determined using a correlation matrix. Furthermore, the similarity of models will be tested for collinearity.

If the models are found to differ greatly, the author proceeds to an in-depth analysis. This will be done by comparing the relative significance of the factors in the models, the use of financial ratios and their inclusion in the basic categories (indebtedness, activity, profitability and liquidity).

Data

The data used in the article was obtained from Bisnode's Magnusweb database (magnusweb.cz, 2018), where digitized financial statements are published by companies. Data of 396 Czech enterprises with 50+ employees in the logistics sector (NACE G.49) was used, which includes 92% of the turnover of enterprises in this sector at a given enterprise size. Overall, this represents 62% of this market. The author did not include smaller companies that are more of regional importance and whose number of sales is relatively low. Logistics has been selected due to a relatively lower number of subjects than other sectors. At the same time, the average age of the surveyed enterprises is 12.2 years, and none is less than five years old. The sample obtained is therefore highly consistent and has a great deal of information on small, medium and large businesses in the industry. Data from 2014 and 2015 were used.

Table 9 – Number of enterprises

	2014	2015
Number of enterprises with sufficient data	332	328
Total number of enterprises	379	368

Source: author

On the basis of the control of the data obtained, the author collected 660 financial statements of enterprises representing individual observations. For the purposes of this research, it is not essential whether 2014 or 2015. The results of each observation separately are calculated and compared. Exploring the sample for two years, the author gets more distortion-free observations.

Results

3.1 Comparison of bankruptcy models

First, the sample properties were determined according to the calculated bankruptcy models:

Table 10 - Sample properties

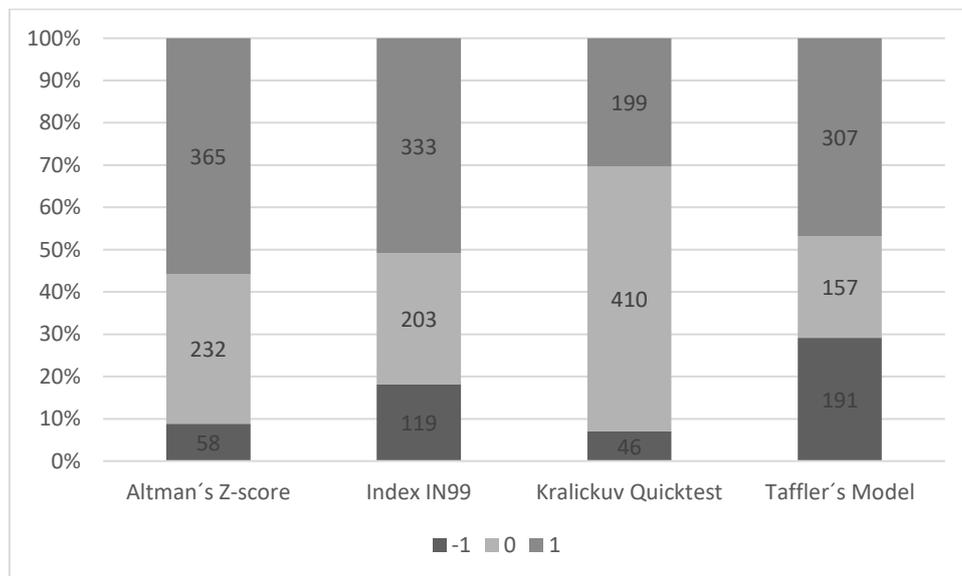
Model	Average	Median	Minimum	Maximum
Altman Z-score	0,4833	1	-1	1
Index IN99	0,3288	1	-1	1
Kralicek Quicktest	0,1742	0	-1	1
Taffler Index	0,2336	0	-1	1

Source: author

It is obvious that the model that enterprises assess that they are in the best shape is the Altman model. Next, IndexIN99 followed by Taffler's model. The most pessimistic results at the level of 0.18 give Kralickuv a quick test.

In absolute terms, it can be seen that, in particular, the Taffler model is very strict for businesses and 29% is considered to be highly vulnerable to bankruptcy. Kralickuv Quick Test (KQT), on the other hand, evaluated only 7% of businesses as highly vulnerable to bankruptcy.

Chart 1 – Distribution of companies according to the achieved values

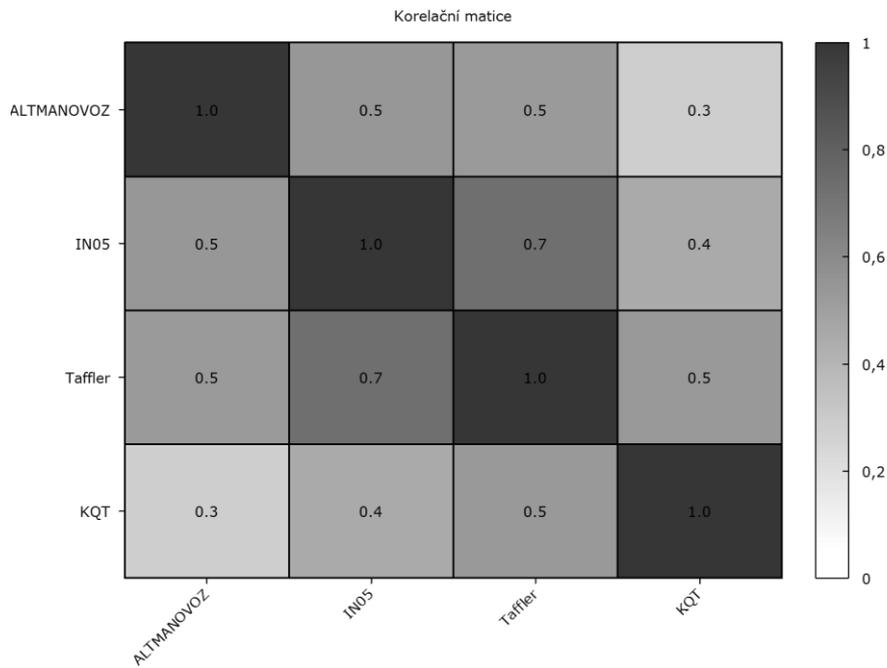


Source: author

It can be seen from the Table and the Chart that the differences in the evaluation of bankruptcy models are considerable. For a better understanding between the relationships of the results of the individual models, the author used the correlation chart, which is based on the correlation matrix.

The absolute division of companies by model shows us how big the differences between businesses are. When comparing the Altmanian model with Kralick, we see that although the number of banks at risk of bankruptcy is similar, the difference between non-threatened businesses is twofold at Altman. An even bigger difference is in the two-way comparison of the Taffler and Kralicka models. Taffler marks 191 enterprises as a bankruptcy, which is almost five times more than Kralicek. Such a result can hardly be described as comparable.

Chart 2 - Correlation properties



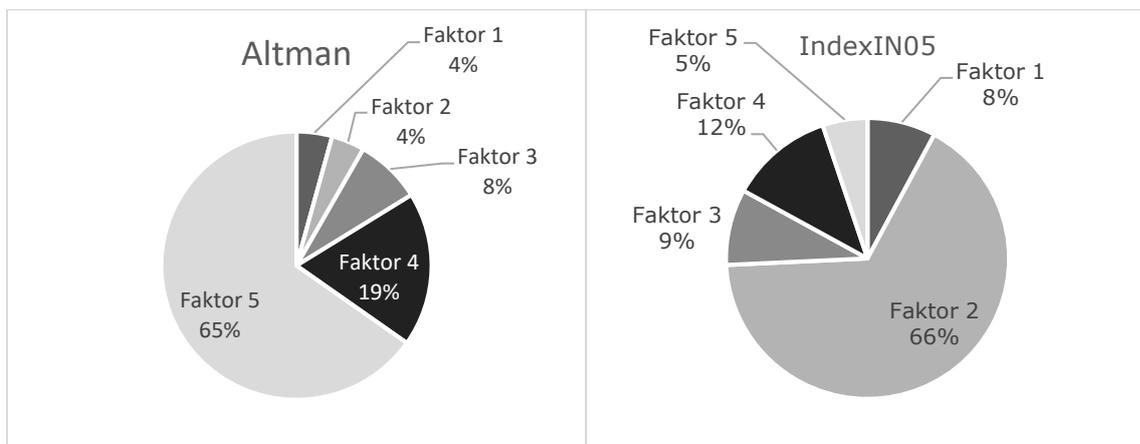
Source: author

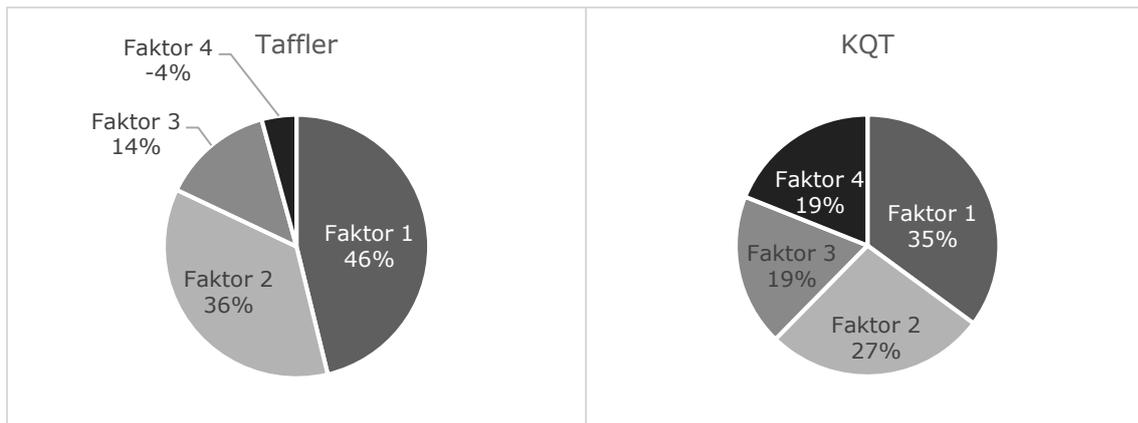
From the correlation chart, it is obvious that the closest one to each other has IndexIN05 and the Taffler model according to the results obtained. The value of 0.733 is considered to be a relatively strong correlation. On the other hand, the correlation between 0.3 - 0.5 for models that have the same purpose and should give the user a very similar result is relatively low. Let's look at the structure of the models, and what factors are the most important. The correlation average can be found highest with Taffler 0.594 and Index IN05 0.573, while the lowest for Kralicek 0.420.

The collinearity of the models studied is 3.6, which can be considered very low. A value greater than 50 is considered significant. Next, let's look at the differences between models and their outcomes.

3.2 Comparison of models structure

Chart 3 - Graph of share of factors





Source: author

It can be seen that the individual factors are unbalanced in the models. One of the most important factors affects up to 66% of the model's result. In addition to the Kralick model where the main factor is only 35%. So which factors are they?

Table 11 - Description of Top factors

	no. of factor	Share	definition
Altman	5	65%	= sales / assets
IN05	2	66%	= EBIT / interests
Taffler	1	46%	= EBIT / short term liabilities
KQT	1	35%	= equity / assets

Source: author

For Altman, this is the Sales / Assets factor commonly referred to as Returns of Sales (ROS). IN05 and Taffler divide EBIT with interest expense, respectively. short-term liabilities. None of the models are primarily unmatched by the same indicators.

How are the models in terms of representation of four basic types of ratios?

Table 12 - Comparison of models - Structure

	Rentabilita	Aktivita	Zadluženost	Likvidita
Altman	11,9%	65,2%	22,9%	0,0%
IN05	75,2%	11,9%	7,8%	5,1%
Taffler	50,6%	-4,6%	15,0%	39,3%
KQT	18,8%	18,9%	35,1%	27,1%
Average	39,1%	22,8%	20,2%	17,9%

Source: author

In the pattern of models, we see fundamental differences in the structure of the factors as well. While IN05 and Taffler rely on profitability, in the Altman model, businesses receive two-thirds of their results. At Kralicka, factors are even more balanced and 35% can be obtained by optimizing indebtedness.

Conclusions

In the previous text, the author analyzed the results he receives when he applies 4 bankruptcy models to the same data. From these calculations and analyzes it is clear that a) the results obtained about the state of the enterprises are significantly different and that the models use different factors to varying degrees.

Thus, bankruptcy models can hardly be considered as a homogeneous group of mutually interchangeable algorithms for calculating bankruptcy risk. At least according to the selected bankruptcy models, which are the most famous and most widespread in the Czech Republic, it is more likely to be said that it is a tool of completely different characteristics. The only thing that they really share is the data source they use, financial data from the financial statements. However, the method of disposal varies considerably.

The first hypothesis was: *Bankruptcy models evaluate enterprises in the same category with a correlation of at least 0.8*. Based on this research, this hypothesis was falsified. The highest correlation rate is presented by the Taffleru model with the IN05 index of 0.73. Index IN05 has the second highest correlation rate in the sample, with the Altman model 0.55. The Altman model is also on the opposite side, with Kralicka's Quick Test correcting only 0.28. The average correlation has the highest Taffler model, namely 0.60, followed by IN05 0.573, Altman 0.45, and the most varied is KQT with only 0.42.

The second hypothesis was: *Bankruptcy models show comparable rigor to businesses*. The severity is the inclusion in worse categories. This hypothesis was refuted, or 660 of the observations surveyed had the Taffler model embedded in the worst category of 191 enterprises, Index05 119, Altman 58 and only Kralickuv Quick test 46. The fourfold difference between the Taffler model and the KQT is so significant that we can not once again claim that bankruptcy models are mutually interchangeable. How do we look at the opposite side of the scale to the best category? It ranked most of the Altman model, 365 (55.3%), followed by IN05 333 (50.5%) and Taffler model – 307 (46.6%). Again, at least the enterprises ranked KQT and only 196 (29%). In a situation where the user should decide for one of the models, it is built on an almost insoluble task. On the one hand, it is not even proven in the literature which of the models has the best predictive ability and the second is so large that it can choose randomly. The third problem lies in the extent of the gray zone. That is, in the result area where it is not based on the model to determine whether an enterprise is heading for bankruptcy or not. It is, therefore, an internal constraint on a model that is incapable of incorporating the enterprise. In our case, on the logistics sector data, we see that KQT is clearly the least capable. It did not include 410 enterprises (62%), which is a very high figure, especially given that other listed companies do not necessarily have to be properly classified. This means that KQT is not able to properly teach one third of logistics businesses. In contrast, Altman and Index IN05 ranked in the gray zone, just about a third of the businesses. The least-ranked enterprises showed Taffler, at 23.7%. It is also a question of what exactly the gray zone expresses. It may be (a) the true internal limit of a model that is unable to clearly identify the line between a bankrupt and a threatened enterprise; (b) it may be a buffer zone when using a model in another sector on the basis of which it was constructed; c) Author's caution to define a strict line. In any case, the user makes it difficult to use the model.

Since each model otherwise uses the structure of the financial statements, it is obvious that a change in the business sector will affect the results the model will bring. Businesses undoubtedly have a different structure (less-tangible assets, higher asset sales) than high-capital manufacturing companies. This brings us to the problem of using one model across sectors. In particular, for the IN05 and Taffler models, which are 50-75% based on profitability, it is expected that lower-yielding sectors and businesses will be more likely to be at risk of bankruptcy than companies in other sectors. This does not indicate the stability of the business and the real threat of bankruptcy.

As already mentioned in previous research (Suchánek, Štěřba, 2018) or (Suchánek, Štěřba, 2017), the results obtained so far show that better than creating global models for all branches is to go through specialized models that respect the differences and specifics in the capital structure of each sector.

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New trends in Customer Experience Management

Kamila Tislerova¹

¹ Vysoká škola ekonomie a managementu
(University of Economy and Management)
Department of Marketing
Nárožní 2600/9a, Stodůlky, 158 00 Praha
E-mail: kamila.tislerova@vsem.cz

Abstract: *Understanding customer experience and the customer journey is critical matter for companies in all industries. Companies need to employ new methods and integrate multiple business functions to create and deliver positive customer experiences. Large qualitative survey was conducted among companies to explore their approach over time and to describe the trends and predict the future of customer care. New critical ways for Customer experience management are identified and thus, based on recommendations, companies are supported to succeed in the market.*

Keywords: *Customer experience, Customer journey, Customer service, Customer expectations, Marketing*

JEL codes: *M31, M11, M19*

Introduction

Customer experience can be understood and defined by interactions between a customer and an organization throughout their business relationship (Andajani, E., 2015). An interaction can include awareness, discovery, cultivation, advocacy, purchases and service. No matter if a B2B or B2C company, and whether the business model is subscription-based or not – to truly improve the customer experience and earn customer loyalty – there is a necessity to put the customer success at the center of the business (Bhattacharya, A., et al, 2018).

To deliver the best customers experience and thus their loyalty the businesses ought to create values for both the customer and brand by transforming customer success mindset into an actionable strategy (Bolton, R, 2018).

There are two minimum criteria for assessing the effectiveness of a customer success strategy: to deliver Brand Promise (Klostermann, J. et al, 2018) and to achieve the Business Results. To improve the customer experience, businesses must make Customer Success actionable and measurable (Kuehnl, Ch et al, 2019).

That is why the managers responsible for Customer Experience should create a long-term strategy, they have to analyze the customer purchases and their expectations, manage the customer-centric approach and predict the future needs.

1 Theoretical Background

Understanding customer experience and the customer journey over time is critical for companies. Customers interact with companies through myriad touch points in multiple channels and media, and customer experiences are more social in nature (Hollebeek L., Macky. K, 2019). These changes require enterprises to integrate multiple business functions, and even external partners, in creating and delivering positive customer experiences (Lemon, K.N., Verhoef, P. 2016). There is a necessity to develop a stronger understanding of customer experience and the customer journey in this era of increasingly complex customer behavior

1.1 Customer Experience Importance

Customer experience is considered by many practitioners and researchers as the most exciting opportunity to businesses next years. Companies that focus on customer experience reduce churn and increase revenues, leading to better business results (Cortez R and Johnston, J., 2017).

Customer experience sharing might have a positive impact in profit increase when customers serve as advocates of the company (Chen, T. et al, 2018).

Managing customer experience includes the emotional field as the tool of affecting customer's behavior. If the customer journey is truly customer-centric than there is the competition advantage in the company (Ou, Y. and Verhoef, P. 2017).

1.2. Customer Experience vs. Customer Service

In most businesses, a customer's first point of contact with a company is usually through interacting with an employee (either by visiting or by speaking on the phone). This gives the business an opportunity to deliver excellent customer service. However, customer service is only one aspect of the entire customer experience. (Tynan, C. et al, 2014)

In current time customer experience has changed – it's more than person-to-person service and thanks to technology, companies can connect with their customers in new and exciting ways

For example, using CRM software, businesses can view customer purchase history and are able to predict future needs even before the customer knows they need it. Having the ability to predict a future need will let you be proactive and attentive and, it means businesses should have the strategy focused on providing related products based on purchase history, create and deliver targeted and personalized communication and understand the 360 degree view of the customer (Cachero-Martínez, S. and Vázquez-Casielles, R., 2017).

Now, the customer experience brings new ways to strengthen customer relationships through technological breakthroughs.

1.3. Omnichannel Customer Experience

Customers in today's technology driven world expect to interact with brands via channels of their choice – including voice, email, web, mobile, SMS, or social media and that too at their own convenience. To remain competitive, companies are facilitating customer interactions across these various channels. But, what still hampers delivering seamless customer experience is that these multiple channels exist in silos and thus, restricts an organization to deliver omnichannel experience to customers (Wolny, J.; Charoensuksai, N., 2014)

To define the omnichannel customer experience - unlike the multichannel communication mode, omnichannel customer engagement solution helps in tracking the entire customer journey across channels and thereby, creating a consistent and optimized experience. Customers have the freedom to switch between different channels without any hassles such as loss of information, or the need to repeat existing information.

Delivering omnichannel customer experience requires the 360 degree view of the customer thereby empowering employees with a unified view of all interactions encompassing each customer touchpoint for better customer engagement. Companies need to focus on deriving customer insights from the data collected at each touchpoint to identify customer's needs, on delivering a personalized customer experience tailored for each individual and on predicting consumer behavior for driving customer engagement to help in upsell and cross sell (Barwitz, N. and Maas, P., 2018)

2 Methodology and Data

An in depth interview was employed in this study. It allows freedom for both the interviewer and the interviewee to explore additional points and change direction, if necessary. This qualitative data collection method is used because in-depth interviews offer the opportunity to capture rich, descriptive data about people behavior, attitudes and perceptions, and unfolding complex processes. They can be used as a standalone research method or as part of a multi method design, depending on the needs of the research (Becker, L., 2018).

In depth interviews are normally carried out face to face so that a rapport can be created with respondents. Body language is also used to add a high level of understanding to the answers.

The style of the interview depends on the interviewer. Successful in-depth interviewers listen rather than talk. They have a clear line of questioning and use body language to build rapport. The interview is more of a guided conversation than a staccato question and answer session.

The interview is conducted using a discussion guide which facilitates the flushing out of the respondent's views through open ended questioning. Projective techniques can be incorporated into the interview too (Castillo-Montoya, 2016).

For the purpose of this study 24 managers responsible for the Customer Experience (Marketing CEO, Customer Care managers, etc) were interviewed. The criteria for respondents include the size of the enterprise (more than 250 employees), the length of the respondent in his/her position (more than 3 years) and publishing activity – to consider themselves as Customer Experience Innovators (published more than 2 articles on this topics in any media – posts in LinkedIn, Articles in Journals, contributions in web pages, etc).

Due to these criteria the answers are valuable for not only mapping the situation but for the, identifying the trends and making the qualified prediction and recommendations for other businesses.

Interviews were conducted in the period of January to March 2019. Each interview has 15 standard questions (blocks of topics), which were developed and modified during the interview. Most of answers are argued, justified, explained.

Based on these interviews and data processing and analyzing, 6 new important trends in Customer Experience Management are identified and formulated.

As respondents were asked to identify the priorities of their suggestions (on 10-point scale) so that the results are ordered in accordance to their importance.

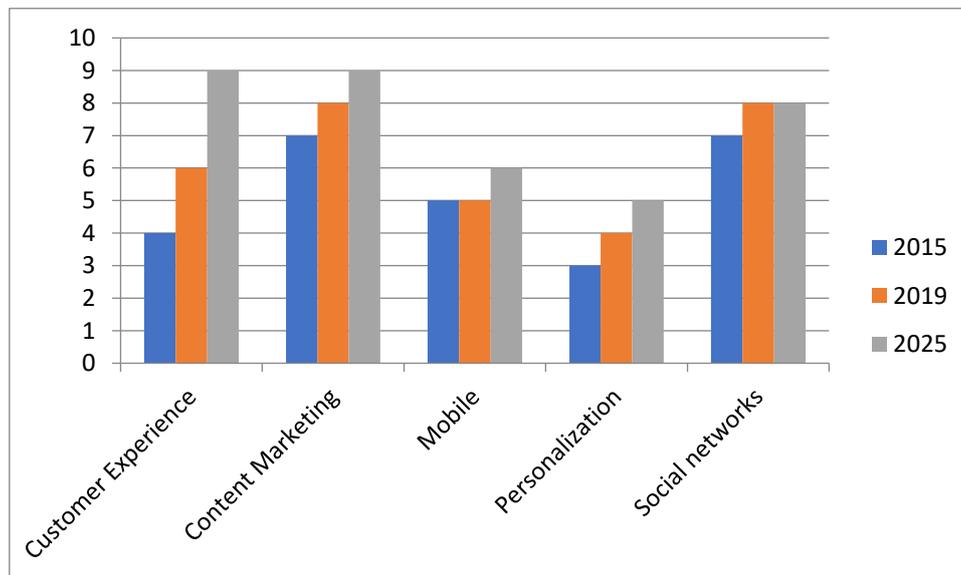
3 Findings

In-depth interviews result in gaining analysis, data, opinions, evaluations, predictions, etc. Not only Importance of Customer Experience was examined, but also the influence for the Business Results and Brand promise delivery. Findings are interpreted in the period of time and in accordance with the issue importance.

3.1. The importance of Customer Experience focus

At first, the overall importance of Customer Experience is shown as has been perceived in period of time and predicted to the future on scale 1 - 10 (Figure 1).

Figure 1 Importance of Customer Experience



Source: own processing

Five fields of Customer focus were formulated and evaluated in the period of time. The biggest progress is predicted in the field of Customer Experience, the less progress is expected with socials networks communication.

3.2. The issues that are identified as the successful trends

a) Clear Customer Experience vision and strategy

In some companies the Customer care is fragmented among Sales, Marketing, Customer care departments, etc. The clear customer-focused strategy is the absolute must to succeed on the market in terms to win and retain the customers. The easiest way to define this vision is to create a set of statements that act as guiding principles. It is crucial to define customer experience strategy mapping all the relevant touch points throughout the customer journey to better plan and organize how a brand will interact with the customers at each touchpoint.

b) Understanding who the customers are

The process of segmentation, targeting and positioning becomes more actual in its more sophisticated way, mostly by using "big data" and new ways of segmentation criteria more based on customers desires, opinions, lifestyle rather than just demographic data (for example). This approach enables to empathize not only with customer needs but with the situations that the customers face. The technique of "customer persona" is widely used.

c) Creating emotional connection with the customers

The best customer experiences are achieved when staff creates an emotional connection with a customer. Emotions shape the attitudes that drive decisions. Due to overloading customer by information and number of choices, customers need to rely on a good advice from someone who can trust, who is adorable and who is able to fulfill the customer's dream.

d) Customer feedback capturing

It is necessary to get the true feedback. Many customer experience tools have been developing such post-interaction surveys and other techniques using a variety of automated tools. Such new methods should be employed in order to gain more insightful feedback.

e) Measuring the ROI from delivering great customer experience

Even though it is not easy, companies shouldn't resign to ROI measurement. Expenditures towards Customer Experience must be justified thorough the whole company. Measuring customer experience is one of the biggest challenges faced by organizations, which is why many companies use the "Net Promoter Score" or NPS, which collects valuable information by asking a single question on the probability of recommendation.

f) Making more profit from the customers (advocates)

It is not the new idea to inspire customer advocacy. Memorable customer experience results in happy customers. Loyal customers are the best brand ambassadors or brand advocates for a company. Companies should provide sufficient incentives to their customers to serve as their advocates.

3.3. Importance of the identified trends for the Brand Promise delivering

Data gained from the qualitative survey are evaluated and interpreted from various point of views. As stated in the theoretical background, Customer Experience is defined as fulfilling the Brand Promise delivery. From this point of view the current situation and estimated future is demonstrated in table 1. (scale 1-10, 10- the most important)

Table 1 Importance of the identified trends for the Brand Promise delivering

Trend	today	future
Clear Customer Experience vision and strategy	5,1	10
Understanding who the customers are	6,3	10
Creating emotional connection with the customers	5,7	9,1
Customer feedback capturing	7,0	8,2
Measuring the ROI from delivering great customer experience	3,6	7,4
Making more profit from the customers (advocates)	2,9	7,9

Source: Own data processing

3.4. Importance of the identified trends for the Business Results achieving

This point of view is examined separately. This is evaluation of current time and prediction of the influence for concerning future business results. That is why the "current perceiving importance" may vary from the previous table, where the importance towards to Brand promise was questioned.

Table 2 Importance of the identified trends for the Business results achieving

Trend	today	future
Clear Customer Experience vision and strategy	4,9	9,6
Understanding who the customers are	5,1	10
Creating emotional connection with the customers	3,1	9,9
Customer feedback capturing	5,0	7,2
Measuring the ROI from delivering great customer experience	4,5	8,9
Making more profit from the customers (advocates)	3,1	9,5

Source: Own data processing

Conclusions and Discussion

Findings are demonstrating that Customer Experience focus has becoming the most important part of Customer focused effort and will be growing in the future.

There are differences if understand Customer Experience for the purposes of business results or as the tool for the brand mission – delivering brand promise. For the brand promise there is the crucial issue of the clear strategy and excellent understanding the customer (knowing the customer). To achieve the best business result the Customer Experience management will need more impact on emotional "sourcing" of the customers, as it helps customer to make his/her purchase decision easier.

Further there are some recommendations and facts on Customer Experience as derived from the depth-in interviews with Customer Experience specialists:

Brands that know their customers well are able to create awe-inspiring customer experiences. Organizations need to pay more attention to customer data to get insights about their needs and preferences for delivering personalized experiences

It is imperative to measure customer satisfaction in real time to estimate the success of CX strategy. Customer satisfaction index can be devised on the basis of regular customer feedback which will give a clear indication about customer perception of the brand.

Customers are delighted when they witness personalized experiences. Brands that focus on customer experience across all touchpoints have higher number of loyal customers.

The question is what is the future of Customer Relationship Management, as many researchers recognize that some customers don't need relations, but the experience is done by everybody.

Probably the new technologies (big data, feedback tools, mobile communication, etc) will enable large progress of the Customer Experience Management (Kim, J., Ah Yu, E. (2016).

Tracking the customer journey becomes more prospective than just ex-post customer satisfaction surveys (Kranzbühler, A-M, et al, 2018).

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Organizing Committee Chairman:

Ing. Petr Mikuš, Ph.D. (chief editor), contact: petr.mikus@econ.muni.cz

Organizing Committee Members:

Ing. Martin Cenek (editor, venue), contact: martin.cenek@mail.muni.cz

Bc. Veronika Kundrtova (marketing), contact: 444151@mail.muni.cz

Mgr. Ing. Martin Štěřba (registration), contact:
martin.sterba@mail.muni.cz

Contact Address:

Masaryk University

Faculty of Economics and Administration

Department of Business Economics and Management

Lipova 41a

602 00 Brno

Czech Republic

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