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EMOTIONS ROLE AS AN INFLUENCING FACTOR WITHIN CONSUMER BEHAVIOUR ON CZECH LUXURY COSMETIC MARKET

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KEY WORDS

emotions, consumer behavior, segmentation, skin care, influencing factors

JEL CODES

D12, M31, L66

1   INTRODUCTION

Last decades the role of emotions is gaining an importance across all industries when examining consumer's behavior decision. The emotions impact on judgments, evaluations, and decisions has long been important not only to psychology but also to economic sciences. The purpose of this study aims at examining attitudes and behavior of Czech women in regards to buying, using and their overall attitude to skin care products in luxury segment, with special focus on emotions as an influencing factor.

The impact of emotions on judgments, evaluations, and decisions is considerable to consumer behavior. There are studies that demonstrate that emotions, like cognitions, do have an impact on consumption (Damasio, 1994; Loewenstein, 2004). It is important to understand what drives the experience of emotional states, how those emotions uniquely affect decision making and the motivation that consumers might have. We can study emotions that are more hedonic (through the arousal measurement for example) but also those that rely on higher order self-conscious processes to arise (Williams, 2014). This study is focused on those second ones through the targeted survey.

Further studies (Husic, 2009) found unexplained variance left in their research, which indicates hedonistic behavior in a luxury segment. They grouped luxury consumption to four categories: brand image and quality, fashion, store atmosphere and patron status. However, they also state there are areas not covered by those factors, and they reflect hedonism and other psychographic characteristics which need to be explored. They found that consumers try to treat themselves with a luxury product and to enjoy it for own sake, not to impress anyone.

2   MATERIAL AND METHODS

The research method (for the primary data collecting) was a structured questionnaire, along with face-to-face interviews with the respondents, to clarify the questions and capture additional insights beforehand. Questionnaire was sent by email within the customer's newsletter communication to the consumer database provided by the local Czech perfumery chain, called FAnn perfumery. Additionally, a pop-

up banner was placed on FAnn perfumeries website for a period of 2 weeks. This survey was only with consumers who regularly and repeatedly bought luxury skin care products, therefore already with previous experience and knowledge of relevant products. The data collecting was completed in January 2019 with a total of 782 respondents' feedbacks. Data were evaluated by means of descriptive statistics, dependencies were expressed by contingency (chi-square test) and customer segmentation was managed by cluster analysis (k-means method, Euclidian distance).

3 RESULTS

Collected data were tested on dependencies via pivot tables that express the relationship between the variables. Dependencies were tested using a Pearson chi-square test where the significance level is determined at 5%. The zero hypothesis was rejected if the p-value was lower than 0.05. Dependency was measured at importance of emotions and social status in correlation with age in which the most significant age groups were 35–44 years old (28%) and age group 45–54 years (29%) share on total.

Cluster analysis as multi-dimensional analysis was carried out to identify the main consumer segments of the luxury skin care cosmetics market and led to selection of two segments. Specific names were given to the isolated segments which best reflected the behavioral habits in luxury skin care cosmetics market. Larger Cluster 1 representing 52.7% was named "Emotional, frequent user, loyal and socially connected" and smaller cluster 2 with share of 47.3% gain a name "Novelty lover, not brand and not emotionally influenced". Each consumer cluster was described in details with all its specifics and differences in regards to consumer behavior in luxury skin care segment.

4 CONCLUSIONS

Result indicate that the connection of the respondents to emotions in cosmetics industry are important factor to certain consumer types and it is following the trend of other industries and businesses. Corresponding to further studies (Damasio, 1994; Loewenstein, 2004) in terms of emotions and specifics of luxury products consumer behavior (Husic, 2009). Therefore, the importance cannot be overlooked and these facts should be considered as consumers give it a priority when making final buying decision in skin care product category. However, needs to be taken into account, that emotions connection and social prestige is not so much relevant to all consumers at the same level but has higher importance to concrete consumers segment characterized by age, income or education level.

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COMPARISON OF LIVING CONDITIONS OF HOUSEHOLDS IN THE EU

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KEY WORDS

living conditions, household, EU-SILC, income

JEL CODES

I32, D31

1   INTRODUCTION

Improving living conditions and reducing the number of households living at risk of poverty is one of the fundamental objectives of the European Union in the field of social policy (Europa, 2019). The living standard is often associated with the income situation of households. However, it is necessary to realize that the standard of living is multidimensional and for its evaluation it is necessary to consider also non-income indicators (Wolf, 2009). Indeed, an assessment of income does not provide a sufficient indication of household's actual life. Household income should be used to determine poverty but this measurement says nothing about being poor (Nolan and Whelan, 2010). Households living at risk of poverty due to lack of access to economic resources have a low level of consumption of goods and services (Halleröd and Larsson, 2008). This paper offers a construction of the index of living conditions, which depends on the income situation of households. This index enables to compare the real subjective living conditions of households from all EU Member States.

2   MATERIAL AND METHODS

The primary data source for this paper is data from the EU-SILC survey (European Union – Statistics on Income and Living Conditions) from the year 2017. In total, data from 242 216 EU households has been collected and used. Household disposable income is the basic variable for tracking income indicators expressed as the equivalised disposable household income. The determination of poverty is based on a poverty line. The poverty threshold is calculated as 60% of the national median equivalised disposable income. If household EDI is below the poverty threshold, a household is considered as living at risk of poverty (Eurostat, 2019).

For comparison of living conditions in households in different countries, the Index of living conditions is created, which contains eight subjective standards of living indicators (how households make ends meet, how much of a burden on households the costs of housing, medical and dental care are, whether the household is able to face unexpected expenditure, whether the household can afford a week of holiday away from home, whether there is noise and crime around the home). The respondent expresses his/her household situation on a point scale; the answers are a weighted average of the household conversion rate in a given country. The index consists of the sum of individual indicators. The higher the value of the resulting index, the better the living conditions of households in the country will be (at a higher level).

Cluster analysis is applied to determine segments of EU countries based on eight variables from which the index is created. The k-means algorithm is used

in this study and it identifies homogeneous groups of cases based on selected characteristics. IBM SPSS Statistics software is used in this study for processing EU-SILC data.

3   RESULTS

The created Index of living conditions combines eight indicators of living standards. The final values of the Index revealed that the best living conditions are in households in Sweeden (I_{LC} = 18.41), Denmark (17.90) and Netherlands (17.37). On the other hand, the poorest living conditions were revealed in Cyprus (I_{LC} = 12.49), Greece (12.41) and Bulgaria (11.98).

Cluster analysis identified four segments according to household living conditions. The assumption that living conditions in economically advanced countries, such as Sweden, Denmark or Germany, are better was confirmed. In the first segment, there are households that make ends meet easily, housing and medical costs are a low burden or no burden. On the contrary, households in the 3rd and 4th segment have problems to make ends meet, the financial costs of housing represent a higher burden compared to the 1st segment. The cost of health varies between the heavy and the average burden in the last 4th segment. Many households cannot afford to go to the dentist due to lack of income. Similarly, in the 3rd and 4th segment, there is a problem with out-of-home holidays and the ability to face unexpected expenses. There are no serious crime or noise problems in any of the segments. By deep comparison, more economically advanced countries with generally better living conditions tend to be more susceptible to crime and noise.

4   CONCLUSIONS

The constructed Index of living conditions revealed real living conditions of households in the EU countries. The line-up of countries from the highest Index (from best living conditions) is not the same as the line-up of countries from the lowest poverty rate. This interesting fact reflects the need to measure living standards also by other than income indicators. Income indicators are necessary for the first basic measurement of living standards but if we want to know and compare real situations of households, we need to applicate non-income indicators as-well. In the fourth segment, where the poverty rate is the lowest, the Index of living conditions is the lowest too. So the income poverty in these countries is low but households evaluate their living conditions worse than other EU households.

This evaluation is based on a subjective expression of households and this is the important benefit that we are able to know the real living conditions. But this is also the shortcoming of this study because of the subjectivity.

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DETERMINANTS OF CUSTOMER-BASED BRAND EQUITY IN THE CONTEXT OF GREEN PERCEIVED VALUE AND BRAND LOYALTY: AN EVIDENCE FROM ORGANIC AND GREEN FOOD PRODUCTS

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KEY WORDS

green brand, green perceived value, green benefits, green transparency, brand loyalty

JEL CODES

M30

1 INTRODUCTION

The environmental related issues have been gaining utmost considerations these days by the academician and researchers. Developing countries like Pakistan and India has seen numerous atmospheric changes like extreme climatic changes, floods, exhaust cloud, smog and so forth. Organizations need to manufacture an idea of green apparent esteem with the goal that client can purchase items keeping in view green advantages of the item which will eventually make them brand ultimately steadfast and it's supporting up the client based brand value. The thought behind this exploration is to investigate the determinants of customer-based brand equity. This investigation will help in getting the green apparent incentive with the assistance of utilitarian environmental advantages, warm glow advantages, and green transparency.

We address two research questions in line with this aim:

- RQ1: What are the determinants of Customer-Based Brand Equity among Green brand, Green perceived value, Green benefits, and Green transparency of Brand Loyalty?
- RQ2: How Green Perceived Value mediates the relationships between green benefits, green transparency, and brand loyalty.

  Hypotheses:

- H1. Utilitarian environmental benefit is positively associated with Green Perceived Value.
- H2. Warm glow benefits are positively associated with Green Perceived Value.
- H3. Perceived green transparency is positively associated with Green Perceived Value.
- H4. Green Perceived Value mediates the relationships between brand loyalties.
- H5. Green Perceived Value is directly associated with customer-based brand equity.

2   MATERIAL AND METHODS

The purpose of this study is to investigate Consumers Perceptions of Brand's Green Benefits (Utilitarian Environmental and Warm Glow) and Green Transparency on their green perceived value (GPV). This study also investigates the mediating role of GPV on the relationships between green benefits and green transparency and brand loyalty. The data will be collected through a self-administered questionnaire from the consumers of Organic and green food products in the provincial capital of Punjab. On the basis of response to item theory, data will be collected from 200 respondents. The limitation of the study and future guidelines will be discussed. Data will be analysed through Structural equation modelling. The results of the study will be used for theory building and practice.

This study has used a quantitative approach. To investigate, the data was collected through a self-administered questionnaire from the consumers of Organic and green food products in the provincial capital of Punjab. On the basis of response to item theory, data were collected from 200 respondents.

3   RESULTS

The results of the correlation and SEM supports our hypothesis.

4   CONCLUSIONS

This study aimed to understand the factors influencing customers' green value perceptions and their influence on brand loyalty. These factors include product-oriented attributes (i.e., green benefits) and the corporate practice of providing environmental information (i.e., green transparency). The outcomes of this study will contribute to the body of knowledge by integrating green branding with the broader research framework of corporate social responsibility. It is the prime study in Pakistani context that focuses on Organic food brands.

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THE EFFECTS OF SHORT SELLING ON FINANCIAL MARKETS VOLATILITIES

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KEY WORDS

short selling, market volatility, dynamic conditional correlation

JEL CODES

C58, G12, G15

1 INTRODUCTION

The activities of short sellers in the financial markets were largely criticized and argued to be one of the factors causing the financial crises of 2007/2008 as the practice aggravate market volatility and in extreme cases destabilizes the market (Jain et al., 2013). Short sellers were also argued to be manipulators of stock prices during the crises (McGavin, 2010). This led to a ban on short selling that was later lifted in some markets and strict regulations were introduced in attempts to reduce volatility and strengthen the weakening market. This paper follows the the work of Baklaci (2016) and focus on the effects of the various sectors on the market volatility. The papers finds strong evidence that short selling activities in the various sectors reduces the market volatility.

2 MATERIAL AND METHODS

We build a daily frequency time series data comprising of short selling volumes, listed stock prices and prices for the market represented by the stock index. The short selling data are mainly retrieved from the Financial Industry Regulatory Authority (FINRA) website. The data consist of daily traded report of 95 listed companies of the NYSE US 100 Index. The data of the NYSE US 100 Index and prices of all the companies are retrieved from the NYSE website which are published daily. The period for the data is from November 2017 to October 2018 and consist of 23,562 observations.

To identify impact of short selling on the volatility of the market, we employ the multivariate form of the GARCH models, especially Dynamic Conditional Correlation (DCC) that identifies stock markets volatility spillovers across different markets proposed by Engle (2002). The model has the flexibility of the univariate GARCH models coupled with parsimonious parametric models for the correlations (Engle, 2002).

The conditional correlation matrix of the DCC GARCH as proposed by Engle (2002) expressed as

$$H_t = D_t R_t D_t, \qquad (1)$$

D_t is the diagonal matrix of conditional variances defined, R_t is the $n \times n$ correlation matrix defined as

$$R_t = Q_t^{-\frac{1}{2}} Q_t \, \mathrm{diag}(Q_t^{-\frac{1}{2}}), \qquad (2)$$

Where diag(A) denotes a matrix with diagonal equal to the diagonal of A.

$$Q_t = \widehat{Q}(1 - \alpha - \beta) + \alpha \epsilon_{t-1} \epsilon'_{t-1} + \beta Q_{t-1}, \qquad (3)$$

where ϵ_t is the vector of standardized returns, $\epsilon_{it} = \dfrac{r_{it}}{\sigma_{it}}$, α and β are scaler, $\widehat{Q} = \dfrac{1}{T} \sum_{i=1}^{T} \epsilon_t \epsilon'_t$ with $\alpha, \beta > 0$ and $\alpha + \beta < 1$.

3 RESULTS

The study uses 95 listed firms in the NYSE US 100 Index. The firms are categorized into 10 sectors of the economy; Communication, Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industries, Materials, Technology and Utilities. This paper analyse the impact of short selling activities of the various sectors on the US market. The results of the DCC-GARCH estimates indicates just about 15.97% of firms directly affects the volatility of the market which is dominated by the financial sector. The results show the technology and communication sector has no effects on the market, while the utility sector has an insignificant impact.

The coefficients of the remaining sectors show significant impact of the market volatility. The industry and consumer staples sectors estimate show weak positive impact on the market by increasing the volatility. The financial, materials, health care, energy and consumer discretionary sectors estimates show a strong significant negative impact of the market. Short selling activities of these sectors reduce the market volatility.

4 CONCLUSIONS

This study find evidence that short selling activities reduces the market activities of the NYSE US 100 Index. The study also finds activities of the traders also reduces the market volatity within the various sectors of the market. The findings of this paper is consistent with Sobaci et al. (2014) who conclude short selling activities is associated with decreased market volatity in the Istanbul Stock Market.

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INVESTMENT BEHAVIOUR ON FIRM LEVEL IN VISEGRÁD GROUP

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KEY WORDS

firm investments, investment determinants, financial characteristics, publicly traded firms, panel data

JEL CODES

D21, G30

1 INTRODUCTION

Firm investment behaviour is affected by firm financial situation (i.e. Fazzari et al., 1988; Vermeulen, 2002; Aivazian et al., 2005). There are several factors that are commonly applied in firm financial analysis. Primarily cash flow of the company (i.e. Fazzari et al., 1988; Lewellen and Lewellen, 2016), leverage (Lang et al., 1996; Aivazian et al., 2005; Vinh Vo, 2019), profitability (Martínez-Carrascal and Ferrando, 2008; Pacheco, 2017) and sales (i.e. Farinha and Prego, 2013; Maçãs Nunes et al., 2012; Aivazian et al., 2005).

The paper investigates determinants of investment behaviour at the firm level after the financial crisis in 2007-2009. Using microeconomic panel data for publicly traded firms to analyze the determinants of firms' investments after the financial crisis. The financial crisis can change the investment behaviour of listed firms, as it was in the case of Korean listed firms in the 90s (Rousseau and Kim, 2008).

This paper contributes to the literature by an understanding of the investment behaviour of publicly traded firms after the global financial crisis in two ways. First, we show that financial situation of firms is an important determinant of investment behaviour, especially cash flow, sales, and profitability. Second, we find a threshold for leverage with a different effect on firms' investments.

2 MATERIAL AND METHODS

We use annual data for publicly traded firms in the Visegrád group in the period 2010–2012. Data are obtained from the database Orbis provided by Bureau van Dijk.

The empirical analysis is used the regression model of panel data with fixed effects to cover individual effects of firms. Parameter estimates are calculated using the OLS method.

3 RESULTS

The analysis confirms that investment behaviour is determined by financial characteristics of the firm as cash flow, sales or profitability. The analysis also indicates an impact of interest rate as the external factor. The impact of leverage depends on a threshold. The least leveraged firms (leverage lower than 0.3) do not depend on the financial situation, similarly as the most leveraged firms (leverage higher than 0.65).

We also provide robust empirical proof that such behaviour separately for each country of Visegrád Group and with additional split according to thresholds for leverage. Detailed analyses of investments show that change in sales is considered as a determinant of investment regardless of leverage. For individual countries are results significant mainly for firms in Poland.

4 CONCLUSIONS

Using Orbis data. we examine the role of financial position on the investment decisions of publicly traded firms in Visegrád Group after the financial crisis in 2007–2008. We confirm the significant impact of the financial position of firm on their level of investments after the financial crisis.

Based on the robustness check are results applicable mainly for publicly traded firms in Poland due to unbalanced mode. Robustness check also shows sales as the determinant of investments regardless of leverage.

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SYSTEMATIZATION OF DIGITAL TWINS: ONTOLOGY AND CONCEPTUAL FRAMEWORK

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KEY WORDS

digital twin, systematization, ontology, conceptual framework

JEL CODES

A2, L8, O3

1 INTRODUCTION

The development and progress in information and communication technologies will transform traditional products into smart products and allow to offer novel smart services (Dawid et al., 2016). Herein, the digital twin (DT) concept, originated by Grieves (2003), is regarded as a key technology for the seamless integration and fusion of smart products and smart services within a cyber-physical system (CPS; Tao et al., 2019) and as a way to seize the manifold opportunities to create value with new smart services (Barbieri et al., 2019). The importance of DT, is increasingly emphasized by both academia and industry, which is evidenced by the increasing publications and patents on DTs during the past few years (Tao et al., 2019). Although the research and applications of DTs emerge continuously, the systematic research is rare, thus many concerns are to be scrutinized (Zheng et al., 2018). The lack of a shared conceptual framework for DTs with an unambiguous terminology (Schleich et al., 2017) complicates cross-functional discussions. It thus becomes evident that further dimensions for structuring DTs are required in order to get a differentiated yet understandable perspective, especially on their value contribution (Meierhofer and West, 2019). Therefore, a systematization of the main dimensions of DTs is proposed in the form of an ontology and a conceptual framework thereof derived for the use in practice.

2 MATERIAL AND METHODS

Within this framing the research questions addressed in this paper are a) «Which dimensions are used to classify and structure DTs in academic literature?», b) «What are the fundamental differences or specifications within these dimensions?» and c) «How do these different specifications relate to each other?» The main focus of the research is on the objective to find classification systematics that are a) representing the entire spectrum of DTs, b) universally valid in all DT related domains and c) applicable in research and practice. A systematic literature review on the relevant aspects of DTs was conducted (Vom Brocke et al., 2009). 505 papers found have been filtered in several steps and finally 41 academic articles have been studied in detail. A first draft in form of a concept map was developed and iteratively advanced within 6 workshop sessions with academic experts from the mainly involved disciplines to create a conceptual framework as a useful artefact for the use in practice.

3 RESULTS

DTs are considered as integrators of both, physical and digital worlds as well as internal and external processes of value creation. Therefore, DTs require the collaboration between experts from various disciplines inside and outside a company, which emphasizes the need for a holistic conceptual framework. Further, the creation of DTs requires per definition the use of digital data. Hence, the proposed ontology and conceptual framework for DTs include the following main dimensions to consider for every DT: Data resources, external value creation and internal value creation. Data resources are the fuel of every DT application as value creation is not possible without the necessary data in the needed form. The main subdimension are the data sources to obtain the data, the data categories and the data formats. The external value creation is realized in the market, in cooperation with customers or partners in the business ecosystem. The main subdimension are the attributes of the services as the basis of the value propositions, the level of smartness of the connected products and the actors on the different levels of the ecosystem. The internal value creation is realized within the own company and can influence all processes of the value chain. The main subdimension are the lifecycle phases of products, the product management levels and the different generations of both.

4 CONCLUSIONS

The proposed ontology and conceptual framework support researchers and practitioners in positioning and structuring their intended DT activities and communicating them to internal and external stakeholders. The holistic view on the data resource dimension further allows to easily deduct the needed data for certain applications or deduct possible applications from already available data. The usefulness of the created artefacts will be further validated and the approach how to deduct specific instances will be further investigated.

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HOW MUCH CAN MONETARY POLICY OF SMALL OPEN ECONOMY NEIGHBOURING LARGE CURRENCY BLOCK BE INDEPENDENT?

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KEY WORDS

monetary policy, Eurozone, central banking

JEL CODES

E52, E58

1 INTRODUCTION

This paper examines the argument that a small open economy with goods and service markets integrated to a major currency block has decreased autonomy over its monetary policy. The argument is derived from Optimum Currency Area theory (OCA) that tries to answer the question what economic area is supposed to share one common currency. The main cost of joining a common currency area is a loss of independent monetary policy of the economy. Independence of monetary policy can be interpreted as the ability to set interest rates autonomously of the international interest rates. The de facto independency of an economy is strongly influenced by its size and markets integration as R. McKinnon famously noted. The question of the paper is therefore: do the countries abstaining from joining the Eurozone really have true independent monetary policy? If the independence of their monetary policy is low, then the cost of joining Eurozone is also low. The topic is highly relevant for the examined countries as six of them are legally bound to accept Euro.

As the research shows, the countries' real interest rate changes are strongly associated with those of the Eurozone. Therefore, the costs of losing "not so independent" monetary policy should not be so large.

2 MATERIAL AND METHODS

Data used in the paper are short run interest rates, Eurozone's monthly EURIBOR and analogical interest rates in other countries. Monthly annual rate of change of "All-items HICP" issued by Eurostat was used to set up monthly real interest rate. The dependent variable is the change (difference) of real interest rate of the examined countries and the regressor is change (difference) of real interest rate of the Eurozone and of the US. Other regressors including GDP growth, level of real interest rates and exchange rate against Euro/DMK and USD are added to different specifications of the regression.

In order to assess the above stated argument, various specification of panel data and time series regression including GARCH are employed.

3 RESULTS

Results show strong association of changes in real interest rates of non-Eurozone (non-EZ) EU countries with changes of real interest rate of the Eurozone. The UK's and Sweden's real interest rates are associated to smaller extent to the changes of the US interest rates. This suggests that central banks of countries out of EZ follow (partially) the decisions made in the European Central Bank. The least dependent on the decisions taken in Frankfurt appears to be Romania with the lower statistical significance than other examined countries due to high variance in its change of real interest rate.

4 CONCLUSIONS

As the results show, there is high association of changes in real interest rate in Eurozone. This means that monetary policy of countries out of Eurozone is highly influenced by the Eurozone itself. In the context of Euro adoption in these countries, this fact renders the costs of losing (not so) own monetary policy smaller. There are two complementary explanations to the fact of dependency of interest rates. Business cycles of non-EZ countries and EZ countries are already synchronised and therefore the countries that face the same economic challenges also use the monetary policy in the same fashion. The other explanation is the fear of floating of some of the countries. Deviating dramatically from the internationally set interest rate has consequences in increased inflation or decreased competitiveness depending on the direction of the deviation. Both reasons for not so independent monetary policy in non-EZ countries bear the same conclusion. Losing non-existent independent monetary policy is not a big loss.

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SUCCESSFUL LEADERSHIP – IMPACT ON ORGANIZATIONAL COMMITMENT AND THE EFFECTIVENESS OF EMPLOYEES: EVIDENCE FROM GERMAN SMES

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KEY WORDS

leadership, transformational leadership, organizational commitment, affective organizational commitment, empowerment

JEL CODES

D23, J24, J63, L2, M14

1   INTRODUCTION

In times of increasingly shorter product and technology cycles and increased competition qualified employees and their skills are a crucial differentiation factor and a necessary requirement for the future viability of organizations (Schmelter et al., 2010). Especially small and medium-sized organizations in Germany will face problems filling their vacancies with qualified employees in the future (BMWi, 2019). In the past employees were essentially regarded as a significant cost factor, which led to massive layoffs as part of extensive efficiency programs (Pfeffer, 1994). Now times have changed and organizations are forced to fight for qualified employees. Since the global markets becoming more competitive a growing number of organizations are discovering their employees as a new source of competitive advantage. Since various years the recruitment and long-term retention of qualified and loyal employees is an absolute priority for organizations that want to react quickly and flexibly to changing market conditions (Datta et al., 2005). In an era of rapidly changing markets, transformational leadership is seen as one of the critical success factors for organizations when it comes to retaining qualified employees and staying competitive (Ismail et al., 2010). In this context, a significant relationship was established between transformational leadership and organizational commitment. In addition, Avolio et al. (2004) found that the relationship between these variables is directly influenced by empowerment. The distribution of power by supervisors to make decisions on their own encourages employees to realize their full potential and to commit themselves to the organization beyond their occupational responsibilities. Surprisingly the influence of employee empowerment on the relationship between leadership behavior and organizational commitment has only been researched to a limited extent (Avolio et al., 2004). No research focuses on European countries or SMEs in general so far. This work aims to close this research gap and to highlight the importance of the relationship between leadership behavior and organizational commitment using empowerment for German SMEs.

2   MATERIAL AND METHODS

In order to identify the research gap a literature review is executed by using the database "Business Source Premier". The current state of research in the field of the effectiveness of leadership behavior on organizational commitment and job performance through empowerment is reviewed using a three-step analysis based on Webster and Watson (2002).

In a first step the existing literature is searched by relevant key words. All appropriate journals are analysed and clustered into groups of applicability in a second step. Finally, the key statements of the identified journals are summarized to deduce a generalized statement per group.

3   RESULTS

The generalization of the key statements proves the significant relationship between transformational leadership and organizational commitment. In this context the positive effect on this link through empowerment is empirically tested and proved. The relationship between transformational leadership and the performance of employees through the mediating role of empowerment is only proved as rather weak. But it is only research to a limited extent. Interesting to note is that the empowerment is influenced by external factors as for example the cultural background of employees.

4   CONCLUSIONS

As mentioned above the long-term retention of qualified employees is a critical success factor for all organizations. Therefore, the link between transformational leadership and organizational commitment as well as job performance should be of great importance for organizations. Especially because the empowerment of employee enables organizations to positively influence this correlation. Despite its high relevance for organizations, this impact chain has only been examined to a limited extent since then. Remarkably, for one of the largest European markets, Germany, there is no research that constructively examines exactly these variables in combination. Due to the increasing importance of employees regarding the long-term performance of the organization it is crucial to further investigate this topic for more empirical evidence.

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IMPACT OF THE KYOTO PROTOCOL ON ENERGY COMPANIES IN THE CZECH REPUBLIC

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KEY WORDS

energy economics, the Kyoto protocol, environmental law, firm performance

JEL CODES

D24, K32, M21

1 INTRODUCTION

The global warming has recently been a hot topic all around the world, and therefore it also became very controversial. As the specific regulatory framework has already been adapted in many different areas, it does not have a long history. First big step was the ratification of UNFCCC starting in 1994, but it did not have much impact since it does not provide any quantitative environment to hold on to (Van Asselt, 2007). The UNFCCC panel had identified this problem and came up with the Kyoto Protocol, which has been ratified in 2003 by 117 nations. Since then the Kyoto Protocol is providing the necessary quantitative restrictions (Hovi et al., 2000). In this Protocol, every country has pledged to abide by its rules and limit its greenhouse gases (GHG) emissions by a specified percentage, resulting in an overall GHG emissions reduction by at least 5% by the end of 2012 (UNFCCC, 1997). The Kyoto Protocol remains and will remain active and is repetitively being revised (Alberola et al., 2015). Studying the impact of the specific legislations on a microeconomic level is a common topic. Nevertheless, there are only a few studies dealing with a possible impact the Kyoto Protocol has on firms in the Czech Republic, especially on the energy companies as they are the biggest GHG emitters in the Czech Republic. The paper hence attempts to quantify the possible effect of the Kyoto Protocol on companies of the energy sector in the Czech Republic.

2 MATERIAL AND METHODS

The paper studies the impact of the Kyoto Protocol on the energy companies in the Czech Republic. Therefore, it is crucial to study data on a microeconomic level time series of business, accounting and financial data of every energy company in the Czech Republic, using panel data regression. To study the impact of a specific legislation application the research uses difference in differences (DID) method (Grunewald and Martinez-Marzoso, 2015).

The data panel consists of the treatment (energy sector, 2182 entities) and the control group (marketing, 5318 entities), whilst using times series with yearly periodicity from 2006 to 2015. The article studies statistical significance of a DID estimator for the year of 2008 among other control variables, such as years dummies, logarithm of short-term financial assets turnover (cash equivalents) and logarithm of the amortization and the depreciation. The effect is

studied separately on logarithms of the listed variables: rentability of the assets, the capital employed and sales, the assets turnover, the average personnel costs and the cash flow to revenues ratio.

3 RESULTS

Panel regressions proved DID estimator to be statistically significant for in all models, except for the model for assets turnover, concluding a possible impact of the Kyoto Protocol on energy companies in the Czech Republic. It is statistically proven that after 2008, in the energy sector companies, the rentability of the assets has risen by 0.296%, rentability of the sales by 0.367% and of the capital employed by 0.335%. The Average personnel costs have risen by 0.233% and the cash flow to revenues ratio by 0.281%. The assets turnover in these companies has decreased by 0.038%.

The amortization and depreciation policy in energy companies is proven to have impact on the observed variables. The turnover of cash equivalents and its changes seem to be affected by the GHG emission permits. EU Emission Trading System, where these permissions can be traded, can lead to an explanation in the variability of this part of the assets.

4 CONCLUSIONS

The paper concludes a possible impact of the Kyoto Protocol on the investigated financial indicators of the energy sector companies. Participating in the GHG emissions reduction in this sector leads to an increase in financial performance and a slight decrease in the operational performance of the observed firms. Similar results have been concluded for example by Boiral et al. (2012) or Gallego-Álvarez et al. (2015).

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HOW TO PROMOTE ENTREPRENEURIAL BEHAVIOUR AND INNOVATION IN ESTABLISHED COMPANIES: LITERATURE OVERVIEW

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KEY WORDS

corporate entrepreneurship, innovation, literature review

JEL CODES

L2, M14, O31

1 INTRODUCTION

Due to significant changes in corporate environment and an increasing consolidation and convergence of the markets, the creation and maintenance of competitive advantages through innovations is becoming more and more important for companies. Especially well established enterprises are suffering because of their obsolete organizational structures and are unable to react flexibly and agile to market changes. Therefore, the promotion of entrepreneurial behaviour and innovation within the organization is a major challenge for these companies and presents a key indicator for their future success (Corbett et al., 2013). Several theoretical concepts (Corporate Entrepreneurship, Intrapreneurship, Entrepreneurial Orientation, Internal Corporate Venturing) from different research areas are already investigating the promotion of entrepreneurial behaviour in existing companies and the resulting improvement of innovation capabilities. Although the value of entrepreneurial and innovative approaches for the long-term success of enterprises has already been proven (Zahra et al., 1995), a common understanding of the crucial drivers and their characteristics is still missing in academic literature (Ireland et al., 2009). Thus, this paper analyses and reviews the existing literature concerning the promotion of entrepreneurial behaviour in existing organizations and aims to identify, structure and integrate the most important research findings of the different concepts and research streams. In the context of a systematic literature analysis, this paper contributes to the academic discourse in two different ways. First, this review provides an integrated literature overview and transparency by identifying and summarizing relevant studies dealing with the promotion of entrepreneurial behaviour in established companies. This provides scholars with the basis for future research and assist them in identifying relevant literature. Secondly, this paper highlights points of agreement and disagreement in the current understanding of the promotion of entrepreneurial behaviour in established companies. Areas with lacking consensus may serve as future research directions.

2   MATERIAL AND METHODS

According to the methodological approach of Webster and Watson the underlying literature analysis consists of three phases (Webster and Watson, 2002). At first all studies that are relevant in this context are identified by a key words based literature search of the database "Business Source Premier". Secondly, all identified studies are analysed and clustered concerning their relevance and research objectives. In a final step, the findings of the literature analysis are structured, synthesized and formulated.

3   RESULTS

The key word based literature search leads to 234 articles from leading management journals. As a result of the first review and specific exclusion principles concerning their research focus, 117 articles were identified as relevant. The detailed analysis of these articles shows that some factors are crucial for the establishment of entrepreneurial behaviour in existing organisations (Ireland et al., 2009). While one factor alone is not sufficient to successfully implement entrepreneurial measures in existing companies, the combination of all identified drivers leads to an improvement of the innovation capability. Even though the literature identifies a variety of different entrepreneurial factors, some groups of success factors, for instance rewards, management support, resources, organizational structures and risk taking, appear consistently over time (Kuratko et al., 1990).

4   CONCLUSIONS

This paper boosts the current academic literature of the promotion of entrepreneurial activities in established organisations through the systematic consolidation and integration of leading management research of different research streams and discusses various topics for further research. The results of the literature analysis represent the current state of research and can provide a guideline for the successful implementation of entrepreneurial measures in established organisations as well as for their further examination. Therefore, this paper contributes to a better and deeper understanding of the promotion of entrepreneurial thinking and acting in existing companies.

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RETHINKING THE FUTURE OF GERMAN MUSIC THEATRE: STATE OF RESEARCH AND CONSTITUTIVE OUTLOOK

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KEY WORDS

performing arts, German public music theatre, cultural economics, dynamic pricing, revenue management, Baumol's disease

JEL CODES

Z110

1 INTRODUCTION

As early as 1965, in the beginning of cultural economics, Baumol and Bowen demonstrated that the service sector in culture is faced with an ever-widening gap between the limited increase in productivity and the unstoppable rise in wage costs (Last and Wetzel, 2010). Only few consequences have been drawn in the public funded German theatres from this. The crisis of the pathological underfunding of public funded German theatres with rising personnel costs and threatening subsidy cuts is described comprehensively (Schmidt, 2017). But until today it is unclear what a production at a theatre costs based on the fundamental laws of microeconomics. It is time to light the German theatre system by investigating the interdependency of pricing and the demand for a production within the division of music theatre in public funded German theatres. Can a revenue management system decrease the gap between fixed costs and own revenues?

2 MATERIAL AND METHODS

Mervi Taalas states little interest of cultural economists in production theory in the cultural sector. He gives two main reasons for this: The lack of high-quality data sets as well as the comparability of productions (Taalas, 2011). Taalas points out two main characteristics of the described studies in this field: the tendency in research to treat different production types as the same and the fact, that the research topic dominates the empirical studies on production costs instead of setting a focus on methodologies based on a priori knowledge (Taalas, 2011). Klaus Lange presented a pioneering framework on economics in public funded German theaters introducing a new "transfer-coefficient" as descripted relation between distribution and allocations. He defines a "performing arts indicator" for giving the possibility of comparing similar sized and financed theatres statistically but gives no solution of how to bridge the gap between income and costs (Lange, 2019). Leonie Miserre gives an overview on the chances of dynamic pricing in theatre. She sets her focus on audience development in a public funded opera house and yield/revenue management in the German musical show business. She states a high potential for implementing dynamic pricing and a revenue management system in German theatres

(Miserre, 2016). Tom Schößler describes the pricing situation in public funded German theatres with a focus on the audience and the general mindset in offering different ticket prices. He states that there are too many macro-economic factors having impact on managerial thinking within theatres as well as too few information on the interests of the audience to come up with a proper dynamic pricing business model for theatres. But he concludes that dynamic pricing has a high potential to maximize revenues without excluding audiences (Schößler, 2016).

In terms of methods existing audience surveys give a first impression of the relation between cultural institution (producer) and audience (consumer). Eight interviews with experts from theatres, cultural service suppliers and politics in combination with research in available sources like governmental theatre contracts offer the possibility to describe the macro-economic situation of public funded theatres. Based on this, new production segments for a revenue management system in combination with the (non-)audience's demand and interest in general (type and durability of productions) as well as the degree of acceptance of new segments and price systems (price elasticity, buyer's behavior) are queried within a survey. Demand factors for a model forecast can also be derived from this. A production related cost analysis will lead to a cost function based on previously defined segments and demand factors.

3   RESULTS

The knowledge of the theatres on their audience differs a lot. Only 35 out of 92 public funded music theatres in Germany gave information anyway. 68.5% of those conducted a survey over the past 30 years. Out of those, only 75% were willing to make the results available for research purposes. Within the interviews the experts give a comprehensive impression of the main challenge for implementing a revenue management system in public funded theatres. This is to deal with the political circumstances like governmental contracts and their laws. The flexibility within the system and with it the flexibility in pricing is limited. The first six (out of eight) expert interviews give evidence that most of the experts overseeing a position that can make a change like intendants and cultural politics have nearly no idea on how to combine a differentiated price system for maximized revenues with the subsidized education task. Those experts from outside the cultural institutions provide important impulses on possible changes.

4   CONCLUSIONS

The conclusion of the research so far states the importance of the topic for the future of the theatre system in Germany: The circumstances in terms of fixed political frameworks and the audience's behaviour as well as the theatre's lack of knowledge about it proof, that the rethinking from inside the theatre institution is the only possible way to fight the crisis. It is not a question of whether, but of how.

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FUNDING OF TRANSPORT INFRASTRUCTURE DEVELOPMENTS IN SERBIA: CHINA IN FOCUS

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KEY WORDS

China, Serbia, infrastructure, belt and road initiative

JEL CODES

F, R

1 INTRODUCTION

While in Yugoslavia the regime change was surrounded by the country's bloody disintegration, in China the process of democratization did not take place. Nevertheless, the relationship between the two countries is booming today and Serbia is one of China's most important partners in the Western Balkans, both in terms of political relations and in terms of the volume of infrastructural investments financed by Chinese companies and Chinese banks. Nowadays, in addition to maintaining bilateral partnerships with former Yugoslav states, China also tightens relationships through a multilateral platform, the so-called '17+1' initiative, which covers 17 Central and Eastern European states and China.

2 MATERIAL AND METHODS

Since the Belt and Road Initiative (BRI) covers a large territory, with different investment conditions and regulations, as well as political systems, examining the Chinese vision in itself poses challenges. In order to avoid this issue, it may be an acceptable solution for a researcher to focus on a specified region or country in its assessment (Blanchard and Flint, 2017). Therefor I undertake to assess Chinese expansion in one of the key states (Serbia) of a wider region (Western Balkans), along the lines of implemented and planned transportation infrastructure projects.

My findings are based on the reports of the Ministry of Construction, Transport and Infrastructure of Serbia from 2018 and before, which indicates the investor and the financing provider of each project (if they are identified). Through summarising the data we can get an insight to what role China plays in the country's infrastructural development projects, compared to other key actors (Russia, EU, certain Arab states).

3   RESULTS

In the period up to the year 2020, the Republic of Serbia is planning to additionally invest close to 6 billion EUR into transport infrastructure projects with the ratio 3:1 in favor of investments to railway projects. Although European institutions dominate project financing, Chinese financial institutions are playing an increasingly important role. Researching the data it can be concluded that fifth of the total value of projects were or will be financed by Chinese banks.

4   CONCLUSIONS

The appearance of Chinese corporations and banks provides a good opportunity to Serbian leaders to boast successes and to continue the convergence of their country, thus also stabilising their power. At the same time, large investment volumes also involve risks to them and their citizens, because in case the financing of the projects leads to over-indebtedness (even if it is due to their own accord, not being forced by China) or the implementations lead to anomalies, delays, accusations of corruption, that may hinder the country's development. In addition while the Chinese side communicates that she is trying to create a win-win situation, the EU – mainly the Western states – and the United States of America have reservations about the growing Chinese influence in the region.

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DEVELOPMENT OF UNRETIREMENT IN SELECTED EUROPEAN COUNTRIES

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KEY WORDS

unretirement, retirement, population ageing, labour market

JEL CODES

J28

1 EXTENDED ABSTRACT

If we examine the age structure of the population in Europe, we find that the absolute amount of people aged 15–64 years has been declining, while the age cohort 65+ has been increasing. Of course, it increases the average age of the population as such. Between 2006 and 2016, the proportion of pension beneficiaries per population increased by more than 25%. The issue of the ageing of the labour market is consequently becoming more severe and urgent. The action can be taken at various levels – government, businesses or individuals.

Retirement as such can be divided into early and regular, or gradual and sudden. More and more often, we can see in practice the so-called gradual retirement, which includes, for example, "bridge employment". It is a retirement scheme in which is the working time gradually reduced, and it results in positive effects on both the company and the worker. These impacts are not only economical but also social and psychological, which has a direct impact on human health.

We also recognize the return to the labour market as reverse retirement or unretirement, which is another retirement timing scheme applied. This approach is based on the interest in returning to work after being retired – both on the side of individuals and of businesses. The objective of the paper is the identification of unretirement in

selected European countries – the representation of the extent of unretirement and the main drivers and motivations. An overview study was carried out to describe the current state, historic and future development of a defined population group (age group 60+) in selected European countries. The data available from Eurostat, the Population Reference Bureau and SHARE were used.

It was found that 14–42% of those who were retired were interested in returning to work (UK 25%, Sweden 14%, Germany 17%). Motivation to work after retirement depends on variables such as income level, economic sector, education and others. The resulting potential challenge for companies is to create conditions that would motivate workers to voluntarily return or remain in the labour market, even if they become eligible for retirement pensions. The most common reasons for seeking to return to work are different for example in terms of income groups – while the motivation of low-income households is rather financial, the high-income households are more of social motivation (social interaction, etc.). However, the reasons are also based on the functioning of families (still working partner), the impact of economic development (negative economic outlook) and psychological influences (to be valuable).

It is, therefore, an essential part of this age cohort, which may become even more critical as a result of

the ageing population. This knowledge is a partial outcome of the dissertation, which aims to propose a practical tool that would enable companies to effectively manage older age groups of employees (60+) who have already left the labour market and are trying to return. Its conclusions can contribute not only to ensure sufficient workforce for businesses but also to support the working environment, thereby positively affect performance and efficiency at the organizational level, while leading to the savings on transfers towards ageing populations through practical recommendations from to increase the standard of living of the society.

IMPACT OF SUSTAINABLE CONSUMPTION VALUES ON GREEN PURCHASE BEHAVIOR THROUGH GREEN ENVIRONMENTAL CONCERNS: AN EMPIRICAL EVIDENCE FROM ORGANIC FOOD STORES IN PAKISTAN

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KEY WORDS

sustainable consumption values, green environmental concerns, green purchase behaviour, organic food, Pakistan

JEL CODES

M31

1 INTRODUCTION

The growing literature on greener products indicates that consumers are willing to pay premium prices for products that are not destructive for environmental concerns. Furthermore, environmental concern and health issues have changed into ecologically favourable behaviours and eco-friendly purchasing decisions. Thus, green consumption has become an important force, which can preserve the environment, protect health and save the earth. The usage of organic food, the products which have greener credentials is an important perspective to restrain the usage effects of non-green products, conventional products, and non-organic food, pesticides, herbicides, and fertilizers, etc. The study addresses the basic question of what is the effect of consumer sustainable consumption values on green buying behaviour through environmental concerns.

2 MATERIAL AND METHODS

The data was collected from consumers of organic food contacted through various organic food stores in major cities of Pakistan. Based on a sample size of 340 participants (response to item theory), the data was collected through self-administered questionnaire for which 270 were returned filled and after screening 240 left for a useable response rate of 70.6%. We used a well-established scale for values developed by Suki (2016), environmental concern developed by Chen and Tung (2014), green purchase behaviour developed by Yadav and Pathak (2017).

3 RESULTS

We found that Sustainable Consumption Values (Functional Value, Social Value, Conditional Value, Emotional Value, and Epistemic Value) have a strong positive significant association with Green Purchase Behaviour. Emotional Value and Epistemic Value have a strong positive association with Environmental concerns while Functional Value, Social Value and Conditional Value Insignificant association with Green Environmental concerns. Finally, Green Environmental concerns have a strong significant association with Green Purchase Behaviour and partially mediates.

4 CONCLUSIONS

The scant studies exist in order to examine effects of sustainable consumption values on consumer buying intention towards green products and consumer environmental concerns as express through the buying of green products in western cultures while the study in hand is a prime effort in the Pakistani context. The study contributes to an existing body of knowledge the green marketing grounds especially seeing how consumer sustainable consumption values affect their green buying behaviour.

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References are available on request.

FEATURES EXTRACTION FOR TRADING STRATEGIES ENHANCEMENT: PRELIMINARY RESEARCH

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KEY WORDS

signal filtering, features extraction, commodity trading, scoring model

JEL CODES

C58, G11, F17

1   INTRODUCTION

Modelling of portfolio returns in order to improve the performance of the trading system draws attention of many portfolio managers and researches. One of the crucial steps in the process of construction (and testing) of the most suitable models to characterize the time series is to determine which variables affects trading system performance. Many approaches for solving the suggested econometric problem exist: researching the influence of the measures capturing the behaviour of other subjects (attention or sentiment of investor, other asset prices etc.) or the asset itself (price, volume etc.).

The goal of this contribution is to evaluate the impact of asset price behaviour on the profitability of the momentum-based trading strategy not directly but via trading system yield curve analysis created with events (trades) As suitable characteristics of time series dynamics statistical moments and long-memory and fractality measures are chosen.

2   MATERIAL AND METHODS

The data used for the analysis contain the daily price evolution and investment profits of a momentum-based trading system for three commodity futures contracts: Light Crude Oil, Natural Gas and Gold. The dataset covers the period from 1st January 2010 to 31st August 2018 for assets listed on NYMEX and COMEX exchange. The position is held until a specified profit-target or stop-loss is reached, with the expected risk-reward ratio of 2:1.

Moments of asset price returns (in particular the variance, skewness and kurtosis) exhibit predictive power with respect to the future asset price returns (see Amaya et al., 2015). There are

several possible ways of how the moments can be estimated, e.g moving average estimates (simplest case of moving window with no weighting are used), ARCH/GARCH model-based estimates (Bollerslev, 1986; Brooks et al., 2005; Harvey and Siddique, 1999; León et al., 2005), realized estimates computed from high-frequency returns (Amaya et al., 2015) or implied estimates from option prices. The moments (and derived statistics) used in the analysis are measures of: trend and its strength (mean, t-statistic), variability (standard deviation, variance), asymmetry (skewness) and fatness (kurtosis) of the tails of the returns distribution, normalized (au-

tocorrelation) and non-normalized (autocovariance) measure of linear dependency between returns.

In order to capture long-range dependencies as well as possible non-linear dependencies in the time series, the following measures were used (for more details about the measures, as well as its application to commodity futures time series see Krištoufek and Vošvrda, 2014): Hurst exponent, order of fractional integration, fractal dimension, approximate entropy.

Regression was then computed between the values of the statistic in a window comprising of N days preceding the trade (independent variable), and the profit of the trade (dependent variable). In order to better capture non-linear relationships between the predictors and the profitability of the model, the values of each statistic were also divided into deciles and Chi-Squared test was computed to evaluate whether the probability of successful trade (i.e. profit >0) is significantly different for different values of the explanatory variable. All of the statistics were computed from the log-returns (for the moments) or from the logarithmized time series (for the long-memory and fractality measures).

3 RESULTS

For simulated long time series (10,000 periods) all of the measures of long-memory and fractal behaviour provided reasonably accurate results. In practice, this analysis needs to apply the estimators to far shorter time series – a simulation study showed that most of the methods became very inaccurate when the sample size decreased. The regression results showed that multiple statistically significant relationships (linear as well as non-linear) were identified, up to the 0.1–0.01% confidence levels. While the p-values are certainly elevated, due to the effect of multiple testing, some of the relationships seem strong enough.

4 CONCLUSIONS

The results can be used in a preliminary scoring model, which could then be used as a benchmark for the more advanced models like regime-switching models for definition of regimes characterizing the analysed time series. In the next analysis we will focus on multivariate scoring model construction to design filter above trading system which will decrease number of unsuccessful trades. Multivariate scoring model will be constructed for each of the three commodities based on regressors obtained in this analysis. In order to avoid the bias due to model overfitting, the model will be developed using: a) in-sample period (the first 150 trades) with the rest of dataset used as out-of-sample; b) 10-fold cross-validation. This multivariate scoring model will be estimated with Elastic Net Regression. As a measure to evaluate predictive power of the model, Accuracy Ratio (Gini coefficient) will be used, measuring the ability of the predicted probability of success to discriminate between successful and unsuccessful trades.

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IMPACT OF TRANSFORMATIONAL LEADERSHIP ON EMPLOYEES AND COMPANY PERFORMANCE

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KEY WORDS

leadership, motivation, transformational, transactional

JEL CODES

D23, L14, M14

1   INTRODUCTION

Transformational leadership is defined as a leadership approach that causes change in individuals and socialsystems. In its ideal form, it creates valuable and positive change in the followers with the end goal of developing followers into leaders. Enacted in its authentic form, transformational leadership enhances the motivation, moraleand performance of followers through a variety of mechanisms. These include connecting the follower's sense of identity and self to the mission and the collective identity of the organization; being a role model for followers that inspires them; challenging followers to take greater ownership for their work, and understanding the strengths and weaknesses of followers, so the leader can align followers with tasks that optimize their performance. The role of a leader is crucial and important for the progress of an organization in order to achieve organizations objectives and develop value and create a vision. A leader is able to create a culture, which plays a very important role in developing the leadership style to make a company more successful and effective. About one-third of employees are actively engaged, according to a recent Gallup poll (Source Gallup Index 2018). The poll found that nearly 49% are disengaged while 18% are actively disengaged. Most implementation of transformational leadership failed and we need to investigate "why".

2   MATERIAL AND METHODS

After reviewing the literature, an investigation was conducted with the goal to get a better understanding about Company Culuture, Engagement, Leadership, Goals & Strategy, Organizational Efficiency, Work Environment and Development Opportunities. In addition to the initial literature review, one method used to collect data for this dissertation will be personal interviews with experts, mainly C-level and Human Resource, using a standarized questionnaire in order to facilitate comperability of responses and to have the possibility to ask questions during the interview processes. To address the complexity of the topic, this dissertation is based on the concept of transformational leadership started with James V. Downton in 1973 and was expanded by James Burns in 1978. In 1985, researcher Bernard M. Bass further expanded the concept to include ways for measuring the success of transformational leadership. This model encourages leaders to demonstrate authentic, strong leadership with the idea that employees will be inspired to follow suit.

3 RESULTS

The literature review facilitated initial findings to relevant goals and challenges for a successful implementation of transformational leaderships into matrix organizations. Indeed, there is a significant relationship between transformational leadership and Company performance. The main objective of this study is to explore and find the effect of Transformational Leadership on Employee motivation and the positive outcome on organizational performance. The concept of Transformational leadership was initially introduced by James V. Downton, the first to coin the term "Transformational leadership", a concept further developed by leadership expert, James Mac-Gregor Burns. According to Burns, transformational leadership can be seen when "leaders and followers make each other advance to a higher level of morality and motivation.

The results of this investigation will show that Transformational Leadership will have a positive outcome on employees' motivation and company performance, understanding the relationship between the leaders in international matrix organizations and identify goals, challenges and factors to avoid the "laissez-faire" style. This first survey was conducted using an online questionnaire from 6–27 March 2018 in 11 languages, Data collection through KANTAR TNS. The participants rate of return was 81%.

Only 37% of the participants said their engagement is low but 67% said they are proud to work for this company due to Leadership Culture. 83% are satisfied with the workplace.

4 CONCLUSIONS

In that sense, transformational leaders praise every well-done action of their followers right away. Therefore, the conclusion is that qualities of transformational leadership make the essence of transformational management and the key to successful management of transformational organizational changes. It also seems quite clear, Leadership principles are timeless, while the models that examine those principles may change. The transformational model offers one of many good ways to examine leadership and the type of leader, and follower, who are ideally suited for today's and tomorrow's strategic environment. In conclusion, the merits of transformational leadership should speak for themselves. In light of the ambiguous strategic environment, it would appear to be obvious that most large organizations require leaders and followers steeped in the same core values and energized to tackle the tough issues together. When transformational leaders are connected with their followers great things can happen. When leaders and led are on the same strategic page all their energy is focused to achieve maximum results with less oversight, because the leader has articulated the target goal so everyone understands the direction to move toward

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QUANTITATIVE DIAGNOSTICS IN TIMES OF SELF TRACKING, BIG DATA AND THE IMPORTANCE OF ETHIC RESPONSIBILITY

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KEY WORDS

big data, self tracking, quantitative diagnostic, ethics

JEL CODES

C8, O1, O3

1   INTRODUCTION

"Psychologists shall be aware of the specificity inherent in the role relationships between investigator and trial participants as well as of the responsibility that results from it. They shall make sure that neither dignity nor integrity of the participating individuals are affected by the research. They shall take appropriate measures to ensure safety and welfare of the persons participating in the research and they shall try to avoid risks [...]" (DGB and BDP, 2014). This paragraph is taken from the ethical guidelines of the German Psychological Society (Deutsche Gesellschaft für Psychologie e.V.) and the Professional Association of German Psychologists (Berufsverband Deutscher Psychologinnen und Psychologen e.V.) and it shows the high level of ethical responsibility that goes hand in hand with research in the area of psychology. Special attention is devoted to the quantitative psychological diagnostics, which, in this term paper, will be assessed in terms of advantages, disadvantages, opportunities, limitations and risks associated with big Data with a special focus on smart health and self tracking.

2   MATERIAL AND METHODS

Each of us is a producer and user of big data, whether professional or private, consciously or unconsciously. By 2020, there will be over 50 billion electronic devices connected to the Internet that generate data (Klein, Dominik, Phuoc Tran-Gia, and Matthias Hartmann, 2013).

Whether fitness, health, lifestyle apps, sports or medical apps all have in common that they electronically capture their users' body data. Beside it, the full life is is in a tracking modus (Koch, 2019). The Authors Tamar Sharon and Dorien Zandbergen write: "self-tracking as a practice of mindfulness, as a means of resistance against social norms, and as a communicative and narrative aid. In light of this active engagement with data, we suggest that it makes more sense to view these practitioners as 'quantifying selves'." The authors are sure: with the emergence of wearable and mobile activity trackers, biosensors and personal analytics apps, algorithmic processes have an increasingly powerful part to play in how people learn about their bodies and health.

About the importance of research ethics, data protection and personality protection in social and behavioral sciences has writen Eckard Kämper a working Paper in 2016.

Dominic Gross and Mathias Schmidt from University Hospital RWTH Aachen discuss the effects of the digitalization of the healthcare market on patients and health workers and then reconsiders the potential, framework, and instruments of ethical evaluation from a theoretical and application-oriented point of view. As part of this term paper there is a qualitative content analysis (Mayring 1983; 7th edition 2000) about more previous authors, who wrote positive and negative aspects about the topic. To keep the procedure inter-subjectively comprehensible, there will be used a qualitative content analysis. Following this criterion the material is worked through and the important categories are tentative and step by step deduced and checked in respect to their reliability. Quantitative aspects has been analyzed as well.

3   RESULTS

Although the example of Internet users shows that the quantitative diagnostics creates highly customized search profiles, they were created by matching the data with those of millions of other users and their Internet behaviour. Here, limitations of quantitative psychological diagnostics and, of course, those of the Internet technology become apparent.

The measurement of the individual Internet behaviour, search and shopping habits as well as creating personal patterns of movement thanks to tracking cell phone data and self-tracking by apps and watches allows for creating online profiles of individuals.

Yet, these say nothing about the intrinsic motivation or about the temporal, spatial, social and emotional context factors or the actual reasons for making certain decisions.

A problem that is found in personality tests based on quantitative psychological diagnostics as well. The high degree of standardization leaves very little room for interpretation, under what circumstances the statistical data was actually collected. It is in a very limited way that the complex behaviour can be derived from or predicted based on catalogued personal qualities.

4   CONCLUSIONS

In addition to many opportunities, the internet and the digital interconnectedness around the world come with great risks threatening the freedom of the individual. The above mentioned surveying of people is only possible with the help of numerous psychological methods and statistics, combined with more sophisticated IT technology and Big Data. Instead, the surveyed human is becoming transparent and psychology is used as an important "weapon" in this context, making eventual benefits more attractive. Data of patients and test persons are made available and evaluated by psychologists. For the future, the psychologists are called to protect their ethics principles. The relationship between research ethics and Data protection offers another conclusion (Kämper, 2016).

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ESTIMATING THE IMPACT OF DROUGHT ON AGRICULTURAL PRODUCTION IN THE CZECH REPUBLIC

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KEY WORDS

panel data, drought, fixed effects model, random effects model

JEL CODES

C23, C51, C12

1   INTRODUCTION

In recent years the Czech Republic has undergone several drought waves (Hanel and Rakovec, 2018). Drought has a severe effect on the agricultural economic sector and of course, the environment itself (Iglesias et al., 2019). This effect is especially crucial for the yields of rainfed crops such as cereals, leguminous crops and oil seeds as the agricultural sector is very susceptible to climate changes. To assess the impact of droughts on agricultural production, this contribution utilises panel data analysis with data from more than 200 subjects during the years 2014–2017. Various indices measuring drought are assumed, including the Standardized Precipitation Index (SPI), Standardized Precipitation Evapotranspiration Index (SPEI) and Palmer Drought Severity Index (PDSI). This contribution aims to evaluate the effect and find an appropriate index to measure drought in the context of agricultural production.

2   MATERIAL AND METHODS

Although the term drought is frequently used in hydrology, climatology and metrology, itself has no unified definition. Generally, it refers to climatically caused precipitation and temperature anomalies leading to water deficit in the atmosphere, which is propagated to soil and plants (Vicente-Serrano et al., 2009). Drought can be characterised from many perspectives, due to the variety of factors causing it and the consequences that follow. Furthermore, it is difficult to determine their onset, extent and end. Thus, it is challenging to find one universal objective measurement of drought. The widely used and recommended indices are SPI, SPEI and PDSI. SPI is computed as adjustment of precipitation series by incomplete gamma distribution to a normal distribution with zero mean and variance equal to 1.

SPEI follows a similar concept as SPI but introduces the effects of atmospheric evaporation. Computation of PDSI is based on ration between the surface moisture and the atmospheric demand. Panel data analysis that enables to follow the behaviour of entities across time is used to estimate the impact of drought. The model explains the dependent variable by regressors and individual time-invariant effects containing intercept and set of individual variables. If individual effects are observed, the model can be estimated by ordinary least squares. However, in most cases these effects are unobserved, and the model needs to be estimated by other methods (Croissant et al., 2008). If the unobserved individual variables are correlated with regressors, then the difference across groups can be captured in differences in the

constant term, and unobserved effects can be treated as unknown parameters and model can be estimated as fixed effects model. When unobserved individual effects are uncorrelated with regressors, then they can be assumed as random elements similarly to error term, and the random effect model can be estimated.

To decide whether usage of random effect or fixed effect model is more appropriate Hausman test can be used. The analysis was done in R with packages `car` and `plm` (Croissant et al., 2008).

Economic data for agricultural holdings were obtained from Albertina database collected by Bisnode.

Production is represented by the sales of their products and services in a particular year. In order to remove the impact of price change, the sales have been deflated by the price index of agricultural producers. Information about the acreage of land was collected with web scrapping from the LPIS. Climate data used to calculate drought indices were provided by T. G. M. Water Research Institute. SPI, SPEI and PDSI were calculated for months of 2014–2017 and each of 1135 basins. Each parcel has been assigned to the corresponding basin and for each producer drought index have been recalculated.

3   RESULTS

Production has been modelled as a function of labour represented by the number of employees, tangible long-term assets, acreage of farmland and drought index for months from sowing to harvest. The model has been estimated as a pooled model by ordinary least squares, as a fixed effect model and as a random effects model for each of the indices separately. The pooled model has been compared by F-test with fixed model and Breusch-Pagan LM test with random effects. For all models, both random and

fixed effects model are preferable compared with the pooled model. To assess whether fixed or random effects are more appropriate, the Hausman test was used. For p-value below .05 level, the null hypothesis can be rejected, and the fixed effect model is preferred over the random effects model. With 95% confidence, a one-point increase in drought measured by SPEI in May and June has an impact ranging from -0.38% to -4.7% and from -1.2% to -8.99%, respectively.

4   CONCLUSIONS

The frequency and intensity of extreme weather are increasing with changes in the global climate. Similar can be expected for the occurrence and severity of drought in the Czech Republic. This contribution proposes an alternative for estimating the impact of drought based on panel data analysis, where production is represented as sales of their products and services. This estimate itself can be used for forecasting and comparison with self-reported impacts. From

the comparison of drought indices, SPEI explains the highest portion of variability and reflects the effect of drought on yields form crops; this result is in line with findings of Peña-Gallardo et al. (2019). On the other hand, SPI in model with economic factors explaining production does not improve the explanatory power of the model and therefore is not reliable index for measuring the impact of drought on Czech production of cereals, leguminous crops and oil seeds.

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TOWARDS A NEW PARADIGM OF PROGRESS: GENERATING A CULTURE OF CREATIVITY AND INNOVATION AS A RESPONSE TO THE DIGITAL DEVELOPMENT IN THE BANKING SECTOR

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KEY WORDS

banking, corporate culture, innovation, generation Y, digital revolution

JEL CODES

G21, O30

1 INTRODUCTION

Since the early days of the Industrial Revolution production, services and trade have been determined by constant transformation. Fordism which had created modern production methods has been succeeded by Post-Fordism introducing automation and leading to digitalization. Typical for the postmodern society is the deconstruction of traditional structures and thought patterns. The multitude of different perspectives and interpretations results in a 'multiple options society' that presents enterprises with the challenge of 'agile' performance. Which means that they not only have to get through constant change successfully, but also to actively conduct it. As research has shown, a levelling-out of hierarchies and additional freedom of choice for the staff will support a company's agility. Thus evolutionary forms of organisation and an innovative corporate culture appear to hold the answer to the challenges of a globalized and digitalized world; and all the more so, since the members of 'Generation Y' have entered the corporate world as consumers and workers, and have begun to change according to their needs, transferring the perspectives of 'Digital Natives' to their environment.

The goal of this article is to discuss how far creativity and innovation principally can be seen as an answer of the banking sector to the challenges of today's changing economy and society, and those of (the predictable) future, to arrive at ideas for the implementation of a corporate culture based on these principles.

2 MATERIAL AND METHODS

The article explores the possibilities and opportunities of a paradigm shift in the banking sector, from traditional forms of strategic goals, organisational forms and procedures, products and services, to a more agile approach in line with the basic ideas of 'new economy' and the demands of the forthcoming generation, as an answer to the economic and social challenges of the Digital Age.

The text presents a discussion of different models for organisational developments, as well as an analysis of the current situation of the banking sector. Based on the classic SWOT-analysis it performs an assessment of the benefits and possible imponderables linked to the implementation of a new innovation-orientated corporate culture, taking in account all forms of material and intangible resources and cost factors.

3   RESULTS

With the rise of the tech-savvy 'Digital Natives' of 'Generation Y' for the first time ever, the paradigms of economic progress are no longer sculpted according to the idea of moulding the workforce into the most suitable form to most efficiently and effectively manufacture products and shape services for customers, whose demands can either be understood quite simply or stimulated in a similarly easy way. The members of 'Generation Y' are representatives and bearers of technological (and therefore also economic) progress. In both their roles as consumers and employees they demand attention and expect individual solutions, thus creating a form of progress that matches their view on the world. To ignore them as consumers means to leave the future to more sensitive and clever competitors; to ignore their special abilities, their knowledge and skills, but also their specific needs as employees, means to lose a chance to adjust to a new paradigm of progress and to secure sustainable economic success. In view of these facts, the general challenge for the banking sector is a re-invention of financial services and products, based on and supported by, the expertise of 'Generation Y'.

4   CONCLUSIONS

The most promising way to achieve a re-invention in the banking sector that will guarantee sustainable success under current market conditions is a major cultural change towards an agile and creative system, and the implementation of an innovative culture which enables banks to manage the change of generations by turning it into a major strategic goal, thus offering a chance for all employees (regardless of their age) to exchange experience and knowledge, to learn from each other and with each other, and to allow them to use their imagination for the benefit of both the banks and their customers.

THE COMPLEXITY OF THE CULTIVATION OF MEDICINAL PLANTS IN GERMAN AGRICULTURE AS A RISK FOR MANUFACTURERS OF HOMEOPOMATIC PRODUCTS

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KEY WORDS

medicinal plant cultivation, homeopathy, value chain, diversification, SWOT, PESTEL analysis

1   INTRODUCTION

This article examines the situation of manufacturers of homeopathic products in therightto grow Medicinal plants in the Federal Republic of Germany. On the one hand, with regard to the significant dependence on imports of enterprises, on the other hand with regard to the complexity of the cultivation itself.

This results in risks in thesupply chain, as it requires theimport of medicinalplants to Germany by tightening and supplementing the EU directives from 2020 onwards, will decline in the future. This requires fundamental strategic, logistical and financial decisions regarding value chain.

The complexity of the cultivation of medicinal plants and their framework conditions and requirements also entails a time risk for producers.

The article introduces a SWOT analysis, which decision-making basis and recommends upstream vertical diversification.

2   MATERIAL AND METHODS

The methodological approach is based on the analysis of secondary data. Libraries and journals were taken specifically from the OTC market and the various cultivation companies and the University of Bonn. Other sources were the Statisticsand the BAH, the Federal Association of German Pharmaceutical Manufacturers as well as the FAH and the specialist books for medicinal and spice plant cultivation in Germany (Hoppe, 2017).

A large number of secondary data come from the agricultural offices of the Federal Republic of Germany and Bavaria. The cultivation situation in Germany is sketched by a PESTEL analysis and supplemented with a short SWOT presentation.

3   RESULTS

The imminent extension of the legal requirements for the production of herbal medicinal products through clinical research results will subsequently increase the need for domestic growers, as they meet the required "golden Standard" (quality level).

The domestic cultivation of medicinal plants currently covers only 10% of ownconsumption and urgently needs further growers (FaH, 2014, 2015), as theneed, caused, among other things, by demographic change, for years continuously increases.

The complexity of the cultivation of medicinal pfanzen in Germany is due to the cultivation modalities on the one hand, such as the regulatory changeover period of at least two years and, secondly, by the required Quality standard on the part of the EU directives from 2020 and the even stricter requirements of the Federal Republic of Germany. This requires producers of homeopathic products to make strategic decisions regarding their dependence on imports.

4   CONCLUSIONS

Due to the high complexity of medicinal crop cultivation and the urgent need for growers in Germany, the company's own medicinal crop cultivation should be reviewed in principle. The new EU 2020 directives will restrict imports for the next few years, possibly removing some importing countries from the supply chain. The PE burden and quality standards resulting from the extended internal consensus will also weigh on various EU suppliers. The former climatic limitations on the cultivation of medicinal plants in Germany no longer constitute an obstacle to a new technological cultivation of medicinal herbs.

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DEFERRED TAX MATERIALITY ANALYSIS IN INDUSTRY

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KEY WORDS

deferred tax category, international accouting standards IAS/IFRS, Frankfurt stock exchange

1 INTRODUCTION

The paper is focused on materiality of deferred tax category for decision making of external users of financial statements. The materiality of deferred tax category is evaluated on the sample of companies making business in industry and preparing their financial statements in according with international financial standards IAS/IFRS. Companies were chosen by Frankfurt stock Exchange clasification. The reporting period covers years 2005 up to 2016. Results of this paper has been compared with previous studies carried on this topic.

2 MATERIAL AND METHODS

The aim of the research is to prove if the deferred tax category is significant item in financial statements. The assessment of significance deferred tax category is important for the influence of earnings management on financial position of companies.

Materiality calculation is based on below formula stated by Norwegian council:

- -5% income before tax,
- -0.5% total assets,
- -1% ekvity or
- -0.5% gross revenues.

For deferred tax materiality has been used 0.5% of total assets. The results has been compared with previous studies carried out on this topic (Habanec, 2016; Habanec and Bohušová, 2017; Habanec, 2018). Deferred tax materiality is calculated by below stated formula:

$$\text{DT Materiality} = \text{Total assets} \cdot 0.05$$

3   RESULTS AND CONCLUSIONS

The data sample consists of 876 observations. Deferred tax category is significant item of financial statemts for decision making of external users of financial statements.

HIDDEN OPPORTUNITIES BUT URGENT PROBLEMS: THE ECONOMIC POTENTIAL OF THE VISEGRAD COOPERATION AND FUND

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KEY WORDS

Visegrad cooperation, V4 countries, International Visegrad Fund, BIOEAST, V4 Smart Platform, competitiveness, Horizon 2020.

JEL CODES

A, Q, O

1   INTRODUCTION

The Visegrad Group, which was founded in 1991, has evolved over the last eighteen years with Europe itself. However, in recent years we have witnessed how the four countries have tightened their economic and political ties with each other. The research focuses on the question, how the Cooperation as a young integration can respond to the common economic challenges affecting each countries. In related to this problem I will analyse two important V4 initiatives: BIOEAST and V4 Smart Platform.

In the second part of the paper I describe the structure of the International Visegrad Fund, emphasizing its pros and cons. At the end of the paper the readers can find my proposals and suggestions for a better and more effective use of the grants within the current framework.

2   MATERIAL AND METHODS

Since the chosen topic is a constantly changing and emerging field, the research was mostly based on the analysis of written primary sources, particularly the joint statements issued by the four countries and official documentation of the respective projects.

First, I studied the political nature and economic relations of the four countries. In the Hungarian literature it is definitely worth mentioning the name of Ferenc Boros, Pál Dunay and Judit Hamberger. They are all respected researchers of the Central European region and the V4 Group. As for the international literature I relied on the work of Juraj Marušiak, Jan Pastwa, Katarina Pevná and Vít Dostál.

After positioning the Group, I reviewed the statements and presidency programmes of the Visegrad countries in recent years, looking for current, innovation-driven collaborations with important significance and well-planned roadmap. I found two recently launched projects with different themes but similar importance. These are the BIOEAST and V4 Smart Platform initiatives, which I chose to review in this study, see Joint Declaration (2019).

Since the V4 Fund as a budget of V4 projects is a less researched area of the Visegrad Cooperation,

I decided to examine the operation of the Fund, the budget structure and funded projects. I studied this segment in the light of the fact, that after studying the nature of the Cooperation, it has become clear that the Fund is not used properly to support priority projects within the four countries. Recognizing this fact has motivated me to do research into the question of why these funds really exist and how they support the cooperation between the countries if that is the planned reason behind them, see Nováková et al. (2015).

Considering that the study deals with economic issues but does not operate with the usual quantitative data sets of economics, I'd position the paper on the field of economic policy, international relations and management sciences.

3   RESULTS

BIOEAST aims at developing the technical background of organic farming and bioeconomic cooperation in the region. Currently it is only operating as a consultation platform for the parties, and there is no information on a possible launch of a common pilot project. BIOEAST strongly connects to the Horizon 2020 program of the EU. Therefore, my conclusion is that the driving element of the project is the possibility for the participating countries to use the EU funds to finance research and development projects in the future.

The V4 Smart Platform project would create a digital, service-based platform between the V4 countries, which would support businesses, trade management and tourism, see V4 Smart Platform (2019). However, the project has not moved forward since last summer, which suggests the conclusion that – compared to the BIOEAST initiative – V4 countries usually target the most important challenges, though due to the often contradictory relations between the countries, implementation is more likely to be delayed, see Dostál and Végh (2017).

As far as the International Visegrad Fund is concerned the research has concluded the Fund is more about providing financial support for project-based events than fostering innovative ideas at an early stage. The Fund supports many civil society events, however I strongly miss special grants to technically and financially support the learning of Czech, Polish, Hungarian and Slovak language among youngsters. On the other hand, it would be a massive contribution to professionalism if the Fund provided not only financial resources but also an expertise background.

4   CONCLUSIONS

In conclusion, the four countries are well aware of the challenges of their future, the main problem of their current responses is that most of the ideas remain on paper. V4 has to decide whether they are willing to invest adequate resources and political will behind relevant projects or they want to develop their own solutions to our common future's problems.

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BASIC CONVERSATION ELEMENTS OF MODERN ASSISTANT

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KEY WORDS

chatbot, Rasa, conversational UX, design

1 INTRODUCTION

Chatbot or personal assistant usually means the concept of mimicking interaction with real people through the conversational user interface (UI; see Jakúbek, 2019). Although the technology itself is not new, it has only affected the evolution of the UI in the last decade. Nowadays there is no big problem to create an utterance producing system, but to design and build a robot with general conversational capability is still a very challenging task (Jakúbek, 2019). Research has shown that people respond to technology as they would to another human (Google.com, 2018). This means users rely on their existing model of human-to-human conversation (Google.com, 2018). This is main reason why many disciplines related to human conversation arise. One of them is conversational user experience (CUX) also called as conversational design. Its role is to create meaningful dialogues based on formal knowledge of human conversation. Therefore, in addition to linguistics, they must be based on social sciences such as psychology and sociology (Moore et al., 2018).

Conversational logic can be modelled as a set of maxims, known as Grice's maxims (rules), see

Google.com (2018). They are the foundations of the so-called Cooperative Principle, which describes how people achieve effective conversational communication in common social situations (Grice, 1975): Maxim of quantity – where one tries to be as informative as one possibly can, and gives as much information as is needed, and no more. Maxim of quality – where one tries to be truthful, and does not give information that is false or that is not supported by evidence. Maxim of relation – where one tries to be relevant and says things that are pertinent to the discussion. Maxim of manner – when one tries to be as clear, as brief, and as orderly as one can in what one says, and where one avoids obscurity and ambiguity.

This brief abstract demonstrates a few conversational elements according to Cooperative Principle on the example of a chatbot created for the event called "Noc vědců 2019", which was recently held at Mendel University. Chatbot served as a guide when choosing a new mobile phone. To be precise, it was built using an open-source machine learning framework Rasa (`https://rasa.com/`), which provides tools for build, improve a and deploy chatbots.

2 MATERIAL AND METHODS

Chatbot quite commonly encounters a situation that when it asks for information from a user, he does not always supply it. For example, the user might refuse to provide this information, he might correct something he said earlier, or interrupt with chitchat (small talk). To handle these edge cases, we have to apply first concept called unhappy paths (Rasa.com, 2019). When asked "Can the phone be older than 2 years?", the user is free to type "How

are you?" and leaves the happy path with totally irrelevant utterance. He may also ask question "Why do you need to know that?", which is not exactly uncooperative user behaviour, but also deviates from happy path. Thirdly, user may also request the termination of the current process, for example, by the phrase "I do not want to continue doing so". It is very important that chatbot can respond to

these three situations correctly and in different ways depending on the user's intent.

As in human-to-human communication, so in human-to-computer communication one party may not understand. When chatbot can't understand or interpret the user's response in context, fallback actions are fired. TwoStageFallbackPolicy is used for that purposes in Rasa framework. This policy handles low understanding confidence in multiple stages by trying to disambiguate the user input (Rasa.com, 2019). The Cooperative Principle suggests to quickly collect information again or in another way and do not repeat the original prompt verbatim (Google.com, 2018). For example, if user is prompted to select between feature "price" and "camera" and he responds with "money is everything", then it is not recommended to over-explain the error: "Sorry, I didn't catch that. Please select your preferred feature between price and camera." Instead, it is appropriate to succinctly reiterate the question: "What feature was it?". If the chatbot does not understand for the second time, it is not advisable to make vague promises like "I'm always learning" or recommend to try it again later (Google.com, 2018).

Utterance "This seems beyond my expertise, so let's stop here. Goodbye" is more preferred.

Saying too much in conversation is as uncooperative as saying too little (Grice, 1975; Google.com, 2018). When chatbot finds phones that may fit the user, it's not a good idea to list them all: "OK, I found for you: Huawei P20 Lite, Apple iPhone 6s, Microsoft Lumia 640, Apple iPhone SE, Apple iPhone 7…". It is always better not to go into heavy-handed details that are not required in this step, but rather keep turns brief and relevant from the user's point of view: "OK, I found Huawei, Apple and Microsoft. What brand of phone do you prefer?".

There are also certain language style prerequisites. For example, according to style guide is always better to focus on the user and don't place unnecessary focus on chatbot. Instead of "I noticed your preferences" it is recommended for chatbot to utter "your preferences were saved". Cooperative conversation should be also friendly and informal to a reasonable degree. Responses like "please select the phone features that are important to you" sound overly formal manner (Google.com, 2018).

3   RESULTS AND CONCLUSIONS

This abstract, as well as most other user experience articles, has no concrete outcome. Rather, it is about designing and applying certain formal knowledge of human conversation in human-to-computer dialogues. In this case, it was a chatbot for "Noc vědců". Even though the resulting chatbot was in a very experimental version, it could advise visitors what phone to buy according to their own preferences (often the same as in their pocket). Chatbot could be partially controlled by voice, which made the conversation more realistic and unfortunately in this case less functioning. This is because visual solutions that have been developed for graphical (visual) user interfaces (buttons, menus, chips, …) do not work in conversational ones, especially if they are based on

voice input (Moore et al., 2018). This article lists just a few conversational elements that were used. But in a real conversation, you need to focus on many more.

Computer interactions should not feel awkward or break habits that have evolved over the past 100,000 years (Google.com, 2018). Instead, computers should adapt to human-to-human communication. However, this is not entirely possible at present because chatbots and various types of assistants are still quite misleading creatures. Just as formal knowledge of visual design meant a revolution in the design of graphical user interfaces, formal knowledge of human conversation can revolutionize the design of conversations and their interfaces (Moore et al., 2018).

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DETERMINANTS OF MOBILE CELLULAR SYSTEM ADOPTION (READINESS FOR NEXT 5G NETWORK)

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KEY WORDS

mobile Internet coverage, broadband adoption, economic determinants, fifth generation cellular system

JEL CODES

O11, O31, C01

1   INTRODUCTION

Debate about the fifth generation of cellular infrastructure (5G) became a hot topic in the last years. 5G infrastructure has become a key battleground in a broader struggle for control over industries of the future. According to Voelsen et al. (2019) Europe needs to develop a strategy to not only guide it through the current 5G debate, but also the tech rivalries that are still to come. As the World Economic Forum (2019) summarizes, 5G will have an enormous impact economic power through digital transformation. It will become the differentiator fostering new innovations with its ability to deliver unprecedented p roductivity gains, while pioneering new distribution and consumption models. Many researchers and experts in the field share the opinion that the next-to-come 5G will be a strong boost for the IoT deployment based on the device-to-device communication (Militano et al., 2015; Akpakwu et al., 2017). In our work in progress aims to analyse potential drivers of adoption of previous generations of mobile cellular systems, for better prediction about future leaders in 5G.

2   MATERIAL AND METHODS

Significant proportion of economy tasks already depend on an access to the mobile cellular systems or in other words on the mobile internet network. We distinguish 3 categories of mobile cellular systems according to International Telecommunication Union (ITU). Basic means of mobile internet started to be adopted by national authorities in 1996 with culmination around 13 years later (nonzero coverage reported in 200 countries). Penetration of the third generation of cellular system (3G) peaked in 2013, what was 9 years after the first country adopted it. So far, the last 4G mobile internet network penetration reached its peak in just 6 years since its start in 2010. The time span for adoption of higher quality generation of mobile network has truncated and our analysis aims to answer the question: what are its technological leadership determinants?

Our analysis is inspired by previous work by Rogers (2003) and Lin and Wu (2013). We use actual data about the internet bandwidth from ITU database (2018) to cover basic, 3G and 4G cellular systems country coverage. We supplement these data

with economic level indicator in the form of GDPpc in PPP, tertiary education enrolment information and we control for population density as well as for concentration of population in urban areas. We test hypothesis that it is an advantage for countries with higher concentration of its citizens to cover them by next generation of cellular system.

We start the analysis with the most recent cross-sectional data for 158 countries in 2017. We use this dataset to test more types of basic models. Firstly, we check the significance of population density, share of urban population and its common effect on the broadband adoption. Later, we analyse role of the tertial education enrolment as proxy for digital skills or internet usage. We also verify if the relationship between the last 4G generation adoption and economic level represented by GDPpc in PPP has different than linear shape. Then, we use level of basic means of mobile internet as an explanatory variable for 4G network adoption. We try to cope this way with the natural endogeneity in the model between GDPpc and quality of the internet. Finally, we know the history of 3 levels of cellular system among 158 countries in last, let say, 20 years (just few territories had mobile internet before 1996). The next step to get rid of endogeneity from our model is preliminary results from recently created panel data.

3 RESULTS

First results from simple multivariate regression models refer that nor population density neither share of urban population has significant impact on 2017 level of mobile cellular system coverage. On the other hand, as we would intuitively expect, tertiary education enrolment as well as GDPpc have significant positive influence on the quality of mobile internet adoption. These 2 variables act as strong determinants even if we control for the spread of basic means of mobile internet. Later, we prove that the effect of economic development is not linear, but rather concave. Adoption of 4G mobile internet is higher with increasing GDPpc, but its effect diminishes gradually. We expect more interesting findings from results of panel data with country fixed effects which are to explain more from the model endogeneity.

4 CONCLUSIONS

It is obvious that more developed countries with higher educated population demands better quality and coverage of mobile cellular systems. Later we proved the nonlinearity of this hypothesis. It was quite surprising for us that physical concentration of population does not play any role in coverage by different generations of internet, but we are looking forward to introduce panel data analysis soon.

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SUCCESS FACTOR FUNCTIONAL FAMILIARITY

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KEY WORDS

functional familiarity, trust, organizational trust, company performance

JEL CODES

M14, L2

1 INTRODUCTION

This paper deals with the components of functional familiarity (board size, board origin, long-term incentive plans, board fluctuation and research and development expenditure) as the determinants of firm success expressed by the share price.

For decades, empirical studies on the topics of trust and organizational trust have been an integral part of scientific discourse in various research disciplines such as economics and psychology. On the basis of the database "Business Source Premier", an increasing scientific interest in trust as well as in organizational trust can be observed. The number of scientific articles on "Organizational Trust" was about 1,100 in 1990 and increased to about 20,000 scientific articles per year by 2017 (Business Source Premier, 2019). In the current literature, empirical studies can be found which prove that intimate trust has a positive effect on the performance of the team (De Jong et al., 2016).

2 MATERIAL AND METHODS

At the beginning of the work, the model "Functional Familiarity" is to be explored. A literature analysis is carried out based on various databases, e.g. "Business Source Premier", "Web of Science" and others. Through the literature analysis, the term is defined and the success factors for functional familiarity are identified. Thus, the underlying variable model can be formed, and hypotheses can be derived.

3 RESULTS

The search in the database "Business Source Premier" and "Web of Science" currently does not yield any results for the term "Functional Familiarity". Moreover, no studies can be found that investigate how the components of Functional Familiarity affect the company performance over a longer period of time, measured against the share price.

One of the few findings in literature equates Functional Familiarity with a sense of community. Here, trust, solidarity, interaction and common expectations of action are mentioned as the basis.

In order to approach the concept of Functional Familiarity, it makes sense to first define the concept of trust. Numerous definitions of this term can be

found in the literature. Trust can serve as a link between one or more systems of an organization and offers the possibility of security within relationships. The antagonist of trust is always mistrust. The level of trust is also seen as a reflection of communication. In addition, non-verbal communication occupies a special position, as the source of errors is greatest here due to the great scope for interpretation.

In general, interpersonal trust and system trust within organizations can be derived from the definition of trust. System trust is conditioned by interpersonal trust, since without it there can be no trust within an organization. Trust thus acquires a functional character and becomes indispensable for the functioning of social systems.

Therefore, Functional Familiarity is to be understood as a functional trust among one another, which is directed towards the future and which is conditioned by the familiarity experienced in the past. The Functional Familiarity within a team is given if the common purpose is sustainable and the members of the board develop respect for each other over a certain period with reliability and constructive-critical openness.

Although Functional Familiarity is a new research construct, the variable model consists of already investigated variables related to performance. In this context, five relevant variables could be identified. The five independent variables which form the construct of Functional Familiarity are "board size" (Bennedsen et al., 2008), "diversity management" (Miller and Triana, 2009), "long-term incentive plan" (Tosi et al., 2000), "board fluctuation" (Renneboog, 2000) and "research and development costs". The dependent variable is the share price. The literature review underlined that past studies showed that each variable has a positive effect on the performance of the company.

4 CONCLUSIONS

Functional Familiarity should be a recommended action for equity investors and be used as a supporting evaluation tool prior to the investment decision. At the same time, it is also relevant for companies to reflect any decisions and future actions regarding the Management Board (Buffett, 2007). In this context the tool helps the company to be competitive and to increase its performance through the various variables. For further investigation it is important to investigate this issue for various countries and industries to have more empirical evidence.

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IT BEST PRACTICES AND STANDARDS FOR DIGITAL TRANSFORMATION MANAGEMENT PROCESSES IN THE ORGANIZATION

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KEY WORDS

IT management, IT best practices, digital transformation

JEL CODES

O32, O33

1 INTRODUCTION

In the last decades, the impact of IT technologies on the enterprise business processes is constantly increasing. Progressive penetration of digital technologies seems to be an objective and unavoidable process and it is one of the characteristics of the modern digital economy. All kind of modern information technologies, that enable creating, storing and processing the information, are becoming company's key success factor and a means to improve its management efficiency. In this context, it seems to be important to develop a model for identifying and managing IT best practices that might support the enterprise digital transformation and help to achieve the lasting competitive advantage. IT best practices are defined as the method of implementing IT services, managing IT services or managing IT project in order to improve them and at the same time being an effective benchmark to be used in the similar cases in the future and allowing the organization to achieve the best possible or above-average results (Karwińska and Wiktor, ?). The digital transformation is defined as the process of transforming the enterprise through the increasing the IT usage and penetration (Capgemini Consulting, 2011).

2 MATERIAL AND METHODS

The main objective of the research is to identify and analyse IT best practices and standards which may support the enterprise digital transformation and as next to refer them to the particular stages of this transformation (Schallmo et al., 2018). The effectiveness of the digital transformation will be measured by the project objectives achievement level (during the project duration) and by the level of the system failures (during the system post go-live functioning).

Research questions: [Q1] which IT best practices and standards are used for IT system implementation and functioning?, [Q2] how IT best practices and standards are used in the processes of digital transformation of the enterprise?, [Q3] how IT best practices and standards evolve and what are the potential future directions for their further development?, [Q4]

is it possible to develop a set of IT best practices and standards as a tool supporting and facilitating processes of managing digital transformation in the enterprise?

Research approach: qualitative (case studies as a leading method) and quantitative (statistical analysis for IT system incidents). The qualitative research will be conducted on the case studies base, which will enable deeper and more comprehensive analysis of the phenomenon in its real context (the enterprise) and allow to discover and to describe in details the relationship between its various elements (Yin, 1989) and its complexity (Orum, 2015), especially in the absence of real boundaries between the research subject and the context. The phenomenon complexity (IT management, IT best practice diversity and multiplicity) requires a high degree of the approach flexibility (Voss et al., 2002). Therefore the case study has been chosen as a major research method (to help capturing the digital transformation specifics, to understand better its uniqueness and to highlight the common features for further generalizations (Ebneyamini and Moghadam, 2018). On top of it the interviews and 1:1 meetings with the experts will be executed to evaluate the IT practices proposed for supporting the digital transformation. The quantitative research will be carried out on top of it (supporting method) in order to verify the model proposed and to make additional assumptions (based on IT system errors and incidents). This data will be subject to the statistical analysis.

Research process: Literature review → Preparing initial assumptions for the model → Selecting sample case studies (for IT system implementations) → Sample model → Extending the model by additional case studies → Reviewing IT project management methodologies → Mapping IT best practices vs. project stages → Analysing available IT service mgmt. frameworks → Transferring IT best practices to the selected framework → Initial model → Verification 1 (qualitative research based on case studies for IT system maintenance) → Model completed (incl. extensions & conclusions) → Verification 2 (experts validation) → Final model

Research scope: 10 cases for IT system implementation, 2 cases for IT system maintenance (based on 2 different IT service centres), IT incidents (ca. 10,000) .

3 RESULTS

List of IT best practices supporting digital transformation. Framework for how to use IT best practices to support the digital transformation. Recommendations for IT best practice management.

4 CONCLUSIONS

It is possible to identify a set of IT best practices that might support enterprise digital transformation, as well as it is possible to set up a framework how to use and implement it.

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THE EXCHANGE RATE AND THE U.S. INTERNATIONAL BOND MARKET

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KEY WORDS

asset pricing, exchange rate, international bond market

JEL CODES

G12, G15, G11

1 INTRODUCTION

The contribution of our research is to investigate the impact of the exchange rate on bond yields by examining this question with respect to one large developed country, the U.S. as one of the largest financial markets in the world. We apply the universal return decomposition of international arbitrage pricing theory (Solnik, 1983) for corporate bonds. Results tend to confirm that the exchange rate is an important factor for valuing bonds and its influence on bond yields. According to Gadanecz, Miyajima and Shu (2018) exchange rate depreciation directly impacts the expected future performance of foreign-based investors converted into their home currency, these investors were unable to roll over their exchange rate hedges and wanted to sell their bond holdings, the bond price decrease and yield to maturity would rise. In our paper, this applies to low-yield bonds during all maturities of corporate bonds. In case the high-yield bonds, we find the results accord with those of Hofmann, Shim and Shin (2017) for standard trade channel effects. Here an appreciation in the nominal effective exchange rate of the denomination currency of a bond has a negative effect on net exports and hence on growth, which in turn may drive up the credit risk of corporate bonds. If the risk of the bond increases so that the investors do not buy these bonds, then bond prices decrease and bond yield to maturity rises. In our paper, this applies to high-yield bond and corporate bond with long-term maturities.

2 MATERIAL AND METHODS

For our empirical analysis we investigate the influence of exchange rate on local currency corporate bond yields. Our monthly panel data set covers the period from January 2001 to December 2015. As discussed below, the forecasting variables are suggested by various pieces of empirical evidence and theoretical results in the literature. The bond yield is the yield to maturity. The risk of corporate bonds is calculated as the standard deviation of monthly of yield to maturity over the past twelve months. The macroeconomic fundamentals were often identified as a key factor for the evaluation of bonds. The nominal interest rate is measured as the first-order difference of the money market rate. Inflation is given as a percentage. Economic activity is measured as the first-order difference of employment, because employment is a factor measured with monthly frequency. The exchange rate (ER) is measured as

the first-order difference by the nominal effective exchange rate of currency in which the corporate bond was denominated. A positive value of ER represents an appreciation of the currency in which the bond was issued. We use a multi-factor model for valuation bonds. According to Armstrong (2011), international arbitrage pricing theory posits that factor loadings are affected by exchange rate. We use regression analysis as follows:

$$R_{it} = \alpha + \beta_b Y_{it} + \gamma \mathrm{ER}_{it} + \epsilon,$$

where R_{it} is the bond yield for the bond i in time t, α is a constant, Y_{it} is bond risk in time t for bond i, β is a coefficient defining the relationship between a bond risk and bond yield and ϵ is the error in the model, ER_{it} is the exchange rate of the currency in which the bond i was issued in time t and γ is the coefficient defining the relationship between the exchange rate and the bond yield.

3 CONCLUSIONS

We analyse the link between yield to maturity of corporate bonds and exchange rate. We contribute to the literature on bond yields' forecasting ability by showing that exchange rate is important factor for defined of yields on U.S. corporate bonds. We have explored the standard trade channel effects of currency appreciation which stand in contrast to the traditional Mundell-Fleming (Mundell, 1963; Fleming, 1962) analysis of currency appreciation operating through net exports. A key implication of this paper is that an appreciation of effective exchange rate is associated with a negative impact on net exports and economic growth, it increases

the credit risk of the company while the yield to maturity increases. An appreciation of the effective exchange rate has a positive effect on bond yield. This evidence is consistent with Hofmann, Shim and Shin (2017). We also show that the effect of exchange rate varies if the real bond yield is high and the time to maturity is long. In case of low real yield to maturity, the exchange rate has negative impact on bond yield during all maturities. This relationship is according foreign investors' expectations. The expected of investors is consistent with Gadanecz, Miyajima and Shu (2018).

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THE PERSPECTIVE OF THE LABOUR MARKET AND SOCIAL POLICIES AMONG THE EUROPEAN UNION MEMBER STATES

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1 INTRODUCTION

After the debt crisis, the member states of the European Union were aware of labour market issues and began to make proposals of new reforms of the labour market and EU social policy. In this context, it is necessary to mention two main problems of that time – low labour productivity and high unemployment rates among the member states. Cyrek and Fura (2018) basically defines labour productivity as the relationship between outputs and inputs.

Freeman (2008) adds an idea, that labour productivity is the relationship between production and the factors of production. In this context, success of the employment among the EU member states depends on the availability and quality of labour resources, capital accumulation and innovation (Auzina-Emsina, 2014; Ceccobelli et al., 2012; Kurt and Kurt, 2015).

The paper investigates the perspective of the social policies and its main challenges in context of the economic theories and labour productivity among the European Union member states. Labour market and the social policy has much in common. Evolution and trends in labour market as a digitalisation and automatization have already changed labour markets and value chains with many inevitable economic and social consequences for the member states of the EU (Beblavy, 2017). After that, it is considered that in present-day, the labour markets in the EU are facing many other challenges from the development of each economies of the EU member states (Dolls et al., 2019).

This paper contributes to the literature by analyse of the current situation and challenges of the labour market and social policy among the EU member states.

2 MATERIAL AND METHODS

The article was created on the basis of a literature review of previously published articles from journals with impact factor, primarily from the SCOPUS database. A review of various approaches to the researched topic of social policy and labour market among the member states of the EU, was created in connection with the current economic situation. Used annual data were obtained from the databases Eurostat and OECD.

3 RESULTS

Based on the paper and the research, the analysis confirms that macroeconomic theories which are closely related to the social policy and labour market going through dynamic evolution. In context of the current situation of the EU member states and its labour market and productivity, we also mention the necessity of reforms among the EU member states according to the data. These reforms could lead to lower unemployment rate and higher labour productivity of the EU citizens and vulnerable groups on the labour market.

4 CONCLUSIONS

The contribution of this paper is to identify current problems and perspective of the labour market and social policies among member states of the EU. The labour market and its theory evolution has got influence on the basic functions of the present-day economy. As Gintis (2018) claims, in this context, it is important to say, that there is no alternative for a regulation of labour market and market economy than the regulation made by state.

The research has shown, that success of the EU social policy goals and labour market were tested during the debt crisis. The EU concept of equality, prosperity, solidarity and respect for the quality of life were during that time not effective. The problem of the EU with reducing high unemployment rates across the Southern European member states was strong challenge for the whole organisation. In this context, it is necessary to remain the balance of citizen participation in the European project.

This paper suggests European Union, to remain focused on employment of mainly young people and in that context increasing the flexibility of working population. The research has also shown important connection between the type of employment contracts, wage level and job tenure and their impact on the labour market.

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THE STRATEGIC CRISIS AS ROOT CAUSE FOR EXISTENCE-THREATENING CRISES IN SMALL AND MEDIUM ENTERPRISES

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KEY WORDS

strategic crises, strong market position, existence-threatening crises

JEL CODES

D22, F60

1   INTRODUCTION

Small and medium enterprises (SMEs) play a significant role in the world-wide economy, but they are rarely focus of investigation in the field of strategic management, strategic positioning and resilience, although SMEs are particular vulnerable for endangering crises. During their life cycles SMEs are confronted many times with several kinds of crises. This paper investigates the thesis that a strong market position is key to avoid existence-threatening crises of SMEs; to achieve a strong market position a competitive advantage needs to be developed and continuously improved; to develop a competitive advantage a unique selling preposition is needed. It concentrates specifically on SMEs which are active in industries and competing in more and more global markets.

2   MATERIAL AND METHODS

A literature review was carried out to identify current status of science and an own survey was conducted to get deeper insight into the correlation of business performance and strategy process. In the survey questions to the strategy, the strategy process and the financial performance over 5 years were asked. The questionnaire was handed out to 12 personally known CEOs of SMEs in South-West of Germany, all active in the industry. The results are analysed and discussed.

3   RESULTS

As indicators for an existence-threatening crisis of a SME, sales and gross margin development over 5 years were correlated to the defined and implemented strategy of the SMEs. The strategy approach of a poor financial performing company is discussed in comparison to the strategy approach of a well financial performing company.

4 CONCLUSIONS

In the phase of general market growth and limited global competition, the quick responsiveness on short-term changes and challenges was a competitive advantage and success factor for SMEs, but meanwhile a long-term focused strategy, to achieve a strong market position, is needed to make a SME resilient for existence-threatening crises.

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THE IMPACT OF TRUST AND JOB INVOLVEMENT ON ORGANISATIONAL COMMITMENT

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KEY WORDS

leadership influence mechanism, trust, job involvement, organisational commitment

JEL CODES

J28, M54

1 INTRODUCTION

When looking at the multitude of challenges faced by companies, it is easy to see that any given company relies on meeting its specific challenges with employees that are as committed and loyal as possible. The organisational commitment of employees can thus be identified as a significant success factor of any enterprise.

This paper addresses the impact of the "trust" mechanism of leadership influence and the variable of job involvement on the dependent variable of organisational commitment.

The study examines a partial aspect of the concept of lateral leadership introduced by Stefan Kühl for its direct impact on organisational commitment.

This research shows the correlations and regression equations and analyses and interprets the interactions between the underlying variables.

Thus, the present study moves in an area beyond any consideration of a certain management style or form of management. The main point of the present study is one of how the leadership influence factor trust directly influences the organisational commitment of employees.

2 MATERIAL AND METHODS

Organisational science identifies how the behavioural expectations of others can be enforced as mechanisms of influence. The term goes back to the works of Niklas Luhmann (1976).

Luhmann (1994) subsumes that the mechanisms of influence are always and continuously used to achieve and maintain the positive attitudes of others. Luhmann finds that the processes of power, trust and understanding often latently take place.

The concept of lateral leadership involves three influencing factors of leadership. Kühl (2017) cites

the three central mechanisms of influence as understanding, power and trust.

The organisation cannot compel, prohibit or require the use of mechanisms of influence

Kühl subsumed that any leadership is always also lateral, even if there is a hierarchy.

The survey was conducted using an online questionnaire from 04.10.2018 to 27.11.2018. The target group of the survey is people who carry out an activity in which they are led by an executive and are involved in an organisation.

A total of 231 datasets were generated, of which 12 datasets were excluded from further use due to a lack of consent to use data and another set of records due to a lack of answers.

To analyse the data, the software IBM SPSS Statistics 25 was used. The survey data is publicly available at Harvard Dataverse. (Klein 2018)

The research question of this study is *'how high is the impact of the variables of trust and job involvement on the expression of the dependent variable of organisational commitment?'*

To answer the research questions at hand, a correlation analysis, a regression analysis and an interaction analysis of the available data was performed.

3   RESULTS

The correlation analysis of the variables of job involvement, organisational commitment and trust shows an evident interdependence of the variables. Each of the three variables correlates strongly with the other variables. Table 1 displays the correlation coefficients of the variables, the level of statistical significance and the number of analysed data sets in detail.

A multiple linear regression was calculated to predict Organizational Commitment based on Trust and Job Involvement. A significant regression equation was found ($F(2, 212) = 158.569, p < 0.000$), with an R^2 of 0.599. Predicted Job Involvement is equal to $0.372 + 0.328$ (Trust) $+ 0.555$ (JI), where Trust is measured in units, and JI is measured in units. OC increased 0.328 units for each unit of Trust and 0.555 units for each unit of JI. Both Trust and Job Involvement were significant predictors of Organisational Commitment.

The interaction analysis shows that the expression of OC heavily depends on the existing level JI. If the level is high, the equation develops just as steeply as with low JI, but never reaches the same values as with high JI.

The found interaction equation is $OC = 0.0669 + 0.4338T + 0.6474JI - 0.0309(T \cdot JI)$.

4   CONCLUSIONS

The results of the presented research allow for the following management conclusions to be drawn, as graphically illustrated in Figure 2.

An investment in Trust has at each level of Job Involvement an equally positive effect on Organisational Commitment.

An investment in Trust does not compensate for the minor effect of missing Job Involvement.

The study shows that trust is not the only basis of organizational commitment but is dependent on the prevailing level of job involvement.

How Job Involvement is created is not part of this study and will be explored in further studies.

However, this study shows that it makes sense for an executive not only to take confidence-building measures and to expect that this will have an equally positive impact on the organisational commitment of employees in any case. This study shows that it is advisable for a manager to be aware of the present level of job involvement and, if necessary, to take steps to promote job involvement at the same time as trust-building measures, as this means that the expected impact of confidence-building measures on the Organisational Commitment can be considered to be much higher.

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OPEN VERSUS CLOSED BIM – DIFFERENT PLANNING APPROACHES AND THEIR IMPORTANCE FOR THE PLANNING PROCESS OF MUNICIPALITIES

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KEY WORDS

building information modeling (BIM), municipalities, planning, construction projects

1 INTRODUCTION

As the planning processes of construction projects in practice show, data exchange and communication with everyone involved in the process have to run smoothly to efficiently implement BIM into the project. The literature and practice show two different planning approaches which can be applied: open data exchange systems, called Open BIM, and closed exchange systems, called Closed BIM (Söbke et al., 2018). These two approaches will be explained in the following section: it is important for municipalities to know whether they should choose Open or Closed BIM to implement BIM into their planning processes. At least, a municipality's goal is to optimize public participation processes by means of BIM. Hence, municipalities must implement BIM into their planning process and, in this context, to choose an appropriate BIM approach.

2 MATERIAL AND METHODS

By means of a systematic literature research, studies, papers and conference contributions are identified to gain an overview over the state-of-the-art regarding BIM, the use of BIM in organizations as well as the implications for organizations that strive to perform their planning process by means of BIM. Finally, the results of the systematic literature research will be used to give implications regarding the selection of an appropriate BIM approach.

3 RESULTS

As already mentioned in the introduction, there are two BIM approaches which can be used by organizations such as municipalities. According to the results of the systematic literature research, the following explanations can be given regarding the use of Open and Closed BIM.

The first planning approach to ensure a preferably smoothly running data exchange is the possibility of Closed BIM. If Closed BIM is chosen, all planning partners work simultaneously in one building model and in one manufacturer data format. Closed BIM thus represents a BIM environment that is character-

ized by the use the same BIM software by all project participants (Hennings and Mombour, 2018). Since this is only possible with programs of one software family, all planning partners need to work with these programs (Stephan, 2017).

In contrast to the above-explained version of Closed BIM, the Open BIM approach is characterized by neutral, non-proprietary file formats. This means that Open BIM is based on standardized data exchange formats, which enable an exchange of data and information independent from a specific BIM tool or a specific BIM application (Laakso and Kiviniemi, 2012).

4   CONCLUSIONS

Both BIM approaches – Open and Closed BIM – are characterized by the fact that all planning partners need to pre-define which information should be shared at which time. The comparison of Open and Closed BIM shows that each working method has its own advantages.

In most construction projects, different specialist planners work on the overall planning together with architects. Due to changing planner constellations, it is very rare that everybody uses the same software product. The Open BIM approach thus enables every specialist planner to work with a specific software and afterwards to share his or her specialist planning via open data standards such as the IFC data format.

Regarding the data transfer between the project partners, only component models with specific information out of the entire building model are shared. This means that a structural engineer only gets the supporting structure from the architect, but not the entire BIM model. Each planner plans in his or her own business model, which means that responsibilities are clear and always transparent.

On a fixed date, checked and fixed planning status will be handed over to other planning partners. There, planning status is reliable for all planners: once there, if there are discrepancies in the ongoing planning process, other planners can refer to this status. In this context, it is very important to mention that all areas of liability of each planner are clearly determined in an Open BIM process. This again is essential for the major part of all building plans, since it is only possible to change or modify building parts, if a particular person is responsible for this building part. A structural engineer thus is only allowed to modify supporting structures in the BIM model, but he or she cannot change any other building part.

If it is ensured that plans are always worked out together with the same partners and if one cooperates under the same responsibility and liability conditions, Closed BIM might be an optimal solution. But other cooperation models and constellations enable a higher degree of freedom. In this cases, Open BIM might be the optimal solution due to its high flexibility and the use of the standard data format IFC. As mentioned above, the IFC format allows various options regarding data transfer; a closed system cannot compare.

The assessment, which approach has to be chosen, depends on many factors. It especially depends on the requirements and expectations of the customer, which need to be determined collectively. Each of the presented BIM approaches has its own potentials, challenges and limitations, which do not only depend on the software manufacturers and their products, but also on the experiences of the different planning partners.

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FINANCIAL PERFORMANCE OF COMPANIES IN THE ALCOHOLIC BEVERAGES INDUSTRY WITHIN THE BUSINESS ENVIRONMENT DEVELOPMENT

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KEY WORDS

thesis, alcohol consumption, alcohol industry, financial performance

1 INTRODUCTION

This article identifies the current issue and the situation of the business environment of alcoholic beverages in the Czech Republic and how the business environment influences the financial performance of business entities in this sector. The first part of the article focuses on the situational analysis of the business environment. Traditionally, the Czech Republic has been placed at the top of international studies on alcohol consumption per capita. According to the OECD's current study on alcohol consumption, the Czech Republic has a consumption of 11.6 litres per capita. It means that the average Czech consumes up to 11.6 litres of alcohol per capita. The alcohol industry has a strong tradition in the Czech Republic. Hard alcohol represents about 27% of total alcohol consumption in the Czech Republic. Beer represents more than 50% of consumption, the rest is for wine (ČSÚ, 2018). In terms of money, we consumed alcohol for $1.44 trillion last year, and in the future the consumption should increase. According to London's analytical company International Wine & Spirits Research (IWSR), alcohol should be sold for $1.69 trillion (IWSR, 2019) in the world in 2025. This money-packed business is dominated by large companies such as Diageo, the world's largest spirits producer, AB InBev (a beer brand such as Budweiser, Stella Artois or Beck's) or Pernod Ricard, whose portfolio includes well-known spirits brands, such as Gin Beefeater, Absolut Vodka, Jameson Whiskey or Havana Club Rum. But paradoxically, although these alcohol giants spend billions of crowns on marketing, the world spirits market is in fact dominated by local products and local companies. This results from the ranking of the best-selling spirits, which is regularly compiled by the IWSR. The local market is also influenced by the growing overview of consumers. The methanol affair that started in the Czech Republic in September 2012 significantly contributed to this growing overview. It caused a large fall in the hard alcohol market, and even though the prohibition at that time was abolished quickly, people switched to other "safer" types of alcohol such as beer and wine. According to the Union of Spirits Producers and Importers of the Czech Republic (UVDL, 2016), the hard alcohol market is not at the same level as before the methanol affair. For example, in the brewing industry, the Czech Republic holds 1–4% of the market. Although beer is produced by supranational companies that now dominate the entire alcohol industry, a number of small breweries remain in European countries. The production of spirits in Europe is characterized by a variety of local varieties, which individual nations consider as part of their traditional culture.

2   MATERIAL AND METHODS

The article aims at identification of key financial performance indicators of sample of producers incorporated in the Czech Republic in this branch.

The financial statements and annual reports from the corporate database named Orbis are used for the analysis.

3   RESULTS AND CONCLUSION

The article should analyse business environment and get the right view of situation in alcohol industry in Czech Republic. It focuses on companies with the largest volume of sales in the Czech Republic and monitors their development and reaction to changes in the relevant business environment and compare results between each other.

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IRRATIONAL BEHAVIOR OF FANTASY LEAGUE USERS

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KEY WORDS

Czechs, fantasy sport, National Hockey League, representativeness

JEL CODES

D91, L83, Z21

1   INTRODUCTION

In the beginnings of behavioral economics its conclusions were based on small groups of individuals in the laboratory environment (Kahnemahn and Tversky, 1972, 1973; Tversky and Kahnemahn, 1973), which became a frequent target of criticism of the advocates of the neoclassical economics (Posner, 1998, 2002; Korobkin and Ulen, 2000). Therefore, it is necessary to verify the findings made in the laboratory conditions on the data from the real environment (Kagel and Roth, 2016) to validate the different forms of suboptimal behavior of an individual.

The goal of this paper is to verify the presence of the representativeness heuristic, specifically in the fantasy sports environment, which proves suitable for investigation of behavior thanks to the direct records of the behavior of individuals in their natural environment (Kotrba, 2019).

2   MATERIAL AND METHODS

This paper works with data from a fantasy league played in the Czech Republic in season 2015-16 according to the American-Canadian ice hockey league National Hockey League (NHL). More than 11 thousand users took part in it, whose individual squads are used to construct econometric models.

Representativeness is tested by three successive steps. At first, the models examine the excessive choosing of the athletes from the most successful clubs of the previous season. Secondly, the excessive choosing of the best scoring players of the previous season is examined. Finally, the excessive choosing of the best scoring players of the previous season whose number of points decreased considerably in the observed season is inspected.

3   RESULTS

The first set of models investigates the higher demand for ice-hockey players from the teams that were successful in the previous season. Representativeness is present only in the case of two teams out of ten, Chicago Blackhawks and Montreal Canadiens. Therefore, representativeness is quite weak. On the

other hand, the second set of models that tests the best scoring players of the previous season confirms the presence of representativeness. Only one model out of five finds the influence of representativeness insignificant, which is probably caused by the very low number of players in the given category. The third set of models tests the players successful in the previous season, but not in the current season. Representativeness could be found in 65% of the cases.

Overall, representativeness appears to manifest itself in fantasy sports, but not in great strength.

4 CONCLUSIONS

The results show a certain irrationality in the behavior of fantasy sports users, which is in line with the previous literature (Karg and McDonald, 2011; Kotrba, 2019). However, an athlete's performance proves to be essential in the models, which proves the motivation of the users to win (Billings and Ruihley, 2013). Last but not least, it is possible to find a clear preference for the athletes of the same nationality as the user (Wilson and Ying, 2003).

Considering the high similarities of fantasy sports users' characteristics with those of traditional fans (Bernhard and Eade, 2005), it is possible to use the knowledge gained in this paper in the real environment. Managers and owners of sports clubs can to some extent rely on the fact that the fans will demand the previously well scoring players in the following season as well. This applies, also to some extent, as well in the case of the players who do not score as many points in the current season. This knowledge could be used to increase the consumption of individual athletes in sports.

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VISITOR'S LOYALTY TOWARDS THE DESTINATION

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1 INTRODUCTION

Tourism market posses a lot of specifications compared to other markets and is constantly developing, expanding and becoming more significant. Therefore, is the destination image one of the most important attributes of destination (Ishida et al., 2016). Moreover, the destination image is one of the factors that has an influence on the loyalty and satisfaction of the visitor in given tourism destination (Prayag and Ryan, 2011). The destination image can therefore influence the future revisit intention of visitor, or the intention to recommend the particular destination to visitor's friends and family (Lee, 2009). According to Assasker et al., 2011) the better the perceived image, the higher the chance the visitor will revisit the destination in the future. Therefore, is crucial to know which specific factors of image have the biggest influence on destination loyalty.

2 MATERIAL AND METHODS

The perceived destination image is composed on a number of factors. Previous studies such as Kim and Richardson (2003), Beerli and Martín (2004), Prayag (2007), or Nunkoo (2013) are identifying some of them. For instance, they worked with natural or cultural monuments, quality of food or accommodation, or uniqueness of the destination. Therefore, 18 image factors were used for evaluation of their impact on post-purchase behavior of the Americans visiting the Czech Republic and on post-purchase behavior of the Czechs visiting the United States of America.

The primary data have been obtained among Czech and American respondents, in order to evaluate the particular image factors. Five-point Likert scale was used to formulate the questions regarding the image factors.

The impact of the image factors on the loyalty of the visitors was identified by using the multiple regression analyses (Nunkoo and Ramkissoon, 2012). In order to find out whether the evaluation of a particular image factor if dependent on the specific characteristics of visitors, the Kruskal-Wallis test was used. It is a non-parametric test, analogue to the single factor analysis of variance.

3　RESULTS

Out of 18 image factors, only social and experience events, sense of security and additional infrastructure have an impact on the Czech respondent's loyalty towards the United States. On the other hand, friendly acceptance by the locals, the level of prices of services and goods in the destination and the level of personnel quality in tourism services have an influence on the loyalty of American respondents towards the Czech Republic. Czech respondents visited the United States mostly for more than 22 days with the purpose of getting to know the unique culture and explore the country, whereas the American respondents visited the Czech Republic mostly for less than 7 days. The purpose of their visit of the Czech Republic was mostly the round trip around the Europe, where except Prague they mostly visited the South Moravia region. Considerable difference has also been found in evaluation of the dependence of the image factors on a previous visit of respondents. The dependence was statistically proven among Czech respondents in 10 out of 18 image factors of the United States, whereas among American respondents the dependence was not statistically proven.

4　CONCLUSIONS

This study provides an overview of the American and Czech visitors' behavior in the Czech Republic and United States of America. It also provides the comparison of the perception of the image between the Czech and American visitors and their intention to recommend or revisit the United States or the Czech Republic. In summary, regardless the nationality, the women were more satisfied and more incline to recommend or revisit the tourist destination than men.

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RETIREMENT IN SELECTED EUROPEAN COUNTRIES

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KEY WORDS

retirement, early retirement, SHARE, reasons of retirement

JEL CODES

J26, J32

1 INTRODUCTION

Retirement timing is a topic broadly discussed among European authorities, currently. Seniors about the retirement age are influenced by many factors (incl. health conditions, financial situation, however, also labour market flexibility and family situation) while considering retirement.

Despite all the efforts of the European Union, the labour market remains very diverse as well as the law and policies influencing it. Seniors retiring in Europe have different conditions in each EU country. The main difference is the retirement age. This research evaluates following countries: Poland, Austria, Germany, and the Czech Republic. In 2019, the retirement age in chosen countries differs. In Germany it is on average 65 years and 7 months for both men and women. On the other hand, in Poland the average retirement age is different for men (65 years) and women (60 years). Austria has the same retirement age as Poland and the retirement age of the Czech Republic is going closer from the gender perspective. Czech women retire at 63 years and 2 months and men at 63 years and 6 months (Finnish Centre for Pensions, 2019).

If we look at the amount of elderly people in the year 2014. The eldest population is German with 21.45% of the population, followed by Austria with 18.21% and the Czech Republic with 17.60%. The smallest amount of elderly from chosen countries has Poland 15% (OECD, 2019).

2 MATERIAL AND METHODS

This research concentrates on job satisfaction, early retirement and final reasons stated by seniors in Survey of Health, Ageing and Retirement in Europe (SHARE) and their comparison among the selected countries. SHARE database is a database which consists of micro data focused on health, social networks, socioeconomic status of people aged 50 and more. The data are collected at intervals and across the Europe. Currently, it contains data of 28 countries (Börsch-Supan, 2019).

The methods used in this research are descriptive statistics and statistical comparison of data from different countries. As the reference country is chosen the Czech Republic. Before the comparison of selected variables, the normal distribution of each variable was tested. Depending on this, it was decided whether to use a parametric or non-parametric test.

The chosen variables are *Job satisfaction* and *Look for early retirement.* In case of variable *Job satisfaction*, the respondents were asked whether they strongly agree, agree, disagree, strongly disagree or don't know with this statement: "All things considered I am satisfied with my job". The second variable is connected to the respondent's intention to retire early. They were asked to think about their present job and whether they would like to retire as early as they can from the present job. The possible answers are yes or no.

At the end, the reasons for retirement were compared. This variable is country-specific, which means that the question is not asked in every country in SHARE Project. Therefore, only the Czech Republic and Poland could be compared. These two countries have also the same possible answers and so: 1. Became eligible for public pension; 2. Became eligible for private occupational pension; 3. Became eligible for a private pension; 4. Was offered an early retirement option/window (with special incentives or bonus); 5. Made redundant (for example pre-retirement); 6. Own ill health; 7. Ill health of relative or friend; 8. To retire at same time as spouse or partner; 9. To spend more time with family; 10. To enjoy life.

3   RESULTS

According to the comparison of variables, the distribution of variable *Job satisfaction* is not the same across countries. The similar results were for the variable *Look for early retirement.* The most satisfied people older than 50 years are in Austria, followed by Germany. The least satisfied people 50+ are in Poland.

Older people in Poland are also the most eager to retire. 58.3% want to retire as early as they can. On the other hand, the Austrians are more satisfied with their jobs and also don't want to retire as much as people from other selected countries. Just 41.7% want to retire as early as they can.

At the end, the reasons for the retirement of the Czech Republic and Poland were compared. The reasons stated by respondents differ according to country, but the number of respondents answering the question is very low. Therefore, it is not possible to generalize and there are more data needed.

4   CONCLUSIONS

As the pension systems across Europe differ, the countries in the specific questions differ. The people older 50 years are very specific group of people. They are supposed to make the decision whether to retire or not. This is connected to the many factors, one of them is a job satisfaction. If the people are not satisfied with their jobs, there is higher probability of retiring earlier. This is also connected to the stated reasons of retirement. The most frequent reason selected by respondents is that they became eligible for public pension.

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DEVELOPMENT OF WINE TOURISM IN ŠUMADIJA REGION

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KEY WORDS

enotourism, wine product, services, Serbia

JEL CODES

Z30, Z32, M30

1   INTRODUCTION

Serbia has a strong legacy of being a country of hospitality, friendly environment and culture. After the civil war, the wine industry finally gets into a slight revival. Serbia began to develop towards tourism (Pivac, 2012; Radovanović et al., 2017). Country is on way of exploring and promoting new types of tourism like religious tourism and wine tourism (Pivac et al., 2016). The long-standing tradition of Serbian winemaking over the past decade has been restored by several private producers who have built current cellars and have already become known outside Serbia's borders (Hudelson, 2014). Hence researches in this field started to spread (Pivac, 2012; Škrbić et al., 2015; Sekulić et al., 2016; Radovanović et al., 2017). In Serbia, the expansion of wine production and quality and related services are on the upswing (Pivac, 2012). In Šumadija it is often associated with gastronomy (Miljković, 2017). Wine tourism can be a catalyst for regional economic development for emerging tourism destinations blessed by the wine country (Getz, 2000).

2   MATERIAL AND METHODS

Thus, was developed a project in a cooperation with REDASP (The Regional Economic Development Agency for Šumadija and Pomoravlje) in a central part of Serbia, Šumadija region, for analysing and evaluating the area of wine tourism and its services. Employed methodology consisted of survey of the state of play; interviews with respondents in this case with winemakers or managers of the wineries; and field observation. Author contacted/visited nine wineries chosen with a cooperation of REDASP. Semi-structured interviews have been conducted.

The primary data have been obtained and used in analysis of SWOT and stakeholders. In order to summarize data and make it useful for all stakeholders in wine tourism, predominantly for winemakers themselves.

3   RESULTS

Associativity and involvement in building wine brand of Šumadija is not absent from any winery. Each of them cooperates with another institution, mainly the city. With the importance and trend of tourism in wine industry, winemakers unified in a way of Šumadija Wine Association. In this Winegrowers As-

sociation, all participants see the advantage of being a member, except one. The advantage is the common organization of activities, marketing, visibility, image and certain prestige and finally, collegiate help and recommendations. Participation in not only wine events and projects is nowadays an important part of the presentation and function of the winery. All this is done as marketing for their winery.

The ambition to increase the accommodation capacity provided by the winery is low. The accommodation is generally absent in the region. They prefer to build tasting rooms/halls. All wineries provide tastings to the public (but to a different extent and at a different level). Local wineries have plans mostly for own tasting rooms and some other services as selling wine from cellar, participating in more events or hospitality and degustation of local

products and own wine. Just two wineries planning to offer own accommodation facilities.

Everyone uses the Internet for promotion except one, which may be the reason why this winery has such a low influx of tourists. Four wineries use the local press and other media to promote services on regional level.

All wineries except one of the winemakers see the potential of Serbian wines and services to attract foreign tourists. Winemakers confirmed, like Carlsen and Charters (2006), that one of the areas of convergence is the easy involvement of their winery in tourism and the low barrier of both entry and exit. It should be noted here that seven wineries are members of the Šumadija Wine Association, where they seek to promote the region not only with wine, but now also with tourist services.

4 CONCLUSIONS

This study research presents an insight into the nowadays tourism trend in many wine producing countries. Wine tourism is shown here in a case of Serbia where this type of tourism started roughly ten years ago. The results suggest that there is scope for

developing wine tourism products/services to attract tourists which could be used to promote Šumadija as a central wine tourism region in heart of this country. There is a potential to be uncorked and developed.

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EVALUATION OF PROPOSED CHANGES IN CZECH ACCOUNTING LEGISLATION AND THEIR IMPACTS

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1 ABSTRACT

Globalization and integration on a global scale are increasingly demanding to harmonize the financial reporting of entities to ensure comparability. The paper responds to the prepared amendment of the Czech accounting legislation by the Ministry of Finance of the Czech Republic, which should bring substantive changes to the Act of Accounting. Attention is paid to three selected areas that give rise to discussion, namely the issue of financial leasing, extending the use of IAS / IFRS, as well as the quality and quantity of reporting of non-financial information by companies. The aim is to evaluate the possible impacts of the proposed changes and their differences compared to the current situation, provided that the proposed changes in accounting legislation are accepted.

MEASURING TAX EVASION BY COMPARING ESTIMATED WEALTH WITH THE OFFICIAL INHERITANCE AND GIFT TAX STATISTIC IN GERMANY

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KEY WORDS

German inheritance and gift tax, tax evasion, estimated wealth

JEL CODES

H24, H26, K34

1 INTRODUCTION

Referring to the Credit Suisse global wealth report in 2019 the amount of wealth in Germany is reported with 14.7 trillion USD. The mean wealth per adult is 216,654 USD and the median wealth per adult is 35,313 USD. Because the average population in Germany gets older and the official death statistic shows, that death cases are increasing, a significant higher volume of inheritances is expected in the future and therefore a higher tax revenue regarding the inheritance and gift tax. Unclear is the amount of tax evasion in this context.

2 MATERIAL AND METHODS

The wealth in Germany and the size of yearly inheritances and gift transfers was estimated already by several studies, which used survey data of the Sozio-ökonomisches Panel (SOEP) published by the Deutsches Institut für Wirtschaftsforschung (DIW) in Berlin, and the Household Finance and Consumption Survey (HFCS) published by the European Central Bank or the German part of this survey published by the Deutsche Bundesbank.

The Deutsche Bundesbank also published a detailed wealth portfolio for German households for the years 2010, 2014 and 2017.

The official inheritance and gift tax statistic (IGTS) in Germany reports about data collected from tax offices and also differentiates between different types of property.

Regarding the different types of property, the opportunity to evade taxes is different. This is due to the legal reporting system, which obligates probate courts, notaries and banks to report their knowledge about donations and inheritances to the tax offices. But not all transfers and types of property are included in this reporting system.

The estimated wealth regarding the different types of property is compared with the reported transfers in the IGTS.

3   RESULTS

Comparing the estimated wealth with the official tax statistic (IGTS) shows, that only part of the cases (14.6%) and volume (28.2%) are picked up by the IGTS.

Real estate property is recorded with a relatively small amount in the IGTS compared with the estimated wealth regarding this type of property.

Regarding business property, there is significantly higher amount of donations recorded in the IGTS for 2014 and 2017, what can be explained with a court decision of the federal constitutional court and law changes in 2016, which generated more donations, in order to circumstance stricter foreseeable regulation. Regarding only inherited business property, the amount which is recorded in the IGTS is lower as for financial assets, but higher as for real estate property.

Financial assets are recorded with a relatively high amount in the IGTS.

4   CONCLUSIONS

Tax offices decide in every single case, whether they pick up the case and make a tax assessment or not.

If the tax office has knowledge regarding a transfer and decides not to pick up the case, because the transfer is estimated to be below factual or personal tax exemptions, this case does not appear in the IGTS. This has to be separated from cases which are picked up, but the assessed tax was 0 €. These cases are included in the IGTS.

It is likely, that the IGTS is not representative for all transferred property, because the cases are selected by the tax offices unsteadily and transfers of real estate property are recorded underproportioned. The reason fort this probably is the effort to evaluate real estate property or business property.

Nevertheless, it is also likely, that tax evasion regarding real estate property is higher than expected and even higher than business property or financial assets.

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THE IMPACT OF FISCAL CONSOLIDATION ON INEQUALITY: THE CASE OF V4 COUNTRIES

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KEY WORDS

income inequality, fiscal consolidation, V4 countries

JEL CODES

C23, D63, H30, I38

1 INTRODUCTION

In this paper, we provide the first empirical evidence of fiscal consolidation's impacts on income inequality in V4 countries. Although the literature on income inequality and its various determinants is wide, there are still some areas, where the research is lacking. One of them is fiscal consolidation.

Among the main drivers of income inequality belong technological change, international trade, political institution and political conditions. We can list here also globalization, growth of financial services also changing pay norms. Income inequality may also lead to many socioeconomic problems in the countries. For example, it may cause economic instability, crises and increase inflation. Income inequality may also cause debt and in order to decrease the public debt, the most powerful tool is fiscal policy. By using fiscal policy, the policymakers can lower the negative effects of some tax and expenditures policies. It may happen with the monetary payments or provision of in-kind benefits. Although there are few research papers that are dealing with the effects of fiscal austerity on income inequality, none of them are dealing directly with the effects of fiscal consolidation on income inequality in V4 countries.

2 MATERIAL AND METHODS

We build our econometric model on existing literature on income inequality,

$$\Delta G_{it} = \beta_0 + X'_{it}\delta + \gamma Z_{it} + \eta_t + \varphi_i + \epsilon_{it},$$

where ΔG_{it} denotes the change in disposable income-based Gini coefficient in country i and year t, X_{it} is a vector of economic control variables, η_t denotes period fixed effects, φ country specific fixed effect and Z_{it} is the measure of fiscal consolidation. By using interactions, denoted as $Z_{it} \cdot X_{it}$, we also test whether the impact of the fiscal consolidation on income inequality depends on the levels of our control variables:

$$\Delta G_{it} = \beta_0 + X'_{it}\delta + \gamma Z_{it} + \alpha Z_{it} \cdot X_{it} + \eta_t + \varphi_i + \epsilon_{it}$$

Several econometric methods were used to estimate the panel regression to control for robustness of results. As our main model we used panel-corrected standard error estimator. This approach allows the variance-covariance matrix of the estimates to be consistent when the error terms are heteroskedastic and/or contemporaneously correlated across panels or auto-correlated within panel. Our sample includes data for V4 countries – Slovakia, Czech Republic, Poland and Hungary for time period 1995–2015. This gives us 80 observations in our panel.

3 RESULTS

V4 countries experienced frequent and significant fluctuations during 1995–2015, both in income inequality (measured as disposable Gini index) and in structural balances as a share of GDP. Simple descriptive statistics imply, that fiscal consolidation (measured as change in structural balance larger than 2 pp.) can have different distributional effects in countries. For example, Slovakia and Hungary experienced 5 fiscal consolidation episodes, but had fewer changes in disposable Gini than Poland, where performed only 1 consolidation episode but recorded more changes in inequality. Fiscal consolidation can have different effects on inequality during different levels of unemployment (or trade openness, or education etc.). We will test this with model with interaction terms. Another explanation could be that in some countries also small change in structural balance could have relatively significant impact.

As expected, the results suggest that fiscal consolidation larger than 2% of GDP has negative impact on inequality in V4 countries. Moreover, this effect is stronger than the effects of our control variables, where fiscal consolidation increases inequality by 0,17 percent. However, consolidation has impact only in the given year. After one year of improving balance by more than 2% of GDP has no significant influence on income inequality.

4 CONCLUSIONS

Aim of this paper is to extend existing literature on impacts of fiscal consolidation on income inequality in V4 countries. Until now, these effects were not studied in these countries. We followed existing methodology and examined the impacts of fiscal consolidation. The goal of this paper is to open a discussion about the income inequality in V4 countries. We believe, that this paper represents the first attempt to shed a light on this topic. The research paper may be a solid starting point for the next research and next papers would be able to build on our findings.

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SOCIAL MEDIA ALL-AROUND: ROLE OF MARKETING DIMENSIONS INFLUENCING CONSUMER BRAND LOYALTY

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KEY WORDS

social media, brand trust, brand loyalty, social networking, community engagements, brand use

JEL CODES

M30

1 INTRODUCTION

In the last decade, social media marketing has evolved human behaviour to the maximum change. The overall social media users growth rate is reaching the heights of almost 35 Million (16%) of the total population of Pakistan. The social media and its marketing techniques are drastically moving towards a change resulting in a shift from conventional buying behaviour to e-buying practices. With the advancement in information technology world targeting the social media platform, this study focuses to add a more valid contribution in the academic and practical research world by empirically testing a model with variables like social media, community engagement and brand use impacting brand loyalty with brand trust as mediator. The study will provide deep insights to the marketers and strategists at the time of brand development along with the social media practices being engaged nowadays.

2 MATERIAL AND METHODS

The research tested a comprehensive model of brand trust and brand loyalty during the social media strategy development on consumer perceptions using 500 responses gathered via electronic survey from public sector platform. Structural equation modelling (SEM) is used to evaluate the research data. Hence, the study dimensions are checked through confirmatory factor analysis technique (Measurement Model).

3 RESULTS

The results categorize a significant positive impact on social media and community development on consumer brand loyalty. Particularly, the association between brand usage and brand loyalty is robust in the presence of the mediating effect of brand trust and thus deepens the understanding of the consumer

buying processes in shaping customers' behavioural loyalty. The findings of the study concluded that all the proposed hypothesis are significant and these social media tools will be helpful for both marketing firms and strategy developers in obtaining best marketing outcomes.

4 CONCLUSIONS

The findings of the current study reveal that (1) that social media marketing predictors influenced consumer online decision making with increased brand loyalty (2) comprehensive model of brand loyalty mediated positively by brand trust in the development of social media strategy influencing consumer's brand perceptions. The key findings of the study significantly contribute to the existing literature by identifying brand trust as a mediator between social media, community engagement, brand use, and brand loyalty. Findings suggest that social media platforms should target brand managers who could use a holistic model which assist the digital marketers in devising social mediating campaigns and brand activation practices to target potential online consumers

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References are available on request.

DIGITIZATION IN AUDITING-STATUS OF IMPLEMENTATION AND ACCEPTANCE

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KEY WORDS

IT-auditing, digitization, data analytics, big data, audit approach

JEL CODES

M41, M42, O30

1 INTRODUCTION

The digital transformation has found a sustainable entry into the scientific debate on the future of financial audits in recent years. It should be noted that the digital transformation is attributed to a profound change process. The paper provides an overview of the elements with which this process of change is linked in the literature. The focus is on the question to what extent these changes modify the audit approach, and which increases in efficiency appear to be feasible. It is questioned which degree of implementation of digital audit methods can be found. This paper complements the discussion on findings on the acceptance of IT-based audit methods and techniques based on a study in which auditors were asked to what extent and with what impact on their results they use the relevant audit standard for IT auditing.

2 MATERIAL AND METHODS

Digital audit methods have been studied for many years. It was analyzed how these audit methods and the areas in which they are used are characterized. It was analyzed which influences these findings can have on the audit approach and which features of efficiency improvements can be identified. The questionnaire supplementing this discussion pursued the fundamental question of the acceptance among auditors in dealing with the relevant IT audit standard. Since digital audit methods are often still part of a classical IT system audit, it was examined in what kind and extent audits of this kind take place and what influence their results have on the actual audit result. The participants of the study were 89 German auditors. The participants received an invitation via an e-mail, which briefly presented the subject of the study and referred to the survey. This made it possible to ensure that the participants are interested in this area of auditing and have a basic understanding of the topic.

3 RESULTS

The analysis of current literature about IT-based audit methods reveals that a more comprehensive use of these methods promises a significant improvement in the quality of the audit (Lieder and Goldstheyn, 2013; Kiesow, 2017; Hoffmann, 2019). The reason for this is that, with the growth of digital processes in the

companies and the growing volume of digital data, only digital auditing methods are able to produce sufficient audit results. Increases in efficiency are seen in particular through standardization of the audit procedures (Marten et al., 2019; Thomas et al., 2019; Harder, 2018). Another focus in the current discussion is how to set up data sharing and collaboration between the auditor, any IT specialist involved and the client. However, the digital transformation of the final audit is also critically questioned in parts of the literature. It analyses the risk that excessive standardization as well as the division of the annual audit into an IT-related part and a classical audit area leads to an unreflected assumption of the results of the digital analyses in the final audit result (Ruhnke, 2019; Odenthal, 2017). The integration of these audit methods into the overall approach does not appear to be conclusively clear. A first result is that respondents do not implement the relevant IT audit standard in every audit. This result indicates that there is a distinction between statutory and voluntary final audits in the conduct of the audit. The implementation of the principle an audit is an audit is questionable against this background. Although most respondents considered that the results of the IT audit influenced the audit strategy, it did not result in a modification of the actual audit result. In the opinion of the majority of respondents, the nature and extent of the IT audits measures the degree of complexity of the IT systems, without, however, providing a clear picture of how the participants actually assess the complexity of an IT system. In addition, the survey found that, in the opinion of the majority, IT system audits are usually performed by specialists outside the actual audit team. So a distinction between classical audit and the IT-related audit can be seen. Further findings were that the auditors surveyed assume a strong but not fundamental change in the audit approach due to the digital transformation. Most respondents said they wanted a general overhaul of IT-relevant auditing standards.

4 CONCLUSIONS

The discussion on digital transformation of financial auditing has been going on for many years. It is characterized by technical changes that may have an impact on the audit approach. The scope and nature of the integration of IT-supported audit methods is currently not clear. The question to what extent digital audit methods increase the efficiency of the financial audit is not exhaustively investigated. This will be the subject of further discussion.

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DISPLAY VS. PAPER: EYE-TRACKING STUDY ON PRODUCT PLACEMENT IN MAGAZINES

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KEY WORDS

product placement, advertisement, eye tracking, magazine, fashion, generation Y

JEL CODES

M510, M390

1   INTRODUCTION

Product placement appears usually used in movies, TV series or video clips. Companies pay a fee to place their products as a background in movies or series. This product is placed in the movie and take part in the life of a character. The placement of the product is visible and is embedded to story. Therefore, the spectator have to notice the product (Frey, 2011). Hwang and Jeong (2019) researched if product placement and content have an impact on each other and on the quality of the newspaper. The result of the research is that product placement has a negative impact on the credibility of the readers only when the quality of the content was low.

2   MATERIAL AND METHODS

The paper research itself has been provided in October 2019 in the classroom Q01.84 and the display version of research has been provided in April 2019 in the classroom Q21 at the Faculty of Economics and Management in Brno with the help of an eye-tracker apparatus and an in-depth interviews. In the paper version to present the sheets from the women's magazines was created a special flipchart while in the display version everything was created on the computer in the appropriate software. The flipchart contained the sheets from magazines which were identical from the display part of the research. During the research the SMI model RED 250 at a sampling frequency of 125 Hz was used. The eye-tracker was used in remote mode, placed under the flipchart, at a distance of about 60 cm from the participant, while in the display version the eye-tracker was placed under a 22 sized monitor. Behind the participant's head was a Logitech camera. A deliberate cross was displayed before each stimulus. Only the Y-generation female participants participated in both researches. The number of participants at the paper version was 32, at the display 35. The main reasons to reduce results were mainly the calibration and technical recording problems. The results of the work were recorded in software tool – SMI Experiment Center. In the paper version, the answers of the research were performed verbally by the participant. Software tool SMI BeGaze determined the method of evaluation using areas of interest (AOI). Data analysis was performed by statistical evaluation by t-test in IBM SPSS software.

3 RESULTS

In order to determine the difference in perceiving display and paper product placement advertisement, two hypotheses were tested. Participants were encountered with the paper magazines fixed on the flip chart and their eye movement were tracked by an eye-tracking device. Results of this experiment are shown in Table 1.

Tab. 1: Hypothesis results (test: Independent-samples t-test)

Hypothesis	AOI name	Sig. value	Hypothesis accepted
#1	Maresova_produkty	0.631	H_0
#2	Maresova_instagram	0.002	H_1
#3	cviky	0.133	H_0
#4	vek_muz	0.009	H_1
#5	vek_all	0.067	H_0
#6	Kava_blogerky	0.302	H_0
#7	Kava_prague	0.200	H_0
#8	auto2_cena	0.120	H_0
#9	auto_maska	0.185	H_0
#10	Produkt_boty_all	0.211	H_0
#11	PP_znacky_1	0.693	H_0
#12	PP_znacky_2	0.394	H_0
#13	PP_znacky_3	0.808	H_0
#14	PP_znacky_4	0.180	H_0
#15	PP_znacky_5	0.831	H_0

The data in table shows, if the established hypothesis H_0 was observed in the t-test. Sig. values in the fourth column determine if the hypothesis had been accepted or denied. If the sig. value is bigger than 0.05 the hypothesis H_0 had been accepted, if the signature value is smaller than 0.05 the hypothesis had been denied. 15 areas of interest had been chosen for paper experiment. After all data had been collected, the results were compared with the results from display experiment. If the participants attention in chosen areas do not differ from the results acquired in display testing, the hypothesis H_0 was approved. The dwell time of these areas of interest was nearly the same in both versions of this experiment. This finding supports the assumption. On the other hand if the dwell time was significantly different than results from display experiment, the hypothesis H_0 was denied. Hypothesis H_0 was denied in areas #2 and #4. The rejection in area #2 was likely caused by the size of the magazine and the distance of flipchart from the participants. The distance in paper testing was bigger than in display testing. The area was harder to read and details were easier to overlook in comparison with display version of experiment. The deviation which occurred in area #4 was probably caused by the readability of the text. In display version participants could read the article, which was located in the area of interest.

4 CONCLUSIONS

The main aim of the research was to examine the difference of product placement in women's magazines in paper and display version. The aim was to compare whether there was a difference in the perception of this promotion in terms of the time spent on observing selected areas of interest. After all the data from paper part of experiment had been collected, the results were compared with display experiment results. As it had been assumed the data were nearly the same in both parts of the experiment. Significant difference in data comparison had occurred only in two cases. The deviation was probably caused by the readability of the text and by the participants distance from the flipchart.

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CHANGES IN EDUCATION STRUCTURE: POOR VS. RICH COUNTRIES OF EU

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KEY WORDS

education, structural change, employment, industries, labor market

JEL CODES

I21, J21, J24

1 INTRODUCTION

The education is one of many aspects that causes changes in employment structures (see Mason et al., 2009; Michaels et al., 2014; Goos et al., 2009; and also Crinò, 2009 for overview other important aspects). The aim of this paper is to find out how the structure of employment has changed in terms of the education and how this has affected the change in productivity. The three poorest and three richest EU countries are selected for comparison. The reason is the possible presence of differences between selected countries. Technological changes have led to an increase in education requirements, which is reflected in current structural changes in the labor markets in developed countries [Goos et al., 2009; Manning, 2006; Bárány and Siegel, 2018). The results of this paper should reflect this. Furthermore, the growth in productivity should be consistent with the increase in the number of high-educated workers.

2 MATERIAL AND METHODS

The data are from the database of the European Commission "EU KLEMS", which provides comprehensive information on productivity, education, capital, etc. The period available for the changes in education cover the years 2008–2015. The "rich countries", "poor countries" and the EU average are compared. All EU countries were ranked by average GDP per capita values over the years 2008–2015. "Rich countries" are Denmark, Sweden and Ireland, "Poor countries" are Bulgaria, Romania and Latvia. Luxembourg is excluded. Relative changes are observed within the groups of high-, middle-, and low-educated workers between 2008–2015. Changes are observed at industrial level (at NACE Rev. 2 level). Further, some industries with similar characteristics are combined according to the methodology of Eurostat. Productivity is measured as value added per worker – the same as Bárány and Siegel (2018) and Ngai and Petrongolo (2017).

3 RESULTS

A common feature of poor and rich countries is the increase in the number of high-educated workers at all industries (with minor exceptions). The results imply that there is a more dynamic increase in the number of high-educated workers in rich countries in the capital-intensive industries B-E (Mining and

Quarrying, Manufacturing, Electricity and Gas and Water). The growth in productivity is greater in the rich countries in these industries. On the contrary, in poor countries, there is a greater increase in the number of high-educated workers in the knowledge intensive services – industries O-Q (Public Administration, Education and Health and Social Work) –, where productivity is also increasing more than in rich countries.

In the rich countries only in the J (ICT) industry we can find clear evidence for complete "education-upgrading". The numbers of middle-, and low-educated workers have fallen, while the numbers of high-educated workers have increased. In poor countries, the same occurs in two industries: the group O-Q and also the R (Arts, Entertainment and Recreation). These results, "education-upgrading", imply skill-upgrading, which literature mentions in connection with current structural changes (when applying interchangeability between education and skills, which is based on the literature – Michaels et al., 2014; Crinò, 2009; Krueger, 1993; Manning, 2004).

4 CONCLUSIONS

The increase in the proportion of high-educated (or "more-educated") workers in 2008–2015 was a trend for both the poorest EU countries and the richest. Intensity varied across industries. In general, capital-intensive industries – especially B-E – have experienced more dynamic growth in rich countries, which has translated into greater productivity gains. In knowledge intensive services, poorer countries experienced a greater increase in the number of high-educated workers. Here, too, this translates into higher productivity. The results imply something similar to the catch-up effect; poorer countries are catching up with rich countries in the content of high-educated workers in knowledge intensive services, where is apparently this fact most reflected in productivity growth. Taking into account the current literature on structural changes in labor markets, the results can be described as consistent; education-upgrading is consistent with skill-upgrading process. On the other hand, this is caused to the aspect being examined (educational level achieved), which (unlike, for example, wage levels, occupational quality, etc.) cannot decrease.

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INFORMATION DUTIES UNDER THE GDPR: WHAT LEVEL OF DETAIL IS REQUIRED?

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1 INTRODUCTION

The most recent and probably most important piece of legislation in the field of data protection law is the General Data Protection Regulation (GDPR; see Regulation 216/679), which became effective on 25th May 2018. The GDPR stresses the importance of transparency of data processing and calls for the data controller (i.e. the person that processes personal data) to provide certain information in a "concise, transparent, intelligible and easily accessible form, using clear and plain language" (Article 12 para. 1 GDPR). A too thorough and too detailed information may however jeopardize the goal of transparency, as privacy statements may become unreadable. This paper will try to show that, if any, few people ever access data protection-related information. It will then draw conclusions on what this may mean for the interpretation of the legal information duties, most notably for the level of detail that should be required within such information.

2 MATERIAL AND METHODS

Various previous research shows an ambiguous picture on how natural persons perceive data processing information. This reaches from many users (66%) expressing high concerns for their personal privacy (Phoenix Strategic Perpectives, 2013) over a majority of people (54%) claiming to be interested in and reading privacy information (Earp and Baumer, 2003). At the same time, users seem to fail clicking on privacy information when it is only provided via a non-obligatory link during a website registration process (Steinfeld, 2016). It has also been examined whether the form of presentation matters. Apparently, regular, paragraph-style policies are subjectively felt harder to comprehend that more visual variants (Vail et al., 2008). However, this does not seem to influence significantly the degree of comprehension (Vu et al., 2007). Neither does it seem that a more explicit language leads to better comprehension than rather vague terms (Stralihevitz and Kugler, 2016).

Based on this unclear picture, the hypothesis is that users rarely read privacy policies on websites. To determine the level of user's interest in such online privacy information, objective numbers were gathered from a number of website operators who measure how often users visit and access certain subpages. By comparing the number of users who, in a given period (usually 1 year) accessed the start page with the number of users who accessed the subpage

on which the privacy information is presented, it is possible to determine a ratio. 100 of the biggest corporations and organisations in Germany were approached to provide said data.

3   RESULTS

From the 100 invitees, 21 provided the requested data, representing the behaviour of a total of roughly 3.2 million different website users. A strong positive correlation (Pearson correlation coefficient of .684) could be shown between the number of users on the home page and he number of users on the privacy policy subpage. Strikingly, the ration was very low. Based on the average, the ratio was only .3%. A similarly low number could be shown based on the median (.75%).

4   CONCLUSIONS

Where Article 12 para. 1 GDPR calls for a "concise, transparent, intelligible and easily accessible form, using clear and plain language", the interpretation must be seen in the context of the above results. Already a grammatical interpretation of the term "concise" reveals some aspect of brevity or condensation. Moreover, the danger of "information fatigue" must be taken into account. Specifically where the legislation demands an intelligible form and clear and plain language, it becomes clear that there is a certain conflict between those goals, specifically where the subject matter of the required information is not one, but a number of data processing operations. Since transparency is only one of a number of goals the GDPR seeks to pursue, and the data controller according to Art. 12 para. 1 GDPR has to take "appropriate measures" rather than ensure transparency in absolute terms, it would be inappropriate to require data controllers to provide data processing information in great detail. This would seem unwarranted given the low level of interest data subjects usually have in this topic.

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THE USE OF CURRENCY MANAGEMENT IN NORTH GERMAN SMES

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1   INTRODUCTION

Our financial market is characterized by turbulence and imperfections (Arnold, Rathgeber and Stöckl, 2014). Davies, Eckberg and Marshall (2006) have identified this as the main reason for the importance of currency hedging and other forms of financial risk management. Thus, a majority of exporting companies use currency hedging as part of their financial strategy (Cadek, Rottová and Saxa, 2011). More and more SMEs are also doing business internationally (Bishev and Boskov, 2016). The German economy is heavily dependent on exports. German cars are known throughout the world and are exported to them (Moser, Nestmann and Medow, 2008). As an export-oriented economy, managing currency risks and associated political risks is crucial.

2   MATERIAL AND METHODS

The study evaluated $n = 73$ companies using an online survey. The sample consists exclusively of representatives of (northern) German SMEs from various sectors. The majority of companies evaluated in this study are manufacturers or trading companies. The main objective in the development of the questionnaire was the ease of use. It has been assumed that managers of SMEs are unwilling to invest more than a few minutes in participating in a scientific study. The data was collected using an online survey tool. MS Excel was used for initial adjustments to the data set from the online survey. Cleaned data was exported to IBM SPSS to perform statistical analysis. As a first step, descriptive statistics were created to describe the sample. In addition, most of the analysis was based on the correlation approach.

3   RESULTS

Summary of Descriptive Outcomes: Out of 73 companies involved, 42 reported having foreign affairs. 37 companies account for foreign currency. Most of the companies involved in this study stated that they were independent (51), while only 22 companies were organized as affiliates of another company.

The first hypothesis was that the size of a business correlated with the likelihood of doing business in

foreign currency. It has been assumed that the smaller a company is (as measured by the number of employees and the annual turnover measured in terms of this study), the less likely it is to do business in a foreign currency. The results show that the assumption made in Hypothesis 1 can be confirmed: the larger a company – measured by the number of employees and the annual turnover – the more likely it is to do business in foreign currencies. The clearest indicator of this relationship seems to be the actual share of overseas transactions.

The second hypothesis concerned the likelihood that companies would apply currency hedging depending on their size. The number of employees proved to be the stronger indicator than the annual turnover. In general, there was a positive correlation between company size (in terms of number of employees and annual turnover) and awareness of currency risks. Hypothesis 2 can be confirmed: The size of the company is linked to various indicators of currency hedging. The smaller a company, the less likely and less willing to use currency hedging and currency management.

Hypothesis 3 assumed a positive correlation between the import and export of goods from non-euro countries and the use of currency management tools. The import/export of goods without intermediaries was recorded in a correlation analysis together with the use of currency hedges. For this relationship a positive correlation could be shown. Hypothesis 3 could be confirmed.

4   CONCLUSIONS

The first hypothesis assumed a positive relationship between company size and the likelihood of doing business in foreign currencies. Larger companies would be more willing and do such business. The results show that this is the case. The second hypothesis implied that larger companies are not only more likely to be dealing with foreign currencies, but are also using currency hedging rather than financial risk management as they have more resources to invest in such complex measures. The results showed that larger companies are more aware of the risks associated with foreign exchange transactions and are more likely to apply appropriate risk management strategies. The analysis of the third hypothesis shows that even companies that are more dependent on trade (import and export) with other countries make greater use of currency hedging.

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ONLINE CONFIGURATION AS AN ACCOMPANYING MEASURE IN THE CRM-PROCESS

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KEY WORDS

CRM system, mass customization, product individualization

JEL CODES

A10, C89

1   INTRODUCTION

With the introduction of a CRM system, various measures have to be considered to achieve the success of the system. An online configurator represents a new interface between the potential customer and the company. The basic function of the configurator follows the principle of the mass customization process (Pine, 1993). A major problem of the system is the high termination rates in the end customer area, which indicates a lack of process support. The two most frequent termination situations were determined in studies: 1. The customer aborts the configuration because he has no preference over the configuration options offered, and 2. The customer cannot specify the desired product elements because they are not offered by the supplier (Scheer, 2006). The goal should be that the product configuration process supports the user in such a way that abort scenarios can be avoided. It is to be shown – also using examples from reality – to what extent this can be illustrated with the help of basic versions of pre-configured machines (Mertens et al., 1994).

2   MATERIAL AND METHODS

The work obtains the results both from the survey of own surveys and tests by test persons and from the evaluation of various statistics and charts which are available in the prevailing literature. The product configurators of the companies available on the Internet were used for this purpose: KOMATSU, Volkswagen, Mercedes Benz, and Zeppelin/CATERPILLAR were examined and evaluated concerning their design. The results were then incorporated into the creation and preparation of the configurator described in the paper. However, by far the greater part of the research was in the evaluation of the existing technical literature on this topic. To get an overview between the different possibilities and different views, literature was searched with the help of Google Scholar, which deals with these topics – above all, the topic of the demolition scenarios – and brought into the work. The criteria for the selection of the technical literature were the treatment of the topics Hard Customization and the reference to capital goods. Selection in the consumer goods sector (e.g. the configuration of fashion) was excluded.

3 RESULTS

In order to interest customers in the company and the product, various criteria of the online configurator must be fulfilled: Clarity; user-friendliness; clear and structured process of user guidance; clear presentation of the selection options and meaningful additions; pictorial presentation of the additions made and combination options; intuitive feasibility of changes; end product and the price changed by the configuration must always be updated and visualized; the creation of a resilient, valid offer must be possible; it must be possible to automate sales within the CRM process. Since the customer wants to fulfill his need for an individualized machine, it is basically irrelevant for the purchase decision whether the product to be configured is created from the normal standard production, from standardized components or assem-blies, or whether it is specially manufactured for the customer (Link, 2001). The process the customer goes through is divided into several successive phases until the needs and expectations of the customer are satisfied (Fey et al., 2000). The configurator then runs a control loop based specification and evaluation of existing products and alternatives with existing information and product introductions. It makes sense to start with a machine pre-configured in a basic configuration in which further pre-configured products are completed (Mertens et al., 1994). With the help of this technology, the company can use the online configurator as a response mechanism to generate a significantly improved benefit from advertising measures.

4 CONCLUSIONS

The online configurator thus represents an important measure in the CRM process and will, in the near future – especially for the younger generation – become an essential prerequisite with a marketing portfolio. In addition to the marketing benefit, it is also a tool for the sales force that represents a validated possibility to create meaningful offers to end-users, especially for heterogeneously trained employees. If the premises presented in the paper are taken into consideration, it is much more likely that a final order will be placed than without the additional possibilities offered by the online configurator.

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ECONOMIC EFFECTS OF DISMISSAL PROTECTION IN PUBLIC EMPLOYMENTS IN GERMANY

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KEY WORDS

dismissal protection, labour law, public service, public employees, economic effects

JEL CODES

J45, J63, K31

1 INTRODUCTION

This paper examines the economic effects of employment protection in public employments. The protection against dismissal in the civil service is always subject to public and private discussions. Proponents of protection against dismissal in general argue, that employees shall be protected against the risks of labour market. The critics, however, point to the high cost dimensions of dismissal protection, the high level of legal uncertainty for the employers and negative psychological, motivational and labour market effects. The same statements are discussed concerning the protection against dismissal in the public service. In addition to this, public employees and civil servants often are subject to permanent public criticism and justified or unjustified prejudices concerning their attitude to work or assumed impossibility to be dismissed. As a result, an extensive dismissal protection in public employment is highly discussed and raises the question of its costs and effects.

2 MATERIAL AND METHODS

Previous theoretical and empirical research in the competitive economy sector has produced contradictory results regarding the economic effects of job protection and its impact on unemployment and employment. Reliable empirical studies on the economic effects of dismissal in the public service are missing. This research gap is subject of this dissertation. The basic material for this dissertation is empirical data gained by a new survey of public employers. These are asked about costs and effects of dismissal protection. The answers will give concrete figures for the direct and indirect costs of dismissal protection within public sector. In addition, an insight into the economic effects and the resulting behaviour of public employers is granted. These empirical results of the survey in the public sector related to costs and economic effects of dismissal protection. Afterwards they are going to be compared to the already known effects in the competitive sector as well as theoretical factors and theories in order to show differences or similarities and to answer the research questions.

3   RESULTS

Currently there are no results available for answering the research questions because the basic survey of public employers has not yet been conducted and the planned settlement could not yet be made. However, the effects of protection against dismissal in the private sector are already partly known due to the evaluation of existing literature and studies. The most important results are that according to the most recent study from 2007 the dismissal protection annually produces costs of approximately 7.5 billion euros for direct costs such as severance payments and process costs, but also administrative effort and lost value creation potential, resulting from a cautious attitude of the companies. Nearly every third termination by an employer ended with an unfair dismissal claim making severance pay negotiations almost compulsory. These results support the assumption that dismissal protection processes have become a severance payment trade and that the actual goal of continued employment is hardly relevant in practice. According to the companies, dismissal protection has become an important role in recruitment and dismissal decisions. About 40 percent of the companies renounced redundancies from 2004 to 2007 due to the specific protection regulations and just under 37 percent reported that they had not taken on new jobs. Economically strong phases that would have enabled them the hiring new employees were bridged by overtime, temporary workers or contract workers.

4   CONCLUSIONS

Currently no conclusions are possible since the survey and the evaluation of the expected data hasn't taken place yet.

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CURRENT OPINION IN DURABLE GOODS MARKETING DISTRIBUTION CHANNELS AND ITS ECONOMIC ENVIRONMENT

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KEY WORDS

durable goods, marketing distribution channel, durable goods economics

JEL CODES

M31, L81, L22

This paper describes recent theoretical findings in industrial durable goods distribution, agricultural tractors in particular. It briefly enumerates operations that have to be executed for efficient function of the whole distribution system and frictionless equipment delivery from the manufacturer to the end-user with the latter's maximum satisfaction in mind. The paper describes in detail the durable goods economic environment in which the distribution functions are executed because the durable goods market behaves in a peculiar way. At first glance, some findings may seem to be contrary to common consumer goods microeconomics, especially in the case of excessive economic power. The structure of the market influences behaviour of companies on the market and their reactions to technological changes.

The theoretical scheme of recent distribution forms builds on the fact that marketing distribution channel members execute the following functions: marketing research, (brand) communication, contact with customers, product fine-tuning, negotiation, ordering & physical distribution, financing, after-sales services (Lehnamm and Winer, 2005). Those functions are more important than the institutions (channel members) which execute them. Channels are dynamic and changes in institutions reflect the rise of more efficient ways to execute the distribution functions, for example when industry.4.0 technologies or more efficient combinations of the particular functions in institutions emerge. According to Kotler (1992), one of the most significant recent channel development is the rise of vertical marketing systems. A vertical marketing system (VMS), comprises the producer, wholesaler(s) and retailer(s) acting as a unified system. The Channel captain owns the others or franchises them or has so much power that they all cooperate. VMS achieves economies through size, bargaining power and elimination of duplicated services.

The environment of the Durable goods market is described by selected tools of the SCP model, which was developed for industry structure description. Main exceptionalities to basic microeconomics are pointed out.

The demand (for durable goods services) can be satisfied by different means, such as purchase of a new machine, new machine rental, purchase of aftermarket machine or rental of the service itself. Durable goods services can be supplied either by brand new machines ready to be bought or by existing machinery, the supply of which does not depend on (service) price or interest rate (once the machine is bought it behaves to some extent as sunk costs; see Carlton, 2015).

Leasing increases manufacturers' economic power as it enables price discrimination (heavy users pay more), Carlton a Gartner (1989) declare. Despite this fact, customers prefer leasing complex machinery which requires prompt maintenance.

According to Waldman (1997), leasing also serves as quality assurance because it bypasses the manufacturer's free-riding while providing information regarding product quality (investment into durability). From this point of view, leasing helps distribute risks better between the end-user and manufacturers. Leasing also helps to eliminate asymmetric information on the aftermarket.

Durable goods Aftermarket used to be a perfect example of an adverse selection effect. Hendel a Lizzeri (2002) demonstrates that the market distortion due to adverse selection is much lower than formerly expected.

Manufacturers' market power (even that of monopolists) declines to a minimum in case the end-user obtains durable goods services from the product he acquired to his possession. Such a finding is in stark contradiction to basic microeconomics on a firm's behaviour. Nevertheless, such outcomes are described in papers of Coase, who built his assumption on customers' rational expectations, and also in Carlton and Gartner's paper (1989). In their study, the owner of durable goods responds to a monopolist substantial price increase by prolonging the life span of the goods.

An industry with volatile future development and complex contractual conditions tends to opportunistic (utilisation of unintended benefits from contracts) behaviour in cooperation between marketing distribution chain members. In such a case Williamson (1975) suggest solving the unequal situation by vertical integration which transforms inefficient contractual cooperation to direct managing.

Theoretical findings show that distribution channels logically tend to the vertical marketing system, which works in a more efficient way. Social welfare is then secured by intense competition between different vertical marketing systems. Durable goods are getting more and more complex and customers therefore prefer leasing (shared economy). The economic theory provides important market descriptors for further research and analysis on new technologies' influence on agricultural tractors distribution channels on which the author of the paper is working.

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QUESTION ANSWERING BASED ON NORMATIVE DOCUMENTS

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KEY WORDS

question answering, dialogue, conversational agent, document, search

JEL CODES

C88, C89

1   EXTENDED ABSTRACT

Question Answering (QA) is an NLP task of answering user's questions automatically. The user's question is typically expressed in an informal natural language (Cimiano et al., 2014). The biggest challenge in QA is the "lexical gap" – the same thing can be expressed in multiple ways (Kodra and Meçe, 2017).

This field of study has already been researched deeply, and F1 score reaches 90% on publicly available datasets like Rajpurkar et al. (2018). However, common QA systems have two drawbacks: the answer is usually expressed as a part of the original text and such systems do not allow multi-turn dialogues. The success rate of multi-turn QA is currently deep under 40% of F1 (Saha et al., 2018).

Building QA systems on normative documents (e.g. laws) is difficult. The main reason is very large lexical gap between the user's question and the document's content. Users typically do not know the terms used in such documents. Therefore, the success rate of these systems is low (F1 ca 40%; see Rao and Ke, 2018).

The main contribution of this work is a novel method for building QA systems on normative documents. The state-of-the-art research in this field tries to achieve better results by building complex neural networks and training on large datasets. Despite that, our approach is more interactive. Its base lies in the field of Interactive Question Answering (IQA; see Li et al., 2017). The basic principle of our approach is in asking additional questions by the system to clarify the user's intent. Another contribution is in publishing a dynamic dataset that is suitable for testing such systems that include multi-turn dialogues led by the system. Such a dataset has not been released before.

Target documents of this research are normative documents used in banks, schools and other large organizations to support internal processes, e.g. study rules at a university. All these documents have a similar structure – numbered headlines and precise division into chapters and paragraphs. Sentences are often long and complicated but are not ambiguous. The frequency of pronouns is low. Limiting the target document space in this way should lead to a better performance than using general laws like in the work of Rao and Ke (2018). The following list depicts the main steps of our method regarding the overall process of IQA on normative documents:

1. Convert the input document from a native format (PDF) into a text form.
2. Annotate (recognize entities, parts of speech, coreferences etc.) using Stanford CoreNLP (Manning et al., 2014).
3. Construct a graph. Each node represents one sentence or headline. Edge weight represents the

relative importance of two connected sentences based on their mutual distance, distance from a headline, similarity and existence of common co-references.

4. Let the user ask a question. Find matching nodes using a common QA neural network, e.g. one of the algorithms used in Rajpurkar et al. (2018).

5. If more matching nodes are found, generate additional questions to clarify the user's intent. The questions are generated using the matched sentences, closest headlines and using sentences that have a strong relation to the matched one (via the graph).

6. The goal of our system is to provide the shortest possible answer. It means that the answer usually omits some information from the document that can cause loss of reliability. In such a case, the user is informed that some part of the information is missing and can be additionally requested. Relevant sentences are found using the edge weights in the graph. Thanks to this approach, the user is not overwhelmed with information but still can be well informed.

A prototype system using our novel method is being tested now. We have collected documents from universities and prepared a dataset with questions and ideal human-like answers. Because no other complex dataset and no metric is available for such kind of QA, the first phase of testing is manual. The complete results and the dataset will be published at the beginning of 2020.

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HUMAN ACTIVITY RECOGNITION IN A CLASSROOM

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KEY WORDS

human activity recognition, indoor positioning, radar, bluetooth, student behaviour

JEL CODES

C88, C89, C93

1 EXTENDED ABSTRACT

Many different approaches to general Human Activity Recognition (HAR) have already been published. Ghosh and Riccardi (2014) used data from smartphones to classify activities like walking or driving. Although HAR research is now a deep and advanced field, no research was done regarding HAR specialization for a classroom environment. This environment has specific features. Therefore, our work is focused on augmenting HAR methods in the classroom environment.

Some research has already been done in the field of using different sensors to observe classrooms. Farrell et al. (2019) used optical recognition to detect mood of students working with a computer and to evaluate his/her engagement. Pacurar and Cernazanu (2013) analysed the influence of temperature and CO_2 to students' attention. Liu et al. (2018) used a large number of different sensors for complex monitoring of a classroom and recognizing activities like lecturing or collaboration.

The main contribution of our work is to extend methods of Human Activity Recognition used in the literature (Wang et al., 2019) into the classroom environment. In this environment, different activities must be defined. For example, typical activities in HAR research, like "running" or "driving" are not applicable in the classroom. Instead, more precise activities, like "paying attention" or "playing a game on a phone", are to be recognized. Compared to previous works, our work focuses on a more abstract definition of Classroom Activity Recognition (CAR) based on the formal HAR definition, that has not been done before.

The hardware complexity of Liu et al. (2018) causes that it is impossible to deploy such solutions massively. Our work builds on low-power and low-cost sensors that remove this burden. Radars will be used to measure vital signs and Bluetooth beacons for precise indoor positioning of the teacher and students.

The most precise method of indoor positioning is fingerprinting. This method is more precise than trilateration. However, it requires manual mapping of the area in advance. Afterwards, an ML algorithm is used to train a model to predict positions based on the strength of signal received from near beacons. Algorithm kNN produces the best results for the fingerprinting method (Zhang et al., 2013).

A radar was successfully used to detect vital signs of people, including heartbeat frequency or respiratory rate. Radar is also able to monitor multiple people simultaneously. However, to cover the whole classroom it will be necessary to deploy more radars (Ahmad et al., 2018).

Obtained data will be processed using methods of Human Activity Recognition augmented in the classroom environment. Modern methods use primarily neural networks for recognition of activities. Wang et al. (2019) provided a broad overview of the state-of-art methods in the field of HAR.

In our follow-up work, we are going to equip a classroom with sensors and start collecting data. Secondly, the classroom environment will be defined with all actors and activities. Finally, an algorithm will be modelled and trained to recognize defined activities. A detailed paper with results is planned to be published in summer 2020. Our main goal is to propose a novel methodology for monitoring classroom activities that can be helpful for automatic lesson personalization or lecture optimization. A side goal is to prepare and publish a dataset suitable for further research of Classroom Activity Recognition.

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INDOOR POSITIONING DEPLOYMENT ON UNIVERSITY CAMPUS

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KEY WORDS

indoor positioning, fingerprinting, artificial neural network, bluetooth, regression analysis

JEL CODES

C88, C45, C69

1 INTRODUCTION

Indoor localization solutions based on low-power Bluetooth beacons have become popular in the recent period, especially due to low costs and easy deployment even without a complex infrastructure. The main use case is navigation in airports, railway stations, shopping centres and hospitals (Lin et al., 2015).

Beacon-based positioning methods are divided into range-based and fingerprint-based methods (Zuo et al., 2018). Range-based methods require only the positions of beacons and are less precise. The fingerprint method consists of a training and positioning phase. In the first phase, fingerprint samples are collected so that they can be used by a prediction mechanism, e.g. kNN or decision trees (Kul et al., 2014).

Our contribution will be in proposing a precise indoor positioning method that is suitable for a massive deployment. The positioning should not depend on the properties of a particular device or interferences of an environment. Neural networks have the potential to avoid the stated issues.

2 METHODOLOGY

In this study, we focused on the fingerprint-based method which is the most precise one. In our test room (see Fig. 1), a person holding a mobile device collected RSSI fingerprints at several locations with known coordinates. Afterwards, Kalman filter for noise reduction was applied. The preprocessed data collection was passed as an input of an artificial neural network.

A model estimator of a multilabel continuous target was constructed. The inputs are RSSI values and the outputs are two coordinates. The network has two hidden layers with 12 neurons, the activation function is ReLU, except for the output layer with the linear activation function. Optimizer Adam was used as a fast and popular algorithm.

The model was evaluated by Distance Error metric (Mehmood et al., 2010):

$$\mathrm{DE} = \sqrt{(x - x_0)^2 + (y - y_0)^2} \qquad (1)$$

$$\mathrm{ADE} = \frac{1}{n}\sum_{i=1}^{n}\mathrm{DE}_i \qquad (2)$$

Our serverless solution is designated for real-time positioning on iOS and Android devices. To take advantage of dedicated neural network hardware in iOS devices, we implemented Keras library. It ensures model conversion into the format natively supported by Core ML framework and also support for TensorFlow on Android. A mobile device collects RSSI values and smoothes them with Kalman filter.
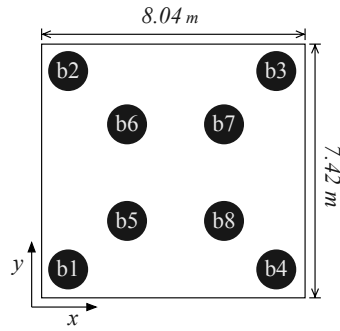
Fig. 1: Room setup with 8 Estimote Proximity Beacons – a lab with tables and computers.

A user's location is estimated using the pre-trained model. We use a local coordinate system with its origin in a building's corner. In the end, the estimated coordinates are transformed to WGS-84 and displayed on a map.

3   RESULTS

Evaluation of the performance of the proposed neural network is characterized by two metrics: the standard Mean Absolute Error (MAE) and a metric called Distance Error (DE). DE is calculated as a difference (spatial distance) between the estimated coordinates and the target coordinates (Mehmood et al., 2010). Although MAE is better for comparison with other works, DE demonstrates the model performance for our use case (positioning in 2D space) better than a general metric like MAE. K-fold cross-validation with 10 folds was applied to verify the results. The final result from cross-validation was calculated using Average Distance Error (ADE).

The proposed network was trained on 1000 epochs using RSSI data from 8 beacons, measured at 10 positions with an average of 27 records per position. MAE reached 2.48 meters within a standard deviation of 0.71 m, ADE reached 3.78 m within a standard deviation of 1.12 m.

4   CONCLUSIONS

In this paper, a method for precise indoor positioning was presented. This method achieves sufficiently accurate results for a massive deployment on a university campus for most tasks, e.g. indoor navigation or traffic analysis. In our follow-up work, we aim to collect a larger dataset consisting of measured RSSIs across the whole building, including multiple floors, in order to achieve a complex positioning system. Moreover, we will evaluate the minimal number of beacons required to obtain a given distance error. The complete results and the dataset will be published at the beginning of 2020.

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ATTITUDES TOWARDS MONEY, BUYING ONLINE AND PROBLEMATIC INTERNET USE

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KEY WORDS

problematic Internet use, money, online buying

JEL CODES

E71, E70

1 INTRODUCTION

The study aims to investigate the relationship between attitudes towards money, the intensity of problematic Internet usage and online shopping. The study was conducted on a group of 18–28 young adults who are at risk of experiencing Problematic Internet Use. In addition to age, current professional status, gender, place of residence and average monthly income were also examined. The growing market for online sales results in a significant simplification of the purchase process. As indicated by previous studies, attitudes towards buying are related to purchasing decisions and have strong psychological correlates (Liao and Cheung, 2001; Teo, 2002).

2 MATERIAL AND METHODS

In order to conduct the research, the following were used: the Generalized Problematic Scale Using the Internet, the Attitudes towards Money in an abbreviated version, and a socio-demographic questionnaire. The survey included questions about gender, age, place of residence, average monthly income, employment status, preferences related to buying online, preferences related to the selection of articles that are purchased online. In the survey it was also possible to justify why the selected article is bought via the Internet. The survey also looked at the frequency of purchases and returns. The Generalized Problem Using the Internet 2 scale consists of 15 questions and allows to obtain 5 sub-scales: preference for online social interaction, mood regulation, negative consequences, compulsive internet use and cognitive preoccupation (Caplan, 2010). The shortened scale of attitudes towards money consists of 25 questions and includes scales: financial control, power flowing from money, financial anxiety, financial aversion, catching opportunities, money as a source of evil (Gąsiorowska, 2013).

The aim of the study was to investigate the relationship between attitudes towards money, problematic use of the Internet and online shopping. The following hypotheses were put forward: (1) The higher the intensity of the Problematic Use of the Internet, the more frequent online shopping is. (2) There will be a positive relationship between Problematic Internet Use and financial anxiety, aversion to commitments and catching opportunities. (3) There will be a negative relationship between

Problematic Use of the Internet and financial control, power flowing from money and treating money as a source of evil.

In order to investigate these hypotheses, 146 people aged between 18 and 28 were surveyed using an online survey available on social networking sites.

The survey was conducted from March 2019 to July 2019. Statistica 13.1 (StatSoft, Poland) was used to analyze the above hypotheses. Descriptive statistics, distribution of normality, correlation and differences between groups were analysed.

3 RESULTS

On the basis of the results obtained, 46% of the respondents were men, the average age was 23.36 years. The majority of the respondents came from medium and large cities (76%), the average monthly income was PLN 2642 net for employed people, PLN 1721 net for studying or studying and working, and PLN 721 net for studying but not working. 23% of respondents shopped online 2–3 times a week, 57% once a week. The distribution of variables was not a normal distribution, so it was decided to use non-parametric tests.

In order to investigate the first hypothesis, ANOVA Kruskall-Wallis rank was performed. The obtained results indicated statistically significant differences between the shopping group 2–3 times a week ($Z = 3.34$, $p < 0.002$) and the shopping group 1 time a month, and between the shopping

group 1 time a week and the shopping group 1 time a month ($Z = 2.71$, $p < 0.008$). In order to check the second and third hypothesis, Spearman's correlation analysis was performed, which showed significant positive associations between Problematic Internet Use and catching opportunities ($\rho = 0.46$, $p < 0.01$) and aversion to commitments ($\rho = 0.27$, $p < 0.01$). Significant negative correlations of Problematic Internet Use with financial control ($\rho = -0.66$, $p < 0.01$) and money power ($\rho = -0.22$, $p < 0.01$) were also obtained. No statistically significant correlations were obtained for the following scales: money as a source of evil and financial anxiety.

Based on the results obtained, the first hypothesis was confirmed, while the second and third hypotheses were partially confirmed.

4 CONCLUSIONS

The obtained results indicate a great importance of the Problematic Use of the Internet also in purchase decisions made on the Internet. Additionally, people with a high intensity of Problematic Internet Use were characterized by a different attitude towards money than people with a low intensity of PIU. Online shopping offering fast payments and almost unlimited possibilities of return constituted a more tempting offer for young people than fixed-line

shopping and allowed them to make a purchase at different times than the standard opening hours of fixed-line shops. The survey may constitute an important element of education related to the use of the Internet and the prevention of Problematic Use of the Internet, and may indicate further directions of research development related to attitudes towards money.

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USING EEG TECHNOLOGY TO PREDICT CONSUMERS' PREFERENCES

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KEY WORDS

EEG technology, ERP, electroencephalography, consumers' preferences

JEL CODES

D12, M31

1 INTRODUCTION

One of the major research directions of neuromarketing is the idea that we can use neural and physiological measurements (neuroscience data) to improve the prediction of future consumer behavior or choices (Plassmann, 2015).

Within the classic marketing industry, there is a high demand for new and better methods to predict the success of marketing campaigns and products. In marketing research, we could use neuroscience data to identify information beyond what is achieved by conventional methods such as questionnaires, interviews, or focus groups.

Electroencephalography (EEG) is a promising and relatively inexpensive method that measures the electrical activity of the brain. The amplitudes of some measured event-related potentials (ERP) may correlate with future consumer preferences to products. However, there are very few studies to address this issue and the use of neuroscience data raises the question of replicability. Are we able to measure the same results repeatedly under the same conditions? (Hakim, 2019; Lin, 2018)

This paper is a review of what we know about predicting consumers' preferences using EEG technology and what studies have already been done.

2 MATERIAL AND METHODS

Papers indexed in the citation registers Web of Science (WoS) and Scopus were used for this research. In the Czech Republic, the main measure of the reported scientific activity is the output of these citation registers. This is the reason why these two.

The search term "eeg AND consumers AND preferences" was used to search in both registers (Scopus in Article title, Abstract, and Keywords; Web of Science in Topic). A total of 92 (43 Scopus papers, 49 Web of Science papers) papers were downloaded. First, duplicate articles that were located in both databases were removed. A total, 32 articles were identified

as a duplicate. 32 papers were in both registers, 17 were only in the WoS and 11 in the Scopus - 60 unique papers left (42 articles, 14 conference papers, 3 reviews, and 1 book chapter).

The data analysis of the papers was carried out in the Excel program. All the data was downloaded from both registers.

Abstracts of all papers have been evaluated. Papers have been selected that can serve as a starting point for further exploring consumer preferences using neuroscience data acquired by EEG technology.

3   RESULTS

There are only a small number of papers dealing with EEG preference prediction. However, the analysis shows a rapid increase in publishing papers as well as citations in this field. Between 2008 and 2012, no more than one paper was published. Since 2013, the number of articles published per year begins to increase gradually and in 2019 it was 14 papers. The citation rate of these articles began to increase exponentially since 2012. In the individual years 2013–2018 it was 6, 13, 38, 62, 118, 152 citations.

It is obvious that the issue about predicts consumers' preferences through neuroscience data is a multidisciplinary field because the papers are not only published in journals in the economics and business fields but also for example in journals about neuroscience, behavioral sciences, electrical engineering, computer science or psychologists.

4   CONCLUSIONS

All of these three reviews can be used as a starting point for further work [4]. The most promising direction of research seems to be through the examination of the ERP component after the presentation of stimulus in the form of individual products. The experiment presented in Telpaz (2019) is a good start for further research. Two years later, this experiment was successfully replicated, see Goto (2017). It would be good to build on these two experiments and try to improve the methodology of evaluating data acquired in this way. Further analysis of the data collected could also give an answer as to which brain parts are involved in creating preferences to products.

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THE INFLUENCE OF FINANCIAL CRISIS ON POLARISATION OF POLITICS IN GREECE

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KEY WORDS

politics, crisis, Greece, critical analysis, thesis, polarisation, elections

JEL CODES

D72, E61, P16

1 INTRODUCTION

The presented text deals with the causality of the financial crisis and the polarization of the political spectrum in Greece. The analysis was conducted in 1999–2015 and focused on election preferences for program families and selected split lines. We analysed the causality of the financial crisis and the polarization of politics by using these indicators: changing of the left-right spectrum, preference for authoritarian leadership, attitude to the European Union, the way of economic management. 8 Greek parliamentary elections and 4 European Parliament elections were used to prove the causality. Almost all the criteria under review were proven to have polarization of politics (party families) in Greece.

This analysis is not meant to verify the existence of polarisation itself. Polarisation in politics (or in society) is a phenomenon observable everywhere and every time, where two groups with different opinions occur. The aim of the work is to detect the degree of polarisation resulting from the 2007-2009 worldwide financial crisis and to verify, whether the selected indicators could be used for further and wider analysis of this phenomenon.

2 MATERIAL AND METHODS

The aim was partly inspired by the work of Funke, Schularick and Trebesch (2015), which also dealt with the same topic of causality of financial crises and political polarisation, but with different set of indicators (left-right spectrum and the amount of violent and non-violent protests in the state) and much larger set of examined states and elections used. Same topic was examined by Esmer (2015) with only one indicator (the left-right spectrum) and with data from 7 European states.

First part of the work is dedicated to polarisation itself. It specifies the definition of polarisation, its consequences and differences in various conditions. The work also contains a brief reflection of economic and political development of Greece in the past decades. The second part includes specification of the already mentioned indicators of polarisation – changing of the left-right spectrum, preference for authoritarian leadership, attitude to the European Union, the way of economic management. These were selected to fully cover all the spectra in modern politics needed. With the upcoming of catch-all parties, the still most used left-right spectrum fails to be sufficient for the expertise. The left-right spectre is

expanded by the development of political families (for example conservative, socialistic, communist family) and the rate of pro-European sentiment includes both national elections and elections to European Parliament. Thus, a total of 6 indicators is used. Every indicator is combined with data from ParlGov database (Döring and Manow, 2005) – the election results (in vote share) of particular parties, which are assigned with a place on a scale of each individual spectra. For example, a far-left party, is given number 0 on a scale from 0 to 10 for left-right spectrum in opposition to a far-right party, which would be represented by number 10. These scales were made by addressed local experts of the ParlGov project, that analysed national political systems, compared them to other states and positioned them on a given scale. All data were displayed in graphs and tables and then explained using critical analysis.

3   RESULTS

All 6 tested indicators confirm the polarization of politics following the financial crisis, which struck Greece mainly in 2009, with significant spill overs of voters to the extremes of given spectra and almost eliminating the centre positions.

In contrary to the work of Funke et al, the results found on left-right spectrum differ. Said work confirms polarization too, but its conclusion is the far-right domination on the spectrum. In Greece after the crisis the situation is the exact opposite – the government is mostly communist or socialist far-left (especially the leading communist party SYRIZA). On the liberal-authoritarian spectrum, Greek voters tends to elect more liberal parties, which resonates with their southern, lax lifestyle. After the crisis, the relationship with the European Union did not decay so much, as would be expected with so many loans from EU, guaranteed from Greece mostly by fiscal reforms and the "belt tightening policies". From the starting point in 2000, there was around 80% of voters full pro-European. These voters only shifted a bit to the centre of the spectre but stayed on the pro-European side. The last indicator, the way of economic management behaved as expected with socialist and communist government – the voters shifted to economic interventionism after the crisis.

4   CONCLUSIONS

The results of the ParlGov project data analysis suggest a strong correlation between the financial crisis and the polarisation of the politics in the state. The conclusion of this work therefore is confirmation of the Funke et al. (2015) hypothesis, despite using different methods of research. Moreover, all indicators could be successfully and relatively universally used in further works, if there would be any similar research needed for getting the bigger picture on the problematics worldwide.

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POTENTIAL OUTPUT MEASURING BASED ON COBB-DOUGLAS PRODUCTION FUNCTION

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KEY WORDS

Cobb-Douglas production function, Nonlinear Least Squares, potential output

JEL CODES

C51, E23

1 INTRODUCTION

Cobb-Douglas production function (CDPF) is historically related mainly to Turgot and the Classical economists (Blaug, 1997) but also the Neokeynesians are associated with the production functions. Except for the technological progress measuring the CDPF can be used as a tool of the potential output determination and production gap estimation.

This kind of analysis can be advantageous because it takes into the account the contribution of labour and capital and the total factor productivity (TFP) that is important for supply-side functioning evaluation. This approach is commonly used by OECD (Beffy et al., 2006) while investigating the productive potential in economy. In addition, the input data are usually easily accessible. In Zimková and Barochovský (2007) the CDPF was used for potential output estimation in Slovakia during 1993–2006. An approach based on production function is preferred also in Cotis et al. (2005) because the estimations are more transparent, time consistent and in accordance with the theoretical economic assumptions. However, Alkhareif et al. (2017) mentions the disadvantages resulting from the fact this method requires a reliable data what is problematic in case of developing countries.

2 MATERIAL AND METHODS

The CDPF at the aggregate level is given by an equation

$$Y_t = \text{FTP} \cdot K_t^{(1-\beta)} \cdot L_t^{\beta},$$

where Y_t represents economic output (GDP in basic prices in millions expressed in national currencies), TPF is total factor productivity, K_t is capital (gross fixed capital formation in millions expressed in national currencies), L_t is labour (number of employees), and β is a labour share on the economic product, that can be calculated as an average share of the employee compensation on GDP or estimated as a parameter of the function. For this purpose, we assume the simplified function exhibiting constant returns to scale. In this paper we use Nonlinear Least Square method to obtain the estimated parameters, TFP and β.

Next, we put K_t, and these estimations of TFP and β in the function to obtain the potential output

$$Y_t^* = \text{TFP}\ K_t^{(1-\beta)} L_t^{*\beta},$$

here L_t^* is potential labour calculated as

$$L_t^* = p \cdot P \cdot (1 - \text{NAIRU}),$$

where p represents the involvement rate of the productive population in the working process, P is working age population and NAIRU is non-accelerating inflation rate of unemployment. After these steps the potential output is obtained. The analysis presented in Zimková and Barochovský (2007) is based on this approach.

As the data we use yearly time series for period 1995–2013 of selected Central European countries.

The data is sourced from EU KLEMS, OECD and EUROSTAT databases. The CDPF estimated parameters based on time series data are adequate for a kind of the average stage of the economy – the over time dynamics represented by the labour share and TFP shifts are not captured. Therefore, we extend the approach described here and we propose a time augmented CDPF, where both or one of the parameters TFP_t, β_t are supposed to be a linear function of time. For details regarding the time augmented CDPF, see Roubalová and Viskotová (2019).

3   RESULTS

Our results contribute to the investigation of the economic stage of the selected countries during the observed period. Such analysis leads to the results presenting what the product of each individual country is and how far or close it is in average to the potential product. In other words, how big the production gap is. With respect to the using of the time augmented function as a next step of this analysis, we are able to evaluate also the development

of the production gap and compare it not only among all the analysed countries but also for individual countries within the observed period. Our time range covers the period of the global economic and financial crisis and that is one of the reasons it is not enough to rely just on the original CDPF. The time augmented function helps monitoring of all years in the period as well as the dynamics of the development.

4   CONCLUSIONS

This paper presents one of the ways how the CDPF can be used as a tool of the potential output estimation. Appropriate function form with estimated parameters taking into the account specific features

of the development could be used for production gap predictions in further research. There is also scope for using of other methods of the potential product estimation and comparing with the CDPF approach.

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PATTERNS OF CONSUMPTION IN THE MODERN RUSSIA

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KEY WORDS

consumer behaviour, market of alcoholic drink, beer, wine, spirits, consumption motives, alcohol consumption, drinking habits

JEL CODES

M31

1 INTRODUCTION

In recent years, Russia has adopted disincentives for alcohol consumption. Nowadays there is a positive tendency of gradual reduction in the general volume of alcohol in Russia, as a result of systematic work carried out in the framework of the state anti-alcohol policy. Their consequence is the reduction in the general volume of alcohol. Mainly was reduced consumption of spirits and were replaced by the growing consumption of beer and wine drinks.

In the article research structure of consumption alcohol drink of russian consumers. The main purpose was to examine the consumption of alcohol and consumer behaviour at the alcoholic beverages market and definition of the main motives leading to the consumption, the factors influencing the most on the consumer decision-making to purchases and consumption of alcohol in Russia. Also been investigated popularity different alcoholic drink. In the article using information, derived from primary and secondary data. Primary data was acquired through the questionnaire survey. In this way, results represent comparison of interconnection consumption patterns and characteristics respondents.

2 MATERIAL AND METHODS

This article is considered to be about the patterns of alcohol consumption and factors influencing on consumption of different types of alcohol. The major research database is secondary data from the statistical reports of WHO and the Federal State Statistics Service (Rosstat). Analysis begins with a study of the percentage of consumers of alcohol in general and selected alcoholic beverages, allowing to evaluate changes in consumption patterns. The core indicator is consumption of alcohol per capita, including children and people under 15 in Russia.

The main source of primary data is the result of an online survey conducted in time period from May to June of year 2019, the questionnaire consisted of 20 questions that were answered by 2236 russian respondents. The main questions were aimed to reveal the types and quantities of alcoholic beverages consumed by people and the factors that are influencing on the consumer in the alcoholic beverages market. To process the primary data, descriptive statistics methods and comparative analysis methods were used. To assess the relationship of consumer

characteristics with the preferences of various types of alcoholic beverages, the chi-square criterion of preferences for types of alcoholic beverages was used.

The data was processed in MS Excel and SPSS Statistics.

3   RESULTS

The structure of alcohol consumption is determined depending on the most consumed alcohol. The most "preferred" is the southern type, based on the choice of wine. On the contrary, the main alcoholic beverages for the northern type of consumption are spirits like vodka, characterized by a desire for intoxication and often accompanied by it as an excessive intake of alcohol.

Nowadays there is a positive tendency of gradual reduction in the general volume of alcohol in Russia, as a result of systematic work carried out in the framework of the state anti-alcohol policy. The pattern of consumption of alcohol is changing. Russia shifted from a predominantly so-called northern pattern of consumption (primarily vodka-oriented) to an average European pattern of consumption (beer- and vodka-oriented; see Roshchina, 2012). Reduced consumption of spirits were replaced by the growing consumption of beer and wine drinks.

According to the results of the questionnaire, 23% of women prefer wine to other alcoholic drinks, while only 7% of men prefer this alcoholic beverage. Beer is preferred by 19% of men and by only 11% among women. As for hard liquors, they are preferred by 15% of men and only 4% of women. This relationship was confirmed by the chi-square test. Thus, it can be said that there is a relationship between gender and the type of preferred alcoholic beverage.

Differences in ages also affect alcohol preferences. The percentage of beer consumers is the highest between people aged 25–39, consumers aged 40 and older often prefer vodka to other alcoholic drinks.

Most respondents, as a reason for consuming of beer and wine mention the taste properties of the drink. Quality is reason for consuming of spirits.

4   CONCLUSIONS

The main purpose of this article was to evaluate changes in consumption patterns. The questionnaire survey confirm that beer is the preferred alcohol of consumers in modern Russia. Research served also to point out the alcohol consumption patterns vary most by gender and age. Spirits and beer beverages are typically consumed by men and are especially popular for working men, whereas wine is typically consumed by women (Roshchina, 2012).

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GDP FORECAST ACCURACY OF EUROPEAN CENTRAL BANKS

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1   INTRODUCTION

One of the most important field of economics is economic growth. Modern period is characterized by population growth, increase in life expectancy, rapid urbanization and increase in income per capita (Ucak, 2015). Economic growth attention grown mainly after World War II. Each economic school presented their own opinion on determinants of stable economic growth.

During last 25 years DSGE model and its derivatives became the most popular macroeconomics forecasting models. They are used by substantial proportion of European Central Banks. GDP forecasts significantly affect firms decision making.

2   MATERIAL AND METHODS

Data are collected from reports published by national central bank. Each bank issue quarterly reports, which contains GDP forecast for next 3 or 4 years. Forecasted data from the 4th quarter of the year has been chosen to maintain consistency within the dataset. Central banks usually publish reports four times a year in electronic version. The actual real GDP are obtained from the previous year's central bank reports.

If GDP forecasts accuracy as an indicator, will be tested by evaluating the accuracy of predictions. The most used accuracy indicators are Mean Absolute Error (MAE), Root Mean Squared Error (RMSE) and Average Forecasting Error (AFE). Indicator MAE is the average absolute forecast error compared to reality. AFE indicates forecast bias, where positive AFE values indicate systematic overestimating forecasts, negative underestimating.

3   RESULTS

In Table 1 are shown prediction error indicators for Slovakia, Czechia and the next 2 countries, which are different for each indicator. We chose countries with the highest and the lowest result. For first year prediction are mostly positive considering AFE indicator, which means that GDP forecast are overestimating. Ireland is the country, which macroeconomics model is the most overestimating
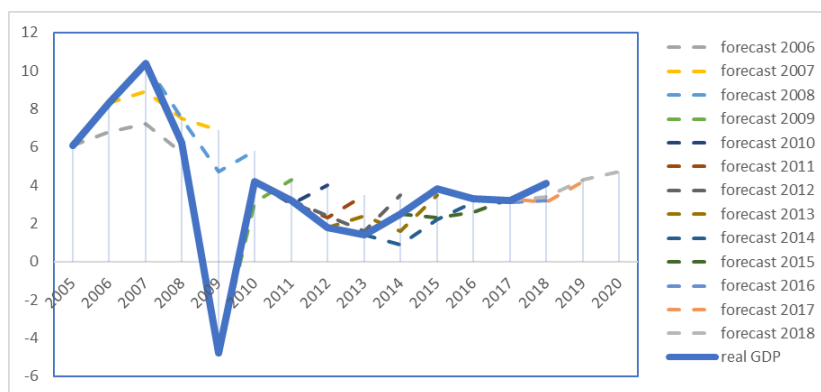
Fig. 1: Slovakia's predictions

within countries of European Union. On the contrary Denmark's model is underestimated.

The MAE in first year forecast does not exceed 0.8%, except few spikes. Only significant exception is the Ireland, where average absolute deviation reaches 2.42%. The smallest deviation between forecast and real GDP is observed in Germany, where difference is 0.13%. Regarding RMSE indicator, where major errors affects the most, the dispersion of predictions is increasing in time, as well as the difference between RMSE and MAE indicator.

On the Figure 1 are predicted and real GDP values for Slovakia. We can see, that third year prediction are inaccurate and deviation is high.

Tab. 1: Prediction error indicators

Indicator	Country	1y forecast	2y forecast
AFE	Czechia	−0.01	0.44
	Slovakia	0.22	−0.2
	Ireland	1.76	1.48
	Denmark	−0.36	−1.2
RMSE	Czechia	0.01	0.44
	Slovakia	0.22	0.2
	Ireland	1.76	1.48
	Belgium	0.01	0.06
MAE	Czechia	0.31	1.26
	Slovakia	0.54	1.49
	Germany	0.13	0.95
	Ireland	2.42	4.53

4   CONCLUSIONS

Measurements points to better prediction ability with decreasing forecast horizon. In the forecasting horizon up to one year it has been shown that all countries are able to predict quite accurately. In terms of firms decision making, one year prediction can be estimated as almost 100% accurate. However, in the horizon more than one year, errors may have relatively higher values, which suggest firms shall take other factors into decision making in long term. Long-term predictions shall be taken into account as trend (rising or falling) not as specific value.

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THE BEST TIME FOR AN SME TO TERMINATE A PROJECT

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KEY WORDS

project management, portfolio management, project success factors, SME

JEL CODES

O310, P470, M210

1   INTRODUCTION

Nowadays, small and medium-sized companies mainly realize innovations and new products within the framework of projects. The development process usually follows guidelines, according to which a project has a fixed start and end date. It is not uncommon for it to become apparent, during the course of the project, that the required project results cannot be achieved, in part or at all. There are usually a variety of reasons for this, the causes of which are to be found with both the project client and with the contractor. However, it is rare for a project to be abandoned during its regular duration because of creeping failure. On the one hand, the chance to save unnecessary expenses is lost and, on the other hand, the available resources cannot be focused on more productive tasks.

This paper deals with the question of when SMEs should stop unsuccessful projects, in order to minimize the loss.

2   MATERIAL AND METHODS

First of all, a survey of project managers will reveal whether and to what extent, small and medium-sized companies have experience of dealing with project cancellations. The assessment is based on case studies, the individual parameters are assessed separately using a weighted utility analysis.

In addition to a systematic analysis of company-internal documents, information is also obtained from narrative interviews with project managers, who are encouraged, by setting a time limit, to adjust their statements' level of detail, design, and relevance to the limited time frame.

The methods used to evaluste financial, as well as temporal deviations, in the project are based on mathematical, quantitative investigations. By using earned value analysis (Linssen, 2019), it is possible to uncover financial and time discrepancies. The cost performance index (CPI) is used to predict what it would have cost to complete the project adequately. Likewise, by calculating the schedule performance index (SPI), a statement can be made as to when the project, in all likelihood, could have been completed (Project Management Institute, 2017). Differences between the planned and the actual state

are calculated using plan/actual deviations, and the reasons for them are determined.

3 RESULTS

The results of the narrative interviews (Lang, 2019), as well as the analyses' findings, are summarized in a guideline, which can be used to present the project situation transparently.

The key figures, determined on the basis of the earned value analysis, serve to show the time differences between the optimal and actual time of project termination. In addition, mathematical calculation is used to determine how high the savings would have been if the project had been terminated at the optimum time.

4 CONCLUSIONS

The summary of the results shows SMEs the enormous savings potential that can accompany a project termination. With a view to the future, the results of this paper can help companies to reflect on their own processes and, if necessary, to revise them, enabling them to determine the optimum time for unavoidable project cancellations independently. In addition, the optimization approaches could ultimately contribute to SMEs gaining a competitive advantage through efficient time and cost allocation.

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TOWARDS SMART DAIRY NUTRITION (SDN): IMPROVING SUSTAINABILITY AND ECONOMICS OF DAIRY PRODUCTION

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KEY WORDS

CNCPS, income over feed cost, sustainability, dairy production, digestibility

JEL CODES

Q01, Q14, Q56

1 INTRODUCTION

As consequence of global warming, an increasing ecological awareness of end-customers and economic challenges like volatile commodity prices, dairy farmers are in urgent need to identify effective approaches to reduce not only unnecessary nutrient emissions but also to increase their overall ecological and economic sustainability. From the economic perspective, today up to 60% of total milk production costs can be attributed to the fed diet (Overton et al., 2010). Nonetheless, present-day still widely used standard ration formulation systems for ruminants apply high security parameters on nutrient supply, often leading to uneconomic overfeeding and nutrient spillage.

The Cornell Net Carbohydrate and Protein System (CNCPS) is the state-of-the-art ruminant nutrition concept, which combines deep data driven modelling of the ruminant biology [1]. Within the smart dairy nutrition concept (SDN) via interfaces, CNCPS can take advantage of the vast and readily available farm data from sources like milking parlour, herd management systems and feed laboratory analyses.

From the nutritional perspective, CNCPS applies a clear differentiation between the major nutrients, the crude protein (CP) and carbohydrate (CHO) fractions, subdividing them, depending on solubility and availability in the rumen or small intestine (Tedeshi and Fox, 2018). Using the CNCPS in combination with the application of the economical concept of income over feed cost (IOFC) both economic and ecological sustainability of dairy production can be evaluated simultaneously (Overton et al., 2010). Objectives of this study were to evaluate within an integrated dairy production setup in Germany the economic and ecological potential of dairy production by feeding 28 different corn silage hybrids, analysed using the CNCPS approach.

Results show, economic and ecological sustainability can be improved simultaneously. By feeding corn silage varieties with high fiber digestibilities, IOFC could be increased by ~10% while simultaneously reducing manure accumulation.

2 MATERIAL AND METHODS

From the current 2019 maize silage harvest, 28 early to mid-late maize varieties from various breeding companies were ensiled to represent a broad range of currently available modern corn silage hybrids. The silages were analysed within the Sano-Lab, following CNCPS analytics. In order to obtain silage specific

IOFC and excretion results, laboratory analysis results of each silage were combined with a constant set of feeds, forming a diet fulfilling the requirements of the high lactating dairy cows. Required animal biology data were obtained from a representative integrated dairy farm in Germany. The diet specific IOFC was calculated, following:

$$
\begin{aligned}
\text{IOFC } (\text{€}) \;=\; & \text{milk yield (kg)} \\
& \cdot \text{ milk price } (\text{€/kg}) \\
& - \text{ dietary cost } (\text{€}). \quad (1)
\end{aligned}
$$

In order to account for flexible milk component pricing, the milk price was calculated following the price model:

$$
\begin{aligned}
\text{Milk price } (\text{€}) \;=\; & \text{base price (kg; 3.8\% fat;} \\
& \quad 3.4\% \text{ crude protein)} \\
& \pm \text{ fat premium } (\text{€}) \\
& \pm \text{ protein premimum}, \quad (2)
\end{aligned}
$$

where the fat (protein) premium depended on the deviation from the base milk solids level, multiplied by 0.0025 € (0.005 €). Dietary formulations were performed using the NDS software. All phenotypic analysis where performed using R.

3   RESULTS

The analysis of the 28 corn silage varieties yielded a strong differentiation in the digestibility parameters, like uNDF240. Comparing the three hybrids characterized by a particularly high residual plant digestibility (hybrids 1–3: lowest uNDF240 contents) and the corresponding three hybrids with lowest residual plant digestibility (hybrids 26–28: highest uNDF240 contents) the high digestible silages are characterized by an ~60% lower indigestible fiber load, yielding ~10% higher NDFD30, NDFD120 and NDFD240 results. Feeding the varieties with highest digestibilities yielded significantly higher ($p < 0.05$) IOFC results and significantly lower ($p < 0.001$) manure excretions.

4   CONCLUSIONS

The presented corn silage evaluations show the substantial economic and ecological effect of feeding forage with high fiber digestibilities and the effect of variety choice. Identifying high digestible varieties should not be done focussing on lignin content, which only poorly differentiates between the good and poorly digestible hybrids. In this sense the CNCPS model and analysis is very well suited to e.g. identify highly digestible corn silages/varieties, due to the focus on fiber digestibilities (NDFD30, 120, 240), indigestible fiber (uNDF240) and economic evaluation via IOFC.

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TOWARDS SMART DAIRY NUTRITION (SDN): FIBER, THE "GREEN GOLD" OF SUSTAINABLE DAIRY FARMING

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KEY WORDS

smart dairy nutrition, Cornell net carbohydrate and protein system, NDF digestibility, sustainability.

JEL CODES

Q01, Q14, Q56

1 INTRODUCTION

Fodder digestibility was identified by the FAO as one of the most influential parameters in reducing the carbon footprint of dairy farming (FAO, 2010). Dairy cows are ruminant animals and require as predominant nutrient neutral detergent fiber (NDF) for animal welfare and sustainable human food production. High quality and digestible NDF can therefore be seen as the "green gold" of sustainable dairy farming.

The Cornell Net Carbohydrate and Protein System (CNCPS) is the state-of-the-art ruminant nutrition concept, enabling a detailed assessment of NDF quality parameters, as well as dairy economics (Tedeshi and Fox, 2018). While the positive effects of improved NDF digestibility for dairy farming are well understood (FAO, 2010; Russell, 2004; Tedeshi and Fox, 2018), detailed information on the identification and management of well digestible NDF sources is still lacking.

Using CNCPS analytics, the objectives of this study were to assess the influential parameters which govern NDF digestibility of corn silage, using a vast set of 584 corn silages from German dairy farms and multiple years. Results show, NDF digestibility is primarily governed by variety choice (Fig. 1) and can be four times more important than the correct harvest stage decision.

2 MATERIAL AND METHODS

From the cropping years 2017–2019 a set of 584 maize silages from different German farms were analysed following CNCPS standard procedures. A subset of the analysed silages included unique variety information, spanning early to mid-late hybrid maize varieties from various breeding companies and representing a broad range of the currently available modern corn silage hybrids. NDF digestibility was modelled as 30h NDFd (% NDF), using a linear mixed model approach, following:

$$y_{ijk} = m + g_i + a_j + d_k + ad_{jk} + e_{ijk},$$

in which y_{ijk} is the 30h NDFd for the i-th variety, cropped in the j-th year and harvested k-th maturity, m is the grand mean, g_i is the effect of the i-th variety, a_j is the effect of j-th year, d_k is the effect of the k-th harvest stage, ad is the interaction of the j-th year and k-th harvest stage and e_{ijk}
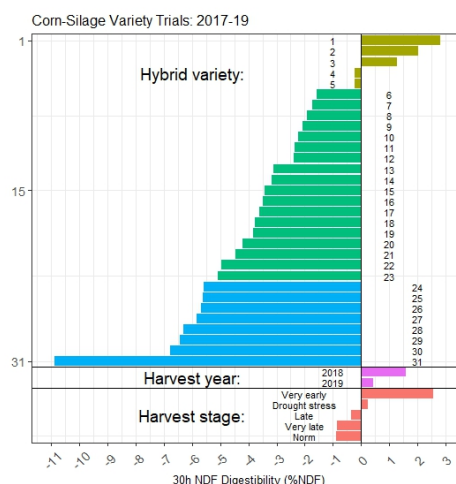
Fig. 1: Effects on neutral detergent fiber (NDFD30) digestibility, depening on variety choice, harvest year and crop harvest stage (crop maturity). Basis cropping season 2017, harvest dry matter ~31% and NDFD30 ~62.5%.

is the residual. Factors variety (i), year (j) and harvest stage (k) were considered as fixed effects, the interaction between year and harvest stage (jk) was considered as random effect. All phenotypic analysis where performed using R (R Core Team, 2018).

3   RESULTS

The analysis of the 584 corn silages yielded a strong differentiation in the digestibility parameter 30h NDFd (Fig. 1). The variety effect on NDF digestibility was dominant, followed by harvest stage and finally cropping year. Considering harvest stage, earlier maturity stages yielded higher 30h NDFd results.

4   CONCLUSIONS

The presented corn silage evaluations show the substantial effect of variety choice, in order to obtain forage with highest NDF digestibilities. Identifying high digestible varieties should therefore be prime concern to dairy managers. On the other hand, the data attributes a rather minor importance to the harvest stage decision. This is good news for farmers and dairy managers, because the correct variety choice yields not only high NDF digestibilities, but also a larger harvest window within the quest to harvest the "green gold", quality NDF for sustainable dairy farming.

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EFFICIENCY DEVELOPMENT OF METALLURGICAL INDUSTRY IN THE CZECH REPUBLIC

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KEY WORDS

efficiency, metallurgical industry, panel data, stochastic frontier analysis

JEL CODES

C51, D24

1   INTRODUCTION

The metallurgical industry has a long history in the Czech Republic. This sector has undergone considerable development in the Czech Republic in recent years. The main aim of this paper is to evaluate development of efficiency of metallurgical industry from period 1995–2015 using various types of stochastic frontier analysis (SFA) panel data models. To ensure robust results, estimates of efficiency will be made using SFA models with different settings.

2   MATERIAL AND METHODS

Estimates will be based on annual data from the EU KLEMS database from 2000 to 2015. The models will be based on the Cobb-Douglas two-factor production function for the 'Basic metals and fabricated metal products, except machinery and equipment' sector (NACE codes 24 and 25 together). Added value in EUR million will represent output. The labor factor will be expressed through the number of employees in thousands. The capital factor will represent the value of nominal gross fixed capital formation in EUR million.

Three types of models will be used, the model known as the 'true' SFA model with fixed effects (TFE) and random effects (TRE) according to Jondrow et al. (1982), along with a model where the change in efficiency is created based on the subsequent decomposition (i.e. TD models) according to Battese and Coelli (1995). The TD model assumes a truncated-normal distribution of inefficiency. Models by Greene (2005) allow for wider settings, so exponential, half-normal and truncated-normal distribution of inefficiency will be used. Models will be estimated also with the assumption of exponential and linear growth of the efficiency frontier. Since two efficiency estimators: BC (like in Battese and Coelli, 1988) and JLMS (like in Jondrow et al., 1982) estimator will be used, there will be a total of 42 efficiency estimates based on 21 SFA models. All the described procedures will be performed in the Stata 15.1 and MATLAB R2019a computational system.
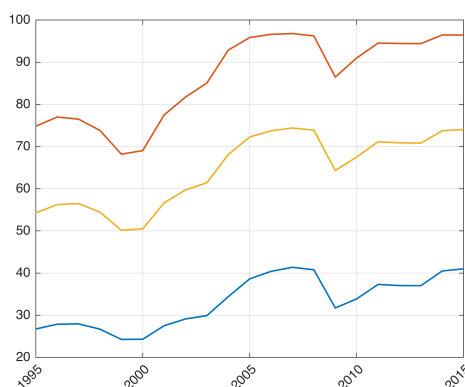
Fig. 1: Average efficiency (in %) by TFE (red), TRE (orange) and TD (blue) models in 1995–2015

3   RESULTS

Figure 1 shows the average efficiency of the surveyed sector separately for TRE (red), TFE (orange) and TD (blue) models. After 1996 there was a slight decrease in efficiency and in 1999 there is a clear drop in efficiency. This development fully corresponds to the situation of the ironworks at the turn of the century, because in 1996 the government decided to stop the production of pig iron, which was actually abolished at the end of 1998. A greater increase in efficiency (especially on the TD models) is evident in 2004. This corresponds to a situation where the government decided to transfer several companies (for e.g. VÍTKOVICE, a.s.) to private ownership in 2003. Subsequent growth was thwarted by the crisis in 2009. Furthermore, the development of efficiency shows a stagnation of efficiency (in the case of the TD model even a decrease of 1%) from 2012–2013. Here, too, one can find a parallel with the overall economic development, as it was in 2012 that a decline in GDP was observed for the first time since the crisis in 2009.

4   CONCLUSIONS

It has been found that the all three types of estimated SFA models reflect the situation in the metallurgical industry in 1995–2015, but the choice of a particular model type has an impact on the resulting efficiency values. Especially when using TD models, the resulting values of technical efficiency are considerably lower. However, the development of average efficiency values is the same in all model types. The credibility of the development within SFA models could be verified using competitive methods (e.g. data envelopment analysis).

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OBSTACLES TO THE IMPLEMENTATION OF VALUE-BASED PRICING

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1 INTRODUCTION

Pricing has been recognized as a direct revenue driver with immense impacts on corporate financial performance (Bouter, 2013). Still, within the marketing mix, *Price* has been the factor having received the least research (Harris, 1994; Harvey, 1993). Within the existing pricing research, cost-based pricing has been identified as the least profitable pricing strategy, leading to price competition and downward spirals of profit generation (Frohmann, 2018). Interestingly, in business practice, cost-based pricing is the most widely accepted and most commonly used pricing strategy (Hinterhuber, 2008). Researchers have found another emerging strategy, *value-based pricing*, focusing on the customer perceived value to evaluate pricing decisions and being deemed the most profitable pricing approach for companies (Liozu et al., 2012). However, only a very small amount of businesses has actively implemented value-based pricing into their pricing strategies, although the immense profit potential in comparison to cost-based pricing has been found (Hinterhuber, 2008). This paper addresses the question why so few companies have adopted the most profitable pricing approach and which obstacles are to be overcome for a successful implementation. The goal of the paper is to find out if obstacles to the implementation of value-based pricing have changed and which new obstacles have emerged.

2 MATERIAL AND METHODS

The theoretical background of this paper is based on a deep and extensive literature review in order to understand the main factors of price determination and pricing strategy. The major factors influencing pricing decisions are identified. Value-based pricing is defined as an approach to pricing, factoring in consumers' willingness-to-pay, their price sensitivity and their value perceptions (Liozu et al., 2012). Based on this concept, different consumers with differentiating value perceptions and price sensitivities are likely to pay different prices, allowing companies to exploit each customer's willingness-to-pay. The beneficial concept of value-based pricing and its tremendous potential is investigated in the literature review of this paper. Further, the main barriers of implementing value-based pricing already found by previous research is summarized and research gaps are identified.

The methodology of the research approach is based on the research onion (Saunders et al., 2009). For the development of this paper, the main research philosophy is interpretivism, as objectivity is sought and statistical techniques are used for the quantitative data analysis stage. A *mixed methods research design* is chosen by the author by using both a *mono method quantitative design* and further a *mono method qualitative design* (Saunders and Tosey, 2013). The research strategies used for the approach of this paper are an industry-focused business perspective by using expert interviews and a customer-focused consumer perspective by using consumer surveys. The expert interviews are part of a qualitative data collection, representing a longitudinal time horizon and utilizing

the Grounded Theory methodology for analysis. Within the qualitative data analysis stage, a business perspective is taken to understand the obstacles imposed by organizations or institutions and how they can potentially be overcome. For that purpose, semi-structured expert interviews are used and subsequently analysed by using the qualitative analysis of content by Mayring (Newcomer et al., 2015; Mayring and Brunner, 2007). The major objective of conducting the expert interviews is to comprehend pricing experts' understandings about and problems with value-based pricing and preventing its successful implementation. In a second empirical data collection step, consumer surveys are conducted in a cross-sectional time horizon to factor in quantitative data and a potentially deriving perception of value-based prices in comparison to the experts' opinions. Online questionnaires with 25 questions are published and 300+ participants are likely to be needed for the generation of representative results. The main outcome of the consumer-based study is a consumer view on value-based prices, their price sensitivity and their willingness-to-pay for certain products. For the quantitative data analysis stage, statistical methods and economic tools like *Van Westendorp's Price Sensitivity Meter and the Conjoint Analysis* will be utilized.

3   RESULTS

As the data collection stage has not been completed in its entirety, no final results can be given. It is still likely to state that in a fast-paced economic environment, boasting sweeping changes because of mega trends like digitalization and globalization, barriers to the implementation of pricing strategies change constantly. The results of this paper provide highly interesting insights into first, the obstacles which organizations and institutions are facing such as a potential lack of management support and second, the obstacles being imposed by the consumer side such as a potential lack of understanding value-based prices or the misidentification of consumers' value perceptions. Based on these research results, recommendations both for theory and for business practice are derived in order to improve and accelerate the implementation process of the most valuable and most profitable pricing approach into corporate decision-making.

4   CONCLUSIONS

Value-based pricing is deemed to be the most profitable pricing approach but is rarely implemented in business practice. The main obstacles preventing its implementation can be clustered into several categories. For each of these categories, there exist valuable recommendations on how to overcome these barriers. This research contributes both to pricing theory as well as to pricing in a business context. Still, limitations like a microeconomic, industry-focused approach are to be mentioned and provide further potential for future research.

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FORECASTING WITH GOOGLE TRENDS: EVIDENCE FROM THE AUTO INDUSTRY

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KEY WORDS

behavioural attention, Google trends, behavioural finance

JEL CODES

G4, G12

1 INTRODUCTION

Internet becomes the significant resource of consumers reviews to the companies or their products which can influence the users in their buying or selling decisions. For consumers there is no barrier to find any information or to be part of the group with same interest. On the other hand, the companies can analyse the data for product sales forecasting, reduce losses in the production or draw up marketing plan. For researches is recent challenge to get value out of online resources.

The importance of focusing on consumer searches is based on transmission channel. People are making the actions evolving from the attention that makes them search for the information. In the light of the suggestion the consumers are mostly using the search engine to help them find the information about goods, moreover this act undoubtedly mean that they pay the attention. According to the gathered data, they buy product from preferred company. If we move further to the process, the purchase of car results in sales growth, which provides the information about company health. In addition, according to the investment houses the sales performance not only influences the stock market but the whole economy. Finally, the sales performance made automobile stocks more attractive to investors. To sum up, it was proved that investors' attention has positive impact on stock prices, whereas the consumer attention does not change the direction of dependence. Thus, we conclude the positive impact of attention to car brands on stock prices of automobile concerns.

2 MATERIAL AND METHODS

Using our rich dataset, we focus on the stock prices of the automobile concern i in time t. We are in line with Joseph, Wintoki and Zhang (2011) using Fama-French model as risk factors. They prove that the significant impact of attention still occurs after controlling for Fama-French risk factors. Our panel regression model is specified as:

$$
\begin{aligned}
\text{stock}_{it} = {} & \text{const} + \alpha R_{Ft} + \beta_1 \text{Mkt}_t + \beta_2 \text{SMB}_t + \\
& + \beta_3 \text{HML}_t + \beta_4 \text{RMW}_t + \beta_5 \text{CMA}_t + \\
& + \sum_{s=1}^{S} \beta_s \text{svi}_t^s + \mu_i + \epsilon_{it},
\end{aligned} \tag{1}
$$

where the variable R_{Ft} represents 13-week treasury rate of US bonds in time t. The price of the SP500 market decreased by risk free determinant represents variable Mkt. The factor data expressed by the return difference between portfolios of "small" and "big" stock (SMB) and the return difference between portfolios of "high" and "low" book-to-market stocks (HML) are included in three factor Fama-French model. Moreover, we provide the return difference between "robust" and "weak" operating profitability portfolios (RMW) and the return difference between "conservative" and "aggressive" investment portfolios (CMA) representing five factor Fama-French model. The last set of variables includes Search Volume Index svi for specific car brand s, and time t. The differences between the concerns are captured by fixed effects μ_i. The approach is in line with Choi, Varian (2012). They apply fixed effects to investigate the link between car sales and Google searches for a car maker.

The dataset contains daily data from 7th July 2006 to 31st October 2018 and includes 17 stocks. Most of the automobile concerns are listed on US market, except Hyundai, Fiat Chrysler Automobiles and Mazda, which are part of the Germany market. Moreover, Renault is listed on French market. Thus, it covers stock exchanges NYSE, Over-the-counter (OTC), XETRA, NASDAQ, Frankfurt Stock Exchange and Paris Stock Exchange. Moreover, the stock data were transformed using logs.

We define stock via logarithmic of stock price i in time t. We use several thresholds starting from a search intensity of less than 1 SVI index and continue to the thresholds 25, 50, 75, 90 and 95 related to a search intensity of less than 95 SVI index. Finally, we used dummy variables to differentiate the stocks across the dataset.

3 RESULTS

We assume a nonlinear impact of behavioural attention, and thus we employ particular levels of attention to investigate the impact on stock returns. In other words, we capture behavioural attention to the car brands of specific car that is made in selected automobile concerns and finally, that the economic agents type into the Google search engine to gain further information. The threshold model starts at 25% of search intensity, thus level 25 includes investors' attention from index 25 and less, while level 50 consists of investors' attention from index 0 to 50, etc., when level 95 provides the data about investors' attention from index 0 to 95. To sum up, an increasing index value represents an increasing level of attention. To conclude, we choose the initial value according to downloaded data from Google Trends.

The data differentiation related to the level of search intensity confirmed correlations between the searches from application Google Trends and explained variable. In such context, when the investors are seeking for information about car brands, the Google Trends factor appear to be significant related to explaining the stock prices movements.

4 CONCLUSIONS

The investors are seeking for information related to the car brands, thus they increase the stock prices. We claim that costumers searching for information to buy a car of selected automobiles resulting in increased car sales. The positive impact of behavioural attention is in line with the investor's searches, whose taking buying action based on the searched information about selected car brands.

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OBSTACLES IN PATENT DATA COLLECTION

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KEY WORDS

patent, patent data, PATSTAT, value of Czech patents

JEL CODES

O30, L20

1   INTRODUCTION

Patent statistics is widely used indicator in economic research. On macroeconomic level it is often used as proxy for innovation complemented with other data, for instance expenditures on R&D (Crosby, 2000; Hasan and Tucci, 2010). These indicators reflect different stage of innovation process. R&D expenditures can be spent on one project over several years. The R&D phase might, but also might not, result in patent application filing. It depends on various factors. Among others it is the actual success of the R&D, the owner's preferences of the type of intellectual property protection and the patentability of the invention. The fact, that patent statistics do not cover all the innovations in economy is one of its drawbacks, discussed in Crosby (2000). Another disadvantage is that a simple count of patents can be highly skewed indicator because it fails to reflect varying importance of patented inventions. However, its drawbacks are often outbalanced by its availability, which has even intensified in last two decades by the rise of Internet. Nowadays, online databases provide wide range of patent information. There are various types of databases, the vast number of them are national or international (e.g. Espacenet, Patentscope) search databases, that contain complex patent data. However, the search databases are not very useful for statistical purposes without further investment of resources. Nevertheless, European Patent Office (EPO) provides PATSTAT database, which is statistical database that contains bibliographical and legal status patent data. The complex data available from these databases are employed in number of studies, for instance Frietsch et al. (2014). The use of complex patent data can mitigate the disadvantages mentioned above. For instance, patent citation may enrich the information contained in simple patent count as it may reflect the importance of the patented invention. The aim of this paper is to discuss obstacles that may accompany the patent data collection, especially the data on Czech national patents.

2   MATERIAL AND METHODS

The complex patent data are also widely researched on microeconomic level (Van Zeebroeck and Van Pottelsberghe de la Potterie, 2011). It allows to explore the determinants of patented technology value, a patent value (as an intangible asset value) and eventually also the value of a company holding a patent (or patents). In our research we focus on determining the value of Czech companies that

applied for patent protection in Czech Republic, and what is the contribution of their patents (or pending patent applications) to their business values. We collected data for from several sources. Firstly, we retrieved data from PATSTAT database (version autumn 2018) and match them with Amadeus database. We were looking for patents applied for between 1993 and 2016 in company's hands with the only owner. The indicators we were looking for were the pendency time, lifetime, the size of patent family, the number of 4-digit IPC classes, the number of patent claims, forward and backward citation etc.

3   RESULTS

The patent sample we retrieved from PATSTAT contained 3315 patents that belong to Czech companies and were granted or validated in Czechia. We matched 3190 of them to 1191 Czech companies, but we also faced several difficulties, which can be categorized into 3 groups. First, the information was not included in the database. For instance, the number of claims in PATSTAT is only available for European or US patent publications, not for the national applications. Second, the information was included, but was incorrect. This was the case in both Amadeus and PATSTAT database. PATSTAT do not explicitly contain information on patent status or its lifetime. Instead, it contains information on all legal statuses, which are supposed to be reported on regular basis by national patent offices. However, we have found several patents, that according to PATSTAT data lapsed more than once or did never expired, which obviously was not correct information. We used the Amadeus database to match the patents to their owner's national ID numbers. The Amadeus includes only the last known owner and the owner in some cases did not correspond to the owner claimed in the UPV (Czech Intellectual Property Office) database. More frequently, the ID number did not match to the owner's name. Therefore, we had to verify all the collected data with other sources. The third group is the case, when the information was included, but was not clear. We verified the ID number obtained from Amadeus database in the public register at *justice.cz*. In several cases, we could not properly match patent to its owner only according to its name and address, since there existed companies with identical name and address, but different ID numbers, for instance ETA a. s.

4   CONCLUSIONS

Patent data seem to be easily available at relatively low cost. The closer we looked, the more obstacles we found. Now, when we are aware of them, we can deal with them in our research. However, there might be some consequences for using raw data without analysing them in detail. For instance, we have found out, that even in times when the number of national patent applications is decreasing and the number of EP applications is increasing in Czechia, Czech companies seeking protection in their homeland prefer the national applications. That implies, that their activities might be unconsciously excluded from research.

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GAME-CHANGER SUBSCRIPTION MODEL – A NEW BUSINESS MODEL DISRUPTING AUTOMOTIVE INDUSTRY?

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KEY WORDS

subscription models, consumer-orientated, automotive

1 INTRODUCTION

Flat rates and subscriptions models are getting more popular in all kind of industries. In addition to traditional applications in newspapers and fitness studios, digital formats such as Netflix and Spotify are highly demanded by young consumers. Flexibility and the possibility to shape the service based on his own individual preferences are the two main benefits for the customer.

Today, subscription models are also used in other fields of business, e.g. such as meal-kit delivery (Marley Spoon) or clothing (blacksocks). Recently, the subscription concept is adopted in the automotive industry. After some car manufacturers and start-ups already offered such models in the US, the trend is now coming over to Europe. Various manufacturers are testing car subscriptions and more customers are interested in this alternative of buying or leasing a car. According to many automotive industry experts, car subscription is the future and this kind of service will transform from niche to mass market.

2 MATERIAL AND METHODS

The aim of this study is to gain insights regarding subscription models in the automotive sector, based on the following key questions:

- "Which opportunities/risks/strengths/weaknesses are basically seen in the subscription model in the automotive sector?"

- "What are the most important add-ons/services for a successful subscription model in the B2B and B2C sectors?"

- "What is the need for subscription models in the automotive sector?"

- "Effects of the subscription model on previous business models as well as market and provider structure?"

Approximately 20 semi-structured interviews will be conducted as part of a qualitative approach. Various experts from OEMs of passenger cars and commercial vehicles including their (financial) service units/departments, classic car rental, start-ups and other experts will be interviewed regarding their assessment and experience of subscription models. The use of an interview guide, sound recordings and double coding ensure the quality of the analysis.

It will be the first scientific study in the German-speaking world to analyse this topic by means of qualitative data collection. In order to gain insights and experiences from practical experience, interviews were conducted with competent experts and affected actors from OEMs (including service units/department), Start-Ups and Experts.

3   RESULTS

Even though the current subscription models on the market are very different, the experts in the automotive industry have a very homogeneous idea about the subscription model. In their opinion, this is a simple and low-cost service based on the concept of car rental.

The interviewees also largely agree on the increasing demand assessment. This is mainly due to convenience reasons, as customers no longer want to worry about anything.

Supplementary services can be sold in the B2B segment in particular, whereby the requirements in B2C are almost identical. With regard to price categories for the subscription model, there are two opinions that are also reflected in the current range on the market: an equal price for all or a price based on individual nature.

The subscription model is generally said to have a strong influence on the business models of the surveyed experts, on the market and provider structure in the automotive industry, but not overnight.

4   CONCLUSIONS

The next few years will show whether the subscription model is suitable for becoming a real game changer and whether it will successfully replace traditional procurement options such as sales or leasing on the market. According to the surveyed experts, the possibility definitely exists!

As essential implications for the practice the offerers should think about it, in how far they could integrate used cars into their fleets. This could result in very interesting prices for the customer and enable the subscription model to move from a niche product to a broad form of procurement.

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INVESTIGATION OF THE EFFECTS OF DIGITALIZATION IN THE CONSTRUCTION INDUSTRY

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1   INTRODUCTION

This paper examines how digitization impacts the craft trades and what opportunities and risks exist. The subject of the investigation is the German construction industry, which is during change. Due to diverse interdependencies and dependencies, the innovation cycles in the construction industry are long (Berger, 2016). Many entrepreneurs are unclear which measures can be useful for future market success. In addition, it is examined which problems and needs the entrepreneurs have and which improvement measures can be meaningful.

To analyze the research question, the existing processes and project processes in the construction industry are compared with other industries that have had more influence in the past through digitization. The current state of knowledge and measures in the implementation are analyzed. Market analyses of other example industry's develop specifics and challenges in the market. From the acquired knowledge theses are created, for the examination of which questions are formulated.

The analyses are examined by expert interviews. Current challenges and suggestions for improved project work are discussed. Subsequently, the results are evaluated, and strategy recommendations given.

2   MATERIAL AND METHODS

In order to investigate the research question, the research subject of craftsmanship and business will be analyzed in more detail. Market analyses identify and look at the special conditions in the construction industry. By comparing it with current research literature, the current state of science in relation to market conditions is considered. The knowledge acquired is transferred to various theses.

3   RESULTS

The results for the construction industry are intended to develop as general recommendations for action as possible, which can be generally applicable to the craft industry. The Question is answered, how can the challenges of the information society be overcome by small and medium-sized enterprises, which are the main part of the construction industry and the craft sector in Germany. The high-level information and process sequences must be able to be sensibly structured and processed. The purpose of this work is to help entrepreneurs to set meaningful directions so that you can optimally manage and align their business processes. Only with a deeper knowledge of the market can it be reacted to changing market conditions and disrupting business processes.

4   CONCLUSIONS

As described, the craft sector and especially the construction industry will see effects of digitization, as the market is currently only moderately affected by digitization and that radical innovations are only very small. Individual business processes have so far been little affected by digitization and competition from innovative new business models has yet been achieved.

Digitization will enable simple and recurring business processes in craftsmanship to be automated and simplified in a similar way to factory manufacturing (ZDH, 2017). Also, the digitization will make individual industries more comparable, resulting in competitive pressure, increasing customer benefits.

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ACCELERATING NEW PRODUCT DEVELOPMENT PROJECTS: A LITERATURE REVIEW

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KEY WORDS

new product development, project execution speed, lean, agile, design thinking

JEL CODES

O14, O31, L23

1 INTRODUCTION

This consecutive exploratory study is based on the author's previous study's findings on new product development projects to *"identify ways to address the expectations in the project speed factor"*. The scientific discussion has identified "time/speed" as one key success factor for new product development.

Alternatively, the terms "Lean", "Agile" and "Design Thinking" are frequently cited as popular approaches to address and improve the project speed factor. This paper compares and contrasts both, popular and scientific perspectives.

2 MATERIAL AND METHODS

This literature review was carried out with the support of a CAQDAS tool (Computer Assisted Qualitative Data Analysis Software). Search criteria were the primary term "New Product Development" as well as the popular secondary terms "Agile", "Lean Startup", and "Design Thinking".

The research objective was to explore practitioners' viewpoints, which are manifested in textbooks as initiators of this research and summarizing the contemporary view. On the other side, they were compared and evaluated against their scientific discourses' perspectives.

3 RESULTS

The terms "Agile", "Lean Startup", and "Design Thinking" are philosophies with different backgrounds and focus directions. While the "Agile" philosophy is focused on dealing with uncertainty during the development process with the goal to respond to change, "Lean Startup" postulates to interpret any project as an experiment, around a feasible business plan can be built on. "Design Thinking" itself focusses empathetically on the customers and their core needs. Gothelf summarizes *"Agile helps us deliver work in regular cadences. Lean Startup helps us determine what to focus on."* "Design Thinking" determines, if value is created.

4 CONCLUSIONS

On first view the cited concepts look different and competing. But their concepts and tactics overlap, they complement one another, and finally contribute to "New Product Development" Processes in their distinctive, unique characteristics. The author proposes to apply a tailored combination of those cited approaches main concepts and tactics, following the concept of eclecticism. The concept shall be verified in a field-study on a particular new product development project. See paper.

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PERCEPTION OF THE THIRD ROLE OF THE UNIVERSITY FROM THE PERSPECTIVE OF STAKEHOLDERS

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KEY WORDS

university, third role, corporate social responsibility, stakeholder, local community, impact

1   INTRODUCTION

In last decades, colleges and universities across the world have undergone developmental changes, which had direct impact on the roles these bodies play in society. As well as the private sector, they are also forced to react to demands of changing society. The first and the second role of colleges and universities, the educational and the research role, was complemented by another one – the social role. It's closely related to social responsibility. Currently, this third role is a common part of universities' strategic plans worldwide. The question is how efficiently is such role fulfilled in reality.

The article deals with the perception of the third role of a Czech public university – Mendel University Brno when viewed by one of its stakeholders – the local community. Based upon the primary research, it is examined what is the impact of the third role and what meaning it brings to the local community.

The aim of the project is through primary research of a group of stakeholders – specifically local communities and local organizations find out their perception of the third role of the university, in particular socially responsible activities of the third role and bring suggestions to increase the effectiveness of these activities and strengthening the University's social responsibility (USR).

2   MATERIAL AND METHODS

The research is primarily focused on the activities of the Third Role and the USR PEF MENDELU in Brno and on common activities at university level. Primary research is based on ISO 26000. The local community is defined as Brno residents. We divide Brno – Černá Pole as the closest community. We investigate whether the distance from residence has an impact on the perception and knowledge of Mendel University in Brno. Currently, we received answers from 100 respondents.

3   RESULTS AND CONCLUSIONS

The results show the respondents' knowledge of social responsibility. They show what MENDEL University activities are best known and compare the effectiveness of the communication channels used by the university to promote socially responsible activities. The output is thus identifying the most effective communication channel.

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INFLUENCE OF SOCIAL TRADING ON THE INVESTMENT BEHAVIOUR OF PRIVATE INVESTORS IN GERMANY AFTER THE 2007/2008 GLOBAL FINANCIAL CRISIS

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KEY WORDS

social trading, social investing, social media, herd behaviour

JEL CODES

G01, G11, G23

1   INTRODUCTION

Traditionally, the monetary assets of the German population were saved in term deposits, life insurance, Federal savings notes or savings contracts. As a consequence of the global financial crisis of 2007 and 2008, the European Central Bank (ECB) interest rate has been lowered further and further. The European debt crisis in 2010 also made it necessary to stabilize the southern European debt states by keeping ECB interest rate low. The interest on German savings has declined accordingly. Since the European Central Bank has kept interest rates low, the mainstream media howls that German savers are being robbed. The Germans were suddenly sitting in the interest trap.

In contrast to the previous major crises, private investors were now able to obtain information on investment tips through social media, independently of paid bank advisers. Because of the bitter experience with share losses due to the bubble burst in March 2000, which in particular affected the so-called dotcom companies of the New Economy and the beginning low interest rates after the global financial crisis of 2007 and 2008, German private investors were also looking for alternative investment options. New investment opportunities evolved over time, such as social trading platforms.

2   MATERIAL AND METHODS

In order to be able to provide information on the influence of social trading in the investment behaviour among the German population after the global financial crisis of 2007 and 2008, the type of assets composition is first to determine how many savings and investment opportunities were available to individual households in the phases under study, by determining household incomes and household levies, which asset classes were served, and how high the respective return opportunities were. In the present case, secondary data can be used.

The relevant data on the type of assets composition can be found in the databases of the Deutsche Bundesbank which is the central bank of the Federal Republic of Germany. The Deutsche Bundesbank has already published several reports of German households' saving and investment behaviour in light of the low-interest-rate environment. The pure data of the Deutsche Bundesbank are combined with data from the regional statistical data catalogue of the Federal Statistical Office. The results cover all areas of official statistics at municipal and county level. In order to make the data comparable in an international context, evaluations of the European Central Bank can be used.

Private investor surveys in Germany in response to the low interest rate environment are mandated by banks at the ZEW- Centre for European Economic Research (ZEW) or the GfK – Society for Consumer Research.

The questionnaire method can be used to collect primary data. The aim is to investigate to what extent alternative investment options such as social trading platforms are known to private investors through social media, whether they are willing to try it out or whether experience has already been gained.

Interactions in social media propagate new investment opportunities such as social trading platforms. As these investment opportunities are relatively new with the rise of new fintech companies and compete with classic banking and insurance products, it is conceivable that their spread and success will not necessarily be covered by studies commissioned by traditional financial services companies.

For this reason, the research question and the theses raised are carried out as part of empirical research using a data analysis (desk research), which is complemented by own surveys. Due to the larger sample size, a quantitative research approach can be chosen. A literature-based study is also carried out.

3 RESULTS

The interest on savings like savings accounts, life insurance, building savings contracts or government bonds has fallen steadily after the global financial crisis of 2007 and 2008. This work can give individuals an insight into past events in the near-term, as well as how a good rate of return on savings could have been achieved during that time, or whether it will still be possible in the future.

The investment behaviour of private individuals has changed since the global financial crisis of 2007 and 2008. This study examines how recommendations from social media become more important and compete with personal banking or asset management. Among other things, it is also considered to what extent this applies to other areas, such as the classic banking business or rental price development.

4 CONCLUSIONS

The study is still ongoing and conclusions will be considered later.

A NEW WORLD OF WORK WITH CHANGING EMPLOYEE EXPECTATIONS

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KEY WORDS

new world of work, changed employee expectations, shift in the balance of power

JEL CODES

M50

1 INTRODUCTION

The expectations of the employees play a central role in their behavior in the workplace. Due to the manifold changes in the working world in recent years, firstly, the expectations of the employees have changed. However, secondly, it also came to a fundamental "change in the system": The employer market has mutated into a labour market, which led to a shift in the balance of power. These two (interconnected) change processes have a major impact on effective human resource management. In recent years the labour market, in addition to a number of microeconomic and macroeconomic developments and influences, has been characterised primarily by a general individualisation of industrial relations (Troger, 2018). And, as I said, their expectations are heard more.

The aim of this study in the context of my dissertation is to determine the concrete expectations of employees of their employer, in order to derive ways and instruments of effective personnel management.

2 MATERIAL AND METHODS

In cooperation with a personnel agency specialized in employee satisfaction analyses, 18 statements were formulated, which are distributed to the employees together with the questionnaire on the occasion of a satisfaction analysis.

The following question was posed: "Please write a number from 1 to 5, depending on the importance, to the letters of the 5 most important topics for you personally."

The following 18 statements respectively expectations of the employer were formulated: *It's important to me that:*

A. we all work towards common corporate goals.

B. we align our work with the needs of our customers.

C. we have and live a common mission statement (mission, vision, values, rules of the game).

D. our company adapts flexibly to changes in the market.

E. our company constantly scrutinizes and improves products, processes and technologies.

F. all employees, regardless of age, gender, language, etc., are treated fairly.

G. I can ask questions and obtain necessary information at any time.

H. my manager works conscientiously and competently.

I. my manager is honest with me and stands by her mistakes.
J. all employees are valued and treated and remunerated fairly.
K. I am encouraged and supported in my work.
L. we have a good working atmosphere.
M. we can rely on each other and have a feeling of togetherness.
N. my employer has an attractive image.
O. I feel that I belong to my company.
P. occupational safety is guaranteed.
Q. my workload is balanced.
R. my work and working hours can be arranged individually.

In total, I expect around 4,000 test persons who will be divided into the following clusters:

1. Age (generation): "babyboomer" (>55 years old), "X" (45–54), "Y" (25–44), "Z" (≤24)
2. Gender: male / female

3. Educational level: compulsory education / Apprenticeship and vocational secondary school / university graduate
4. Hierarchy level: employees without management responsibility / middle management level / senior management level

The companies, on the other hand, are classified according to the following 4 criteria:

1. Sector: industry / trade / hotels
2. Company size (number of employees): 30–100 / 100–500 / > 500
3. Department: administration – production/technology – sales/customer relationships

The test persons are asked to mark the 5 most important statements – from the most important to the fifth most important – out of the 18 statements.

The frequency distribution is a suitable evaluation method for this quantitative survey. This is applied to the 7 criteria mentioned.

3   RESULTS

In principle, all test persons would probably answer all questions with "yes" (there is no gradation). Interesting, however, will be the employee-related differences with regard to age (generation), educational level and hierarchy level as well as the company-related differences with regard to size and industry.

4   CONCLUSIONS

Whatever the differences, a new form of human resource management will be necessary if companies are to have motivated employees in their ranks in the new world of work. A personnel management system that takes account of the macro- and microeconomic changes mentioned above and responds to the changed – and above all very differentiated – expectations of employees (Troger, 2019).

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EXCHANGE TRADED FUND SAVINGS PLANS AS OLD-AGE PROVISION TOOL IN GERMANY

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KEY WORDS

Exchange Traded Funds, retirement planning, pension provision, behavioral finance, acceptance, TAM model

JEL CODES

D14, G40, J32

1   INTRODUCTION

For some time now, the term "pension gap" has been circulating in German media. The main issue there is not the security of the state pensions in Germany, but their amount. The last published pension atlas Germany 2017 by Union Investment shows how bad the situation is especially for normal employees of the younger generation. The average replacement rate of their last gross income provided by the first layer of the German old-age provision system, is at just 38.6% (Raffelhüschen et al., 2017). Since this will not be enough to ensure their living standard, it is the responsibility of every future pensioner to build up an own private pension provision. However, current statistics show that most of the Germans still rely on classic alternatives, which usually offer poor yields (Verband der Privaten Bausparkassen, 2019). ETFs as financial products have attractive characteristics for old-age provision, especially when executed as a savings plan. Therefore, the main objective of this work is to find out which reasons prevent the German population from using ETF savings plans as an old-age provision. This is an interesting question, especially considering the background of the homo oeconomicus, as it is regarded as a rational and benefit maximizing market participant in the neoclassical market theory. The research question therefore belongs to the field of behavioral finance, which tries to investigate the actual behavior of a human being while handling his financial situation (Sicui and Teodorescu, 2014). The dissertation thus makes a new contribution to financial behavioral research by providing an acceptance measurement model for financial products and using it to identify concrete reasons for the rejection of ETFs as retirement provisions. In addition, an extensive systematic literature analysis is carried out in advance to give a complete overview of the current state of research in this field. The empirical results of this dissertation will then be compared with the already discovered results of the literature in order to expand them decisively. It is precisely this literature analysis and its results that form the focus of the extended abstract, since the capture of the status quo and identification of the research gap is assigned a higher priority.

2   MATERIAL AND METHODS

The underlying literature review method of this dissertation is a three-step systematic review of the relevant literature, which describes the behaviour of people according to their retirement planning. The major aim of this analysis is to identify reasons from the literature that prevent people from making provisions for their old age. All possible reasons need to be identified that could contribute to ETF savings plans not being accepted as private pensions. To start off with this analysis first, all articles that are relevant for the analysis must be identified, in order to extract and cluster their key findings (Webster and Watson, 2002). Since the acceptance of financial products, especially of ETFs, is not excessively investigated yet, the identification of the relevant articles will be started from a specific level into a more general level. The objective is first to identify the research gap, to then enlarge the research to give a general overview of already identified reasons that prevent people from using an old-age provision in general or especially a funds-based one. This order is deliberately chosen because it is expected that the literature will not yet provide appropriate answers to the research question. The predefined key words for this research were used to search through the database "Business Source Premier" in order to identify all relevant articles in scientific peer-reviewed journals which are in English (search mode AB). The relevant statements of the recorded journals were then categorized and summarized in order to achieve a structured result.

3   RESULTS

The literature analysis shows that mainly 10 behavioural patterns were identified that significantly influence a person's financial decision. These results are now included in the subsequent empirical acceptance analysis. It will be examined whether these behavioural patterns also apply to the retirement provision decision regarding an ETF savings plan and which are particularly important.

4   CONCLUSIONS

Since the actual research has not yet been finally evaluated, it is not possible to draw a conclusion. However, what can already be said from the results of the literature analysis is that behavioral research has not yet been extensively researched, especially in the combination of the two fields of old-age provision and financial products in general. This is particularly true for ETF products that have not yet been explicitly considered in the context of old-age provision.

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PART OF SPEECH TAGGERS OF CZECH TEXT

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KEY WORDS

text mining, NLP, POS tagging, part of speech, text disambiguation

1   INTRODUCTION

It is estimated that up to 80 % of the available data is in unstructured form, that is to say, as text written in the natural language. Given the amount of this data, the user is not even able to retrieve the knowledge it includes. There is a call for system, that is able to gather data, analyse and present them in a new simplified form, that user can easily understand.

In my previous work (Valovič, 2018), I focused on clustering reviews according to the content that is discussed. The text was transformed into numerical vectors using the well-known word2vec algorithm (Mikolov et al., 2013). Clusters of similar documents were identified in the resulting vector space, so the most discussed aspects of a particular product domain could be named. The approach works relatively well and provides a general overview of the topics reviewed by reviewers. The problem arises in the classification of large texts, typically sentences where there are several aspects (eg "Excellent display and low price"). The calculated vector cannot be unambiguously classified, moreover it would have to be classified into 2 classes – "display" and "price".

A number of research have already been written on mentioned issue. Hu described a summary of properties in the key-value structure, where the value is the number of evaluations dealing with a given property. Moreover, in terms of sentiment, they are divided into positive and negative, so that the user immediately sees a clear overview (Hu and Liu, 2004). Hu identifies key features as NP phrases, but using association rules mining algorithms. She achieves fairly good information extraction results, but since it considers the nouns to be a property indicator, it may lose important information expressed, for example verbs. Hu's approach was reproduced with dataset of mobile phones reviews written in Czech. It required the usage of POS tagger for morphological analysis of the text as a key step in the algorithm. Hu and Liu (2004) focuse more on statistically significant terms, which may considerably disadvantage less frequent words that the system is unable to identify as an aspect.

2   MATERIAL AND METHODS

Since there is no freely available POS tagger for Czech, it was necessary to implement a custom solution. It is possible to use existing implementation and own training data, or implement own algorithm. In this work we compared several variants – NLTK Tagger (2019), NLTK TnT (2019) (as a current state of art) and own implementation of tagger based on decision tree classifier (DTC Featurer Tagger. Mentioned classifiers were trained on a hand-labeled SYN2013PUB (Křen et al., 2013) corpus with a total of 150,000 samples. 50,000 samples were used for testing.

3 RESULTS

The DTC Features tagger achieved remarkable results. Compared to the TnT tagger, it achieved up to 5% better accuracy on test data and up to 12% compared to NLTK Tagger. Training time on performed on Intel Core i5 QuadCore, 16Gb RAM, SSD drive, was relatively long, but comparable to the most powerful algorithms – about 30 minutes.

4 CONCLUSIONS

The proposed DTC Tagger algorithm is powerful, robust and is able to reliably tag a part of speech of a given word in Czech. Implementation of a such tagger is a crucial step in above mentioned approaches (eg. Hu and Liu, 2004). It can be used for identifying stopwords (conjunction, prepositions, etc.), or can serve as one of the tools for advanced text disambiguation.

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THE ROLE OF NATIONAL CULTURE IN THE CONSUMPTION FUNCTION

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KEY WORDS

cluster analysis, consumption, culture, disposable income, panel data models

JEL CODES

C33, E10, E21

1 INTRODUCTION

Consumption expenditures are affected by many determinants like disposable income, wealth, unemployment or demographic factors from a macroeconomic point of view on the one hand, as well as from a microeconomic perspective on the other hand. Since the 1950s macroeconomists have been building a theory of aggregate consumption expenditure from the bottom up – both Friedman and Modigliani focused on understanding the relationship between consumption and disposable income at the household level.

Kotler (2003) has affirmed various social and economic factors influencing the consumer behaviour but considered a culture as the "fundamental determinant" of consumer behaviour. Culture is in the context of consumption behaviour defined as "the sum learned beliefs, values and customs that serve to regulate the consumer behaviour of members of particular society" (Schiffman and Kanuk, 2004).

The importance of culture and observation of its differences have been taken into account in different models. The Hofstede six-dimensional model is based on the intercultural differences: Power Distance (PDI), Uncertainty Avoidance (UAI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS), Long Term versus Short Term Orientation (LTO) and Indulgence versus Restraint (IVR). The cultural dimensions represent independent preferences for one state of affairs over another that distinguish countries (rather than individuals) from each other.

2 MATERIAL AND METHODS

In the empirical analysis the panel data involving 27 European countries covering the period from the first quarter of 1995 till the fourth quarter of 2017. The data source of aggregate consumption expenditure and aggregate disposable income is public database Eurostat. These aggregates are expressed in Euro currency per capita and formalized in real terms due to the GDP implicit deflator usage. The reference year is 2010. The quarterly frequency of annual frequency of disposable income is calculated by using gross domestic product as an external variable. The six dimensions of national culture (Hofstede, 2011) are based on extensive research done by Professor Geert Hofstede.

In the first case, the dynamic regression model's coefficients are quantified. These quantified parameters
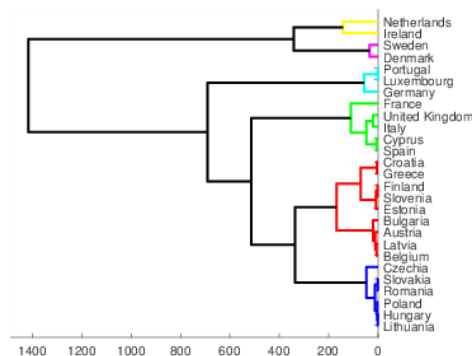
Fig. 1: Clusters of European countries with similar consumption development

are the input data for the cluster analysis, in which the Euclidean distance and the Ward's method are enforced.

The panel data dynamic model is estimated in the basic form using fixed effects:

$$C_{it} = \alpha_i + \beta_1 C_{i(t-4)} + \beta_2 Y d_{it} + \epsilon_{it}$$

Then this function is enhanced by discrete variable, whose values represent homogenous group with a similar consumption development, where European countries are classified according to results from the cluster analysis.

The last part of this analysis belongs to correlation analysis, which is performed to present the relationship between consumption and cultural affinity zones and subsequently individual cultural dimensions in European countries.

3 RESULTS

The result of the cluster analysis is displayed by dendrogram on the Figure 1. Individual clusters of countries are quite analogous to cultural affinity zones first notified by Usunier and Lee (2009).

There is a significant relationship between consumption expenditures and PDI, IDV UAI and IRV with connection with a significant relationship between disposable income and PDI, IDV and IRV. Culture can be considered as a factor affecting the development of consumption. For example, in countries, where power is unequally distributed, aggregate consumption is higher but there is lower MPC. By contrast, collective culture, where an opinion of the community prevails over individual opinion, do not have so high aggregate consumption expenditure. Restraint society must regulate its desires, because it is related to countries with lower disposable income but higher MPC.

4 CONCLUSIONS

The cultural dimensions distinguish countries from each other and determine also consumption behaviour across whole country. Despite of recent phenomenon of globalisation, one should take into account that consumers are not stateless but have some ingrained habits.

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VERIFICATION OF STRING PROGRAMS VIA AUTOMATA

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KEY WORDS

string solving, automaton, model checking, formal verification

1 INTRODUCTION

Modern implementations of web servers are densely interlaced with string manipulations and their control flow depends heavily on values of string variables. The cost of a software bug is rapidly raising, which yields the need of investigation on new techniques for static analysis of string programs. Recently, string solving—reasoning about constraints over string variables—has shown a great potential to facilitate automated reasoning about such programs (finding bugs, test generation, automatic repair, etc.). Despite the theoretical undecidability of string solving, the works from Holík et al. (2017) and Scott and Sherman (2014) have shown the potential of methods based on finite automata in deciding practical subclasses of the problem. Our work focuses on improving performance of model checking of finite automata, scaling the applications of automata-based string solving while also contributing to other fields of formal verification and synthesis that benefit from the automata theory.

2 MATERIAL AND METHODS

A given string program is abstractly interpreted as a string formula—a Boolean combination of string constraints which can express e.g. string concatenation, substitution of all regular expression matches or assertion of a regular expression match. Each string constraint is modelled by a finite automaton. As described in Holík et al. (2017), for certain (acyclic and straight-line) classes of string formulae, the automata can be cheaply combined into an alternating finite automaton (AFA), which is a very succinct representation of a finite automaton. The language of the constructed AFA is empty if and only if the string program holds its assertions. Unfortunately, the succinctness of the AFA representation has its cost—deciding AFA language emptiness (model checking) is computationally expensive. In theory, it may last for hours or even years even for relatively small AFA. However, this theoretical bound can be usually avoided for real-world AFA, using advanced model checking algorithms.

To decide the language emptiness of AFA, we use two state-of-the-art model checking algorithms, antichain (De Wulf et al., 2006) and PDR (Bradley, 2011). The antichain algorithm is simple and easily modifiable. Moreover, it performs better than PDR for certain special classes of AFA. The sophisticated PDR algorithm makes use of modern formal verification principles and usually performs significantly better for instances of AFA with big reachable state space.

The main technical contribution of our work is specializing and speeding up the antichain and PDR algorithms for AFA model checking. We achieve this goal using two orthogonal approaches. First, we elaborate on emptiness-preserving transformations on the AFA that reduce the size of its state space,

thus reducing the model checking time. Second, according to our profiling measurements, 95–99% of the processor time is spent on Boolean satisfiability solving (SAT), which is usually invoked thousands of times throughout the model checking. To speed up the SAT solving, we minimize the SAT instances in pre-processing using structural hashing and logic synthesis. In addition, we detect parts of the SAT instance that need not be fully resolved to finish the SAT call. Finally, we elaborate on improvements of incremental SAT solving, which reuses more knowledge from previous SAT calls to accelerate the current one.

3   RESULTS

We have compared the antichain and PDR algorithms on string solving benchmarks, namely the `str.replace_all` benchmarks from Holík et al. (2017). The antichain algorithm performed significantly better on automata with simple structure. Antichain outperforms PDR in 17 out of 35 benchmarks, PDR outperforms antichain in 9 benchmarks and in the remaining 9 cases the performance of the two algorithms is comparable.

The following measurements on speeding up the algorithms were performed only with the antichain algorithm. We have used NFA language inclusion benchmarks and LTL satisfiability benchmarks from the collection `automatark`[1]. Our state space reduction technique is effective particularly on the LTL satisfiability benchmarks with up to 87% speed-ups. Our SAT solving optimizations have an effect mostly on the language inclusion benchmarks, yielding the 5–30% speed-up. The experiments have shown a great potential of our approaches to ameliorate the performance of both antichain and PDR algorithms.

4   CONCLUSIONS

We have brought new optimization ideas for the AFA model checking and SAT solving and shown their effectivity on real world experiments. There are several avenues planned in future work, the most mentionable of which are further elaboration on incremental SAT solving and incorporation of our antichain optimizations into PDR to be able to outperform state-of-the-art tools and enable opening new areas of automata theory application.

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[1]Benchmark collection by Loris D'Antoni, https://github.com/lorisdanto/automatark

INVESTMENT ATTRACTIVENESS OF UKRAINIAN COMPANIES

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KEY WORDS

ABC analysis, investment attractiveness, Ukrainian enterprises

JEL CODES

E22, F21

1 INTRODUCTION

Location of Ukraine has undoubtedly a set of possibilities for successful development for investment activity. There are rich natural resources, fertile soil and qualified cheap labor force. Fast economic growth and country's industrial development over the last several years became a very positive factor. Ukraine has a huge potential and is certainly a very attractive country for foreign investors. We analyze dependence of investment attractiveness of Ukrainian enterprises measured by selected business indicators on the level of concentration of the sector.

2 MATERIAL AND METHODS

The necessary accounting data are obtained from the Orbis database of Bureau van Dijk. Specifically, we use total assets, profitability, solvency ratio, gross profit, liquidity ratio, added value, ROA, number of employees, costs of employees, total assets and information about shareholders. We deal with companies with prevailing activities in sectors with NACE 1 – Crop and animal production, hunting and related service activities; 10 – Manufacture of food products; 21 – Manufacture of basic pharmaceutical products and pharmaceutical preparations; 28 – Manufacture of machinery and equipment; 35 – Electricity, gas, steam and air conditioning supply. The analysis is carried out for the years 2009–2015.

Herfindahl–Hirschman index is calculated to measure concentration in the particular sectors. In addition to the correlation and regression analysis, we perform an ABC analysis of each sector. We distinguish ABC groups, where Group A is created by the companies with 80% of sectoral total assets value. We estimate the dynamics of the size of the company's assets (this can only be done in groups A) and conclude on investments in the corresponding subspecies of economic activity.

We will compare Ukraine with Romania since Romania is already in the European Union and Ukraine would like to join. We will make the correlation analysis and find the Herfindahl index for these countries and compare the levels of concentration of production in industry in Ukraine and Romania.

3 RESULTS

According to the assessment of the level of concentration, in the sector 35 the level of concentration is higher than in sector 10. Some types of activity 3521, 3514 can be considered highly concentrated. They need to test the hypothesis that prevails in attracting foreign direct investment activities with a high level of concentration. To do this, it is worth looking at the distribution of share capital of enterprises (this information can be understood by the code of the country of the shareholder).

An analysis of the correlation between value added, profit and assets shows that for enterprises of group A they have a fairly strong connection, while for groups B and C this connection disappears. From this, it can be assumed that larger companies (with higher assets) are profitable (and therefore investment attractive). It is also necessary to test this hypothesis according to the code of the country of the shareholder and conclude that large projects will be attractive to foreign investors – accordingly, a feature of the policy of attracting foreign direct investment is orientation to a large investor.

4 CONCLUSIONS

Most industries are characterized by high and medium concentration, while the Romanian industry showed a low concentration level. The exception is some food industries. To observe that in general the ratio of concentration levels between industries remains for both countries: lower concentration in food industries and higher in chemical and engineering industries. In Ukraine, the relations between economic indicators are like those in Romania and are stable in time.

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MOTHERHOOD PENALTY IN THE CZECH REPUBLIC

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KEY WORDS

motherhood penalty, labor market, EU SILC, earnings

JEL CODES

J16, J24, J30

1 INTRODUCTION

Despite ongoing gender wage convergence in recent decades, wage inequality persists in the Czech Republic, as in many other countries. The gap between men's and women's labor income in the Czech Republic is constantly over 20% to the detriment of women. Their level ranks the Czech Republic among the countries with the second largest pay gap in the EU (only Estonia has 28.1%). The gender pay gap in the Czech Republic reaches the lowest values in the younger age categories (currently up to the age group up to 34 years), with this age the difference increases and reaches the highest levels in the age group 40 to 44 years (29.6%), ie at an age when many women have young children. However, there is insufficient evidence for the Czech Republic to examine the impact of maternity on wages, the so-called motherhood penlaty. The aim of our study is to answer an important empirical question: Is there a motherhood penalty in the Czech Republic, what is its size and has the penalty decreased over time?

2 MATERIAL AND METHODS

The data used in this work come from the EU-SILC (European Union Statistics on Income and Living Conditions) survey. The basic independent variable is maternity and the number of children living in the household with the respondent. To measure the impact of children on women's income, three binary variables were created - one child, two children and three or more children; the reference group is women who do not have a child. This approach has the advantage of simplicity and ease of interpretation. The other independent variables were selected because of their significance and their key role in affecting maternal sanctions: education, experience, labor intensity, region.

Following the methodology of previous research on motherhood penalty (eg Anderson et al., 2002; Budig and England, 2001; Waldfogel, 1997a), using standard least squares methods (OLS) to estimate the impact of maternity and the number of children on wages, control the underlying socio-demographic characteristics and characteristics of human capital.

The basic model (1) used to estimate the effect of maternity on wages is in the form:

$$
\begin{aligned}
\ln \text{WAGE} \;=\; & \alpha + \beta_1 \text{RODIC} + \beta_2 \text{Praha} + \\
& + \beta_3 \text{STRCECHY} + \beta_4 \text{EDUHIGH} + \\
& + \beta_5 \text{EDUMIDDLE} + \\
& + \beta_6 \text{ODPRAC\_LET} + \\
& + \beta_7 \text{ODPRAC} + \epsilon_i \qquad (1)
\end{aligned}
$$

The extended model (2) used to estimate the effect of the number of children on wages is as follows:

$$\ln \text{WAGE} = \alpha + \beta_1 \text{DETI1} + \beta_2 \text{DETI2} +$$
$$+ \beta_3 \text{DETI3plus} + \beta_4 \text{Praha} +$$
$$+ \beta_5 \text{STRCECHY} + \beta_6 \text{EDUHIGH} +$$
$$+ \beta_7 \text{EDUMIDDLE} +$$

$$+ \beta_8 \text{ODPRAC\_LET} +$$
$$+ \beta_9 \text{ODPRAC} + \epsilon_i \qquad (2)$$

Model 2 differs from Model 1 by replacing the RODIC variable with DETI1, DETI2, DETI3plus, which indicates the number of dependent children living together with it.

3 RESULTS

The time period for which we measure the motherhood penalty can be divided into two main parts: for 2006–2008 we have a statistically significant and significant impact of the effect of the independent variable – maternity on wages. The maternity coefficient indicates that the fact that a woman is a mother reduced wages by up to 17% in 2006, reached the minimum in 2009, when the maternal sanction reached 5.4%.

Since 2009, there has been a turning point, when the maternal sanction begins to decrease and its values become statistically insignificant in the period 2009–2017 (in terms of motherhood, women with children and childless women are rewarded equally if they have all the same characteristics). However the impact of loss of experience and lower labor intensity due to maternity persists.

4 CONCLUSIONS

In the context of public policies, it should be emphasized that although the costs of motherhood are incurred by individual mothers, the benefits of children and motherhood are much more dispersed. Mothers who, despite obstacles, are able to combine paid work and family life contribute significantly to

the paid economy. Our study shows that women continue to be penalized instead of compensation. Overall, our findings lead us to the conclusion that policies aimed at earlier mothers' return to the labor market and support for working parents can help eliminate the implicit effects of maternity.

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