



Palacký University  
Olomouc

# **KNOWCON 2019**

**Knowledge on Economics and Management:  
Profit or Purpose  
Conference Proceedings**

**Tomáš Talášek - Jan Stoklasa - Pavla Slavíčková  
(Eds.)**

Palacký University Olomouc  
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## ACCOUNTING TREATMENT OF CRYPTOCURRENCIES

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**Abstract:** Initially, cryptocurrency systems were not an active subject in the accounting community. More recently, the scope of cryptocurrency business has grown rapidly. The unclear accounting treatment of cryptocurrencies appears to present a serious challenge to the fair financial reporting. Cryptocurrencies are a new and disputable accounting object. The contradictory treatment in practice and lack of solid regulations create an unstable base. This paper summarizes alternative approaches for the accounting treatment of cryptocurrencies: as an intangible asset, commodity, financial asset, services. The solution of the problem could not be only logics and expert based- it demands new rules to treat adequately cryptocurrencies

**Keywords:** cryptocurrency, virtual currency, IAS/IFRS, financial reporting, financial accounting

**JEL classification:** M41, M40, M49

### 1. Introduction

Initially, cryptocurrency systems were not an active subject in the accounting community, as they appeared a decade ago (Nakamoto, 2008). Recently, the scope of cryptocurrency business has grown rapidly to reach more than 2000 modifications (Coinmarketcap, 2019). Cryptocurrencies are a new and disputable accounting object. The contradictory treatment in practice and lack of solid regulations create an unstable base. The purpose of the paper is to research the possible alternatives in accounting treatment of cryptocurrencies and future trends. The paper is European Union (EU) oriented and International Financial Reporting Standards (IFRS) regulations directed.

'Cryptocurrency' as a term has no legal definition in EU and in the world. There are around ten terms used to name the discussed in the paper object (The Law Library of Congress, 2018, p.1). 'Cryptocurrency' is used in the text below as the most popular way to address the topic. The legal term used in the few regulations in EU addressing the researched object is 'virtual currency' (EU, 2018). But virtual currency might be broader than cryptocurrency, as new technologies emerge. The essence of cryptocurrency could be defined in several technical and business aspects (Lansky, 2018; EBA, 2014). The shortest identification of cryptocurrency as an accounting object is proposed by International Financial Reporting Standards Interpretations Committee (IFRSIC). In a Tentative Agenda Decision on Holdings of Cryptocurrencies, IFRSIC, using the terms 'cryptoassets' and 'cryptocurrencies' synonymously, accepted for them three working characteristics (IFRSIC, 2019):

'a. A cryptocurrency is a digital or virtual currency that is recorded on a distributed ledger and uses cryptography for security.

b. A cryptocurrency is not issued by a jurisdictional authority or other party.

c. A holding of a cryptocurrency does not give rise to a contract between the holder and another party.'

Although these criteria might be argued, extended and refined, they are a starting point for presenting possible accounting treatment of the cryptocurrencies as an innovative accounting object.

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## 2. Regulations of cryptocurrency

Accounting treatment of any object is influenced by the regulatory framework and business media. Regulations of cryptocurrencies around the world are diverse. The first to establish some normative framework on cryptocurrency is the USA through its Financial Crimes Enforcement Network (FCEN). The organization requires since 2013 all entities trading with cryptocurrency to register as money service business, to keep adequate records, to be able to identify its customers and to report any thread for money laundering and terrorism (FCEN, 2013). Norms were consolidated, summarized and confirmed in 2019 (FCEN, 2019). Several other countries approved similar norms for cryptocurrencies soon after the first USA regulation: Canada, Australia, Japan, Switzerland, Denmark, Czech Republic, Latvia, Estonia, Singapore. Currently most of the countries in the world have some regulations for cryptocurrencies. Rules are mainly directed to prevent money laundry and terrorism; to clarify taxation of gains/ profits by cryptocurrencies' operations; to structure cryptocurrency trade. EU approved in 2018 the Fifth Anti Money Laundry Directive, effective since 2020 in the member countries (EU, 2018). It introduces some regulations, concerning cryptocurrencies. Member countries should apply registration or licensing regime to trading companies- cryptocurrency exchanges and to custodian wallet providers. There should be an opportunity virtual currency exchanges' customers to be identified by National Intelligence Services. The legal status of cryptocurrencies is presented in three classification groups in Table 1.

**Table 1: Legal status of cryptocurrencies**

Groups as per legal status of cryptocurrencies	Countries
Legal to use cryptocurrency (explicit or silent permission)	European union countries, Australia, New Zealand, Indonesia, South Africa, Ukraine, Belarus, Norway, Turkey, Palestine, Lebanon, Israel, Argentina, Surinam, Chili, Venezuela, Mexico, USA, Canada, Japan, Cayman islands, Marshal islands, Nigeria, Zimbabwe, Nicaragua, Costa Rica, Jamaica, Trinidad and Tobago, Kirgizstan, Uzbekistan, Hong Kong, South Korea, Philippines, Singapore, Switzerland, Bosnia and Hercegovina
Serious legal restrictions on usage of cryptocurrency	China, Macao, India, Cambodia, Kazakhstan, Russia, Iceland, Tunisia, Thailand, Qatar, Namibia, Jordan, Armenia, Lesotho, Uganda, Guernsey, Malaysia, Brazil
Cryptocurrency fully or almost fully banned	Morocco, Algeria, Egypt, Butane, Myanmar, Nepal, Pakistan, Vietnam, Ecuador, Bolivia, Colombia, Dominican republic, Saudi Arabia, Kuwait, Oman, Qatar, United Arab Emirates, Iraq, Iran, Taiwan, Indonesia, Macedonia, Bahrein, Bangladesh

*Source: author's classification based on The Law Library of Congress (2018); Bajpai (2019); Cryptofinder (2019); Reese (2019).*

The proposed classification is a rough orientation in the legality perception in different jurisdiction on cryptocurrencies. In some countries the regulations are inclusive, in others they are completely missing. The lack of ban is treated as a silent permission of cryptocurrency activity. EU is not a homogeneous regulated cryptocurrency territory. On the level of EU, there are not obligatory norms,

besides the ones already stated in Directive (EU) 2018/843, applicable since 2020 (EU, 2018). Possible tax treatments are not synchronized as well, but most of EU countries tax income due to cryptocurrency activity on individual and business level. The financial results by the operations of cryptocurrencies are taxed either as a property/commodity trade income or as financial operations (capital) gains (unless income exemption is created on a country level). There are a few EU Court of Justice decisions which apply for all member countries and partially compensate the lack of explicit regulations on cryptocurrencies in EU. A Judgment of the Court (C-16/93, 1994) gives the opportunity miners of cryptocurrencies to be exempt from VAT obligation, as the involved parties are not identified. The Judgment of the Court of 22 October 2015 (C-264/14, 2015) acknowledges the exchange of cryptocurrency to official fiat money and vice versa to be financial operations and as such the cryptocurrency gains are not subject to VAT in EU. The VAT exemption does not apply to cryptocurrencies' operations when they are exchanged for other items, besides currency (unless VAT exemption is created on a country level). Most EU authorities recognize cryptocurrencies as virtual currency, hence- they are not a legal tender equal to fiat money and not legally equivalent to cash (European Parliament, 2018; EU, 2018). This is a position similar to the positions of most of the countries in the world.

The least discussed regulation area is the accounting treatment of cryptocurrencies. It brings up at least two questions: 1. What should be the accounting treatment of cryptocurrencies in the existing regulatory reality and 2. What might be done in the future to make it better.

### **3. Possible accounting treatment of cryptocurrency**

IASB identified the topic of cryptocurrencies in 2015 as a potential new project. A series of consultations and discussions led to the conclusion that the volume of cryptocurrency operations are not substantial enough and their impact is not that large to require a full new accounting standard project or even amendments of existing IFRS. IASB decided to ask the IASB Interpretation Committee (IASBIC) to propose official guidance for application of existing accounting standards to the new object-cryptocurrency. Soon after IASB, big audit companies started the public dispute on possible accounting treatment of cryptocurrencies in the context of existing IFRS (PWC, 2016; EY, 2018; PWC, 2018; Deloitte, 2018). IFRS are not the only applicable accounting framework in the world, but as far as it is broadly recognized and either directly applied, or used as a benchmarking to structure national accounting standards and practices, it is useful to base the discussion on them. The area of all cited comments were focused on the possible relevance and application of different IFRS to cryptocurrencies as an accounting object. The same approach is used in the Tentative Agenda Decision on Holdings of Cryptocurrencies issued by IFRSIC (IFRSIC, 2019).

The proposed IFRSIC directions are trying to use 'one size fits all' way to cryptocurrencies on the base of existing IFRS without any amendments. But cryptocurrencies are not identical as a mechanism of existence, function, usage and intentions of the holders. A problem even more fundamental is- are cryptocurrencies assets. How the future economic benefits from cryptocurrency could be reliably measured; how a real control over the cryptocurrency might be established; what is the real value of cryptocurrency? These are huge questions in the case of this new accounting object. They are missing from the active discussion in accounting community, but should be important for the future.

There is a consolidation of opinions of IASBIC and big audit companies on the base of existing accounting standards that:

1. Cryptocurrencies are not cash, as far as they have not the official approval of a state or appropriate legal authority, although they might be a media of exchange, measure of value and even some risky volatile storage of value (three cash functions).

2. Cryptocurrencies are not cash equivalents, as far as it is not initially announced to what amount of cash they will be converted in the future and their value is quite volatile.

3. Cryptocurrencies are not financial instruments as far as they do not represented a contractual relation between the issuer and the holder, the two parties are anonymous and cryptocurrencies do not give the right over an asset of one party and a liability or equity to the other party.

Tentative Agenda Decision on Holdings of Cryptocurrencies issued by IFRSIC (IFRSIC, 2019) considers that if the cryptocurrencies are actively traded or used in the normal course of business they should be treated as per IAS 2 'Inventories'. In all other cases, cryptocurrency should be treated, applying IAS 38 'Intangible assets', as far as they match the definition of intangible assets. The production of a cryptocurrency software, initial coin offering (ICO), cryptocurrency wallet providers' service and mining activities are not a topic in the proposed IFRSIC tentative decision.

There might be several possible approaches to analyse application of existing accounting standards to cryptocurrency:

1. Following step by step cryptocurrency players and activity;
2. Following the possible implementation of different accounting standards
3. There is a third approach, uniting the first two. It will be presented in Table 2.

**Table 2: Possible accounting treatment of cryptocurrencies as per existing IAS/ IFRS**

Activity		Cryptocurrency as an accounting object	Accounting standard	Note
Creating of cryptocurrency platform-cryptographic software media in which the cryptocurrency would be 'produced' and function		R & D costs; Intangible asset	IAS 38	Evaluation at cost minus amortization and impairment or at revaluation model and fair value through other comprehensive income
Mining	Contract based	Financial instrument, if it fulfils the criteria for it	IAS32; IFRS9	If the criteria for financial instruments are not fulfilled, to be treated as a non-contract based mining
	Non-contract based	Service or production; Intangible asset	IAS2; IAS 38	IAS2 is used for the cost of mining; for the received cryptocurrency units it might be used either IAS2 or IAS38, as per the intention of the holder for future usage of cryptocurrency

Initial coin offering (ICO) for fiat money	Cash investment in the capital (equity) of a company that will be issuing cryptocurrency; dividends payable in cryptocurrency	Service or production for mining; Intangible asset for cryptocurrency software platform; financial instruments for equity and dividends	IAS2; IAS 38; IAS 32; IFRS9	To be carefully considered the fulfilment of the financial instruments requirements; if not fulfilled- IAS38 to be used
	A cash loan given to the company, providing cryptocurrency, repayable in cryptocurrency	Service or production for mining; Intangible asset for cryptocurrency software platform; financial instruments for the loan	IAS2; IAS 38; IAS32; IFRS9	To be carefully considered the fulfilment of the financial instruments requirements; if not fulfilled- IAS38 to be used
Exchanges trading cryptocurrency for fiat money		Commodity (inventory)	IAS2	Fair value through profit and loss (broker- trader exception used)
Using cryptocurrency to pay for a commodity or receiving cryptocurrency for a sold commodity in the normal course of business		Commodity (inventory)	IAS2	Lower of net realisable value and cost
Investing cryptocurrency to acquire a share in the capital of a company or to give a loan		Financial instrument	IAS32; IFRS9	To be carefully considered the fulfilment of the financial instruments requirements; if not fulfilled- IAS38 to be used
Custodian electronic wallet providers for cryptocurrencies		Service	IAS2	-
Cryptocurrency operations excluding the above described cases		Intangible asset	IAS38	Evaluation at cost minus amortization and impairment or at revaluation model and fair value through other comprehensive income

If a company finds non applicable any of the accounting standards for a certain object, including cryptocurrency, it should develop its own accounting policy as per IAS8, p.10-11.

*Source: author's interpretation*

The proposed interpretation in Table 2 is beyond the Tentative decision of IFRSIC of May 2019. But it is still based on the existing accounting standards. It is a rather formal way to match already existing accounting definitions to an innovative accounting object- cryptocurrency.

The future of accounting treatment of cryptocurrencies is still vague. There are two leading scenarios for development:

1. There are not new accounting standards or any amendments to existing accounting standards developed to treat the cryptocurrencies. Official directions for implementations of existing standards are issued by IFRSIC and national accounting bodies. Recently this approach gained a lot of criticism (IFRSIC, 2019);
2. There starts a process for creating new accounting standards or amendments to existing accounting standards are developed to treat the cryptocurrencies. The process is on the level of IFRS, on the level of national accounting standards or both on the level of IFRS and national accounting standards. The accounting cryptocurrency normative framework is complimented by other legislative initiatives, as virtual objects increase. It would be harder and longer, but better choice for true and fair representation of cryptocurrency business reality, if a new standard is created or major amendments are performed in existing accounting standards.

#### **4. Conclusion**

This paper summarizes alternative approaches for the accounting treatment of cryptocurrencies: as an intangible asset, commodity, financial asset, services. Cryptocurrency is not a stable accounting object, but a very disputable one. The solutions of the problems, concerning cryptocurrencies could not be only logics and expert based- they demand new rules to treat adequately cryptocurrencies. New accounting rules are just a part of a demanded whole regulation framework for cryptocurrencies to ensure stability, legality and prosperity in a highly technological, dynamic and internationalized business world.

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## Benchmarking classifiers - comparing the GOWA-variant of the similarity classifier with selected classifiers

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### Abstract:

This research studies the performance of a GOWA-variant of the similarity classifier and compares the performance of the variant against a set of four commonly used classifiers. The comparison is done with a credit card loan data sets and by first optimizing the parameters of the tested classifiers. The results have been evaluated based on classification accuracy and with a fitness function that allows for a more comprehensive evaluation. The results show that the GOWA-variant is able to produce comparatively good results and the results obtained with the GOWA-variant were in line-with the other well-performing classifiers. The novelty in this paper is two-fold, the GOWA-variant of the similarity classifier has previously not been comparatively studied with commonly used classifiers and the fitness-function approach used in the evaluation of results is fresh for classification results, although fitness functions are commonly used elsewhere, for example, in connection with evolutionary algorithms.

**Keywords:** Similarity Classifier, General Ordered Weighted Averaging, Classification, Machine Learning

**JEL classification:** C69, C45

### 1. Introduction

This research concentrates on benchmarking the GOWA-variant of the similarity classifier (Kurama, Luukka, & Collan, 2017) and presents stylized results from a more comprehensive evaluation of the said classifier, presented in (Collan, 2019). This work focuses on testing the performance of the GOWA-variant against a selection of four benchmark classifiers. The data set used is a credit card client data set from the UCI Machine Learning Repository (Lichman, 2013). The empirical results are confined to the used data set and cannot be generalized, making the nature of this investigation exploratory. Another contribution of this research is the use of a fitness function in determining the goodness of the tested classifiers.

To understand how popular the similarity classifier is a literature search was performed, by searching the Web of Science database without narrowing down the field-of-research with the search terms “similarity classifier” and “similarity-based classification”. This search resulted in 105 hits, where the papers were quite evenly divided between journal articles and conference papers. Most papers were classified as computer science and engineering research, with only 10% or less in other disciplines. The majority of the literature is theoretical and describes new versions of classification algorithms, the application areas mostly include medical diagnostics and image- and voice recognition. More than half of all papers come from Finland, USA, and China.

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## 2. Preliminaries

### 2.1. GOWA-variant of the similarity classifier

The mechanics of the similarity classifier are based on creating a set of “ideal vectors” that act as representations of target classes. Unlabeled (new) items are classified by calculating the similarity between the unlabeled item and the ideal vectors, and the unlabeled item is classified as belonging to the class that is represented by the ideal vector with the highest similarity to the unlabeled item (Kurama, Luukka, & Collan, 2016). In multi-dimensional data the similarity is calculated separately for each dimension, or feature – these feature-similarities must be combined to arrive at a “holistic” similarity between the ideal vector and the unlabeled item. This is done by using an aggregation operator. The GOWA-variant of the similarity classifier is a similarity classifier that uses a generalized ordered weighted averaging (GOWA) operator (Yager, 2004) in the aggregation. The GOWA operator is defined as:

$$GOWA(a_1, a_2, \dots, a_n) = \left( \sum_{j=1}^n \omega_j b_j^\lambda \right)^{1/\lambda} \quad (1)$$

where  $\omega_i$  are the weights ( $[0,1]$ ; and add up to one),  $\lambda$  is a parameter ( $\lambda \in [-\infty, \infty]$ ), and  $b_j$  is the  $j^{\text{th}}$  largest value of  $a_i$ . The equivalence  $e$  between two items  $x_1$  and  $x_2$  can be defined as:

$$e(x_1, x_2) = [1 - |x_1^p - x_2^p|]^{\frac{1}{p}} \quad (2)$$

If equivalence between two samples are denoted as  $e(x_1, x_2) = (e_1, e_2, \dots, e_n)$ , where  $e_i$  is defined as in equation (2), and where  $p > 0$ , we get the similarity measure with GOWA operator as:

$$S_{GOWA}(e_1, e_2, \dots, e_n) = \left[ \sum_{i=1}^n \omega_i b_i^\lambda \right]^{\frac{1}{\lambda}} \quad (3)$$

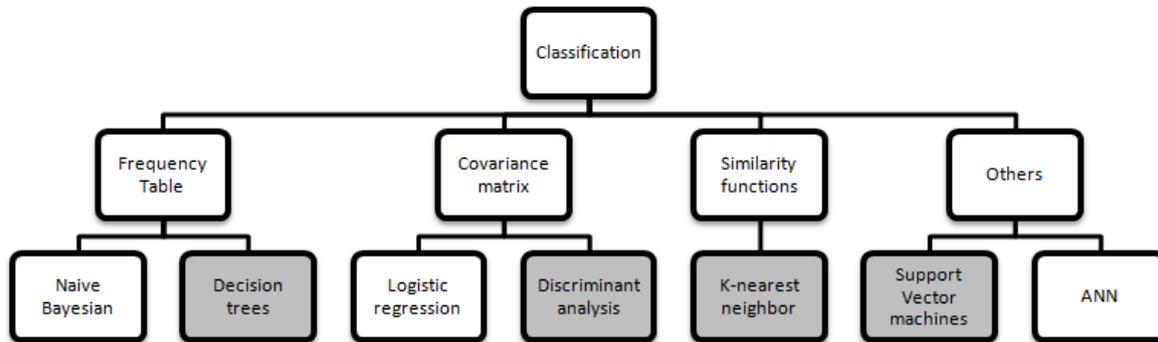
The pseudo-code for actually running the algorithm can be found in (Kurama, et al., 2017). Similarity classifier with the OWA operator toolbox in MATLAB (used in this research) contains most of the functions needed to run the analyses, coding the GOWA-variant has required some modifications that were adopted from the scripts provided by the original authors (Kurama, et al., 2017).

The GOWA-variant of the similarity classifier measure has in essence three parameters that affect the classification via affecting the similarity value, these are the parameters  $\lambda$ , the parameter  $p$ , and the weights used in the aggregation. In benchmarking the classifier it makes sense to benchmark the “situation with the best parameter values” for each classifier, which means that for the GOWA-variant parameter optimization is performed before the benchmarking run is made. For finding the optimal weights, many approaches have been developed – for the purposes of this research we have limited the studied weight-schemes to the Basic Regular Increasing Monotone (basic RIM) quantifier proposed in (Yager, 1996). For details on this and other RIM weight generation schemes we refer to (Kurama, et al., 2017) and furthermore, refer the reader interested in weight generation to (Fullér & Majlender, 2003; Liu & Han, 2008; Yager, 1996; Zhou & Chen, 2014).

### 2.2. Benchmark classifiers

One way to group classification algorithms is to do it based on the method, with which they separate classes. Figure 1 shows commonly used classification algorithms grouped in this way. The four benchmark-classifiers were selected so that they each represent a different classification

methodology and they are: the decision tree classification (dtree), discriminant analysis (DA), k-nearest neighbor classification (KNN), and support vector machines classification (SVM) – the selected methods are highlighted with dark background in Figure 1.



**Figure 1. Common classification algorithms grouped based on the way they separate classes**

The “precise” algorithms used and that are optimized to act as benchmarks are available in the Statistics and Machine Learning Toolbox in MATLAB, the software used to run the computations behind the results. More specifically the following MATLAB algorithms were used: Decision tree – `fitctree`. Linear discriminant analysis – `fitcdiscr`, support vector machines – `fitcsvm`, and k-nearest neighbors – `fitcknn`.

For detailed descriptions of the used four benchmark classification algorithms we refer to (Collan, 2019), any modern textbook on classification algorithms, and as an easy “tour” of these algorithms in general, e.g., to (Garg, 2018; Le, 2018). For SVM we refer to the original paper by Cortes and Vapnik (Cortes & Vapnik, 1995) and to (Meyer & Wien, 2001).

### 3. Numerical tests

#### 3.1. Data

The benchmarking of classifiers is done with a “default of credit card clients” data set, obtained from the UCI Machine Learning database (Lichman, 2013). The data set is customer data from a Taiwanese bank and contains 23 variables and a binary customer creditworthiness outcome for 3000 observations. The variables of this data set are: amount of credit given, gender, education, marital status, age (year), history of last payments, amount of bill statements, and the amount of previous payments. The data has also previously been used in a relevant to this research publication (Yeh & Lien, 2009). Here the aim is to predict, based on the available variables, whether the customer will (class 1), or will not (class 0), default on their payments (target classes). In the data 77.9% of the clients have not defaulted and 22.1% had problems with their payments.

#### 3.2. Pre analysis mechanics

The data set is divided in two parts, where 60% of the data is used for model training and optimization and 40% is used for testing – the division is made in a way that both portions of the data include equal portions of the target classes, the code for division is available in (Collan, 2019). The training data is further partitioned to ten folds ( $k=10$ ) in order to perform cross-validation of the results by running training and validation ten times. The classification error is calculated as a mean of

the ten individual iterations. This way result bias-causing random occurrences can be effectively avoided.

Pre-analysis, we decide on the metric to be used for evaluating the goodness of each classification method – for this purpose we use a fitness function that combines three typically used “single issue” metrics. The idea behind using the fitness function is that we feel that a single metric does not adequately capture the goodness of results. The fitness function used has the following construct:

$$f_{fitness} = 0.35 * sn + 0.15 * sp + 0.5 * ACC \quad (4)$$

where *sn* is sensitivity, *sp* specificity, and *ACC* accuracy. The typical definitions for these measures are used, for detailed information see (Collan, 2019). Accuracy is given the highest weight, and sensitivity has a slightly higher weight than specificity, since we feel that it is more important to emphasize correctly classifying the defaulting clients than misclassifying reliable clients. For clarity, we observe that such a fitness function should be optimized for “production” use, but that is left outside the scope of this research. The classification methods can be put in a ranking order by ordering the fitness function values from the highest (best) to the lowest.

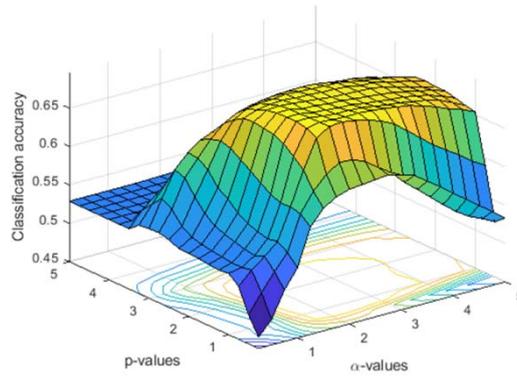
### 3.3. Parameter optimization

For each of the five classifiers the optimal parameters are searched by training the classifiers, running cross-validated results, and calculating a fitness function value with the testing data – this is done several times with different parameter values (value combinations) and the parameter values that give the highest fitness function value are selected to be used to run the tests with the test data.

As the five methods are different the parameter optimization is done in different ways for each method. The hyperparameter-optimization, available in MATLAB, is used for optimizing the k-nearest neighbors classifier. When this was done, we observed that optimal parameter values could clearly not be reached and decided to test also with a selected set of distance measures and with a selected range of number of neighbours in addition to the parameters provided by the hyperparameter optimization. Hyperparameter optimization resulted in Euclidean distance and k=57 as the optimal parameters, while our additional tests resulted in cosine distance and with k=17 neighbors – cosine distance and k=17 yielded better results than Euclidian and k= 57 and was used in the testing.

Support vector machine classifier requires heavy computations and thus is not a good fit with complex classification problems and we deemed that parameter optimization would be relatively very time-consuming, while the potential benefits would be marginal – therefore parameter optimization for SVM was omitted. For the decision tree classifier parameter-optimization, the MATLAB “Classification Learner App” was used to first select the split-criteria for the tree. The application found the Gini diversity index to yield best results. The `tree_classifier` function alters two other parameters, the maximum number of splits with values ranging from 2 to 14 and the minimum leaf size with values ranging from 12 to 30. For the discriminant analysis the six available discriminant types were tested ('linear', 'pseudolinear', 'diaglinear', 'quadratic', 'pseudoquadratic', 'diagquadratic'), the “FillCoeffs”-parameter was tested “on” and “off”, and the gamma value 0 and 1 were tested.

The GOWA-variant of the similarity classifier was first trained with different lambda values from within the range [0.3, 5.0] with a step of 0.1. The best classification accuracy and also the best fitness function value was gained with lambda value 3.4. After the lambda-value was determined, the

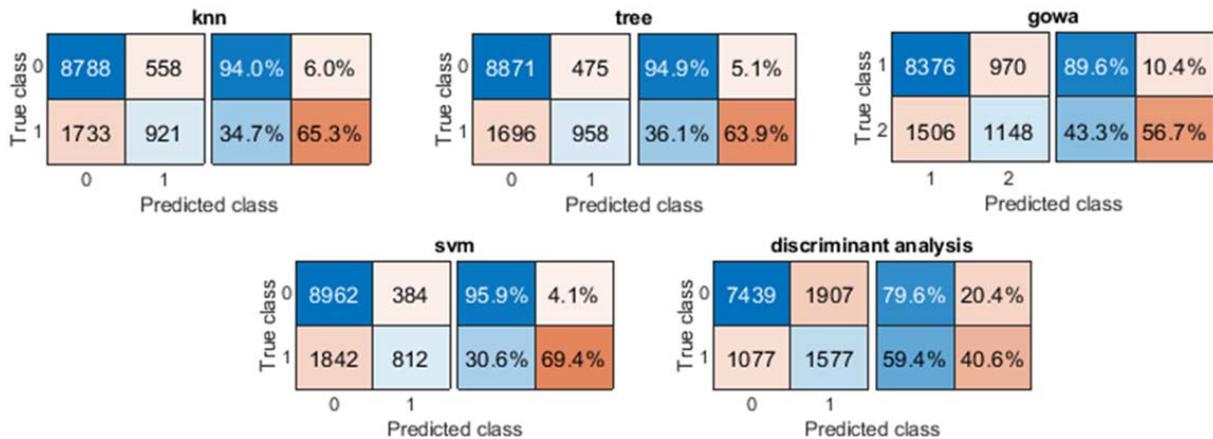


**Figure 2. Mean classification accuracies for the GOWA-variant with  $\lambda=3.4$  and varying  $p$  and  $\alpha$**

GOWA-variant of the similarity classifier was studied with  $p$  and  $\alpha$  parameter values from within the range  $[0.25, 5.0]$  with the step of 0.25. Parameter  $\alpha$  is a parameter of the Basic RIM quantifier used to generate the weights ( $\alpha \geq 0$ ). Figure 2 shows the mean classification accuracies reached in the optimization runs. The fitness function value optimizing parameter values were automatically selected from these ranges by the code that is available in (Collan, 2019).

### 3.4. Results

We start reporting the results by presenting and analyzing the confusion matrixes that are also presented in Figure 3. What can be seen is that the classifiers were able to predict the non-defaulting customers (class 0) quite well, while predicting the clients who default seems to be a harder task. Only discriminant analysis could predict more than half of the default cases correctly. The k-nearest neighbor, decision tree, and SVM classifiers were only able to predict one third of the default instances correctly. Note that the confusion matrix for the GOWA-variant of the similarity classifier labels must be interpreted so that 1=0 and 2=1, this is simply due to a technicality in the code used.



**Figure 3. Confusion matrixes with the test data for the five methods**

We can observe by comparing the confusion matrixes from the training set and the test set that the results are very similar to each other, which points to a (good) internal validity of the results.

The classification results and information about the method training times are gathered into Table 1. It can be seen, that the highest fitness function value is gained by discriminant analysis and the GOWA-variant of the similarity classifier is at the second place, quite close third is the decision tree method. Discriminant analysis greatly excels in sensitivity over the other methods, while being last in

specificity and accuracy. The GOWA-variant is not best at any of the three measures, however, it has a comparatively solid “all-round” performance. All in all the accuracies of all the methods are within approximately 7 percent points, while the differences are greatest in sensitivity.

**Table 1: Ranking and results for three independent metrics, fitness function, and training times**

classifier / result	specificity	sensitivity	accuracy	fitness	ranking by fitness	training time (min)
KNN	0.9403	0.34702	0.80908	0.66704	4	35.4
dtree	0.94918	0.36096	0.81908	0.67826	3	2.5
SVM	0.95891	0.30595	0.8145	0.64817	5	41.3
DA	0.79596	0.5942	0.75133	0.70303	1	0.3
GOWA	0.89621	0.43255	0.79367	0.68266	2	5.7

The training times are reported for reference, typically they are not important if they are not exhaustively long, but the information gives indications about the speed at which the systems can be retrained, when new data is added to the dataset. It needs to be noted that the reported training time for the GOWA-variant is for optimization with one lambda value only. The system used was a typical modern laptop computer.

#### 4. Conclusions

The focus of this paper has been to comparatively study the performance of the GOWA-variant of the similarity classifier – this was done by numerical evaluation against four commonly used classification algorithms. The approach taken in this research has been exploratory, and has revealed that the results obtained with the GOWA-variant are in line with the results obtained with the other classifiers, and certainly are not inferior. This signals the fact that the GOWA-variant is a usable method for classification and depending on the data-set may be the best available method.

The results were presented for three metrics and based on the typically most commonly used metric “classification accuracy” the GOWA-variant performed within three percent of the best of the bunch. The method was second best in being able to detect the true negatives (in this case the defaulting loan takers) by a notable margin to the third – while still being clearly inferior compared to the best method on this metric. The fitness function used in ranking the methods seems to be a good idea, as it allows considering multiple criteria in determining the goodness of a classification method.

It remains that more domain knowledge is needed to be able to judge whether the generated classification models would be useful in a real business environment (to study credit card loans), since all compared classifiers had clear problems in classifying the defaulting cases. The use of a fitness function allows the domain knowledge (and requirements growing out of domain knowledge) to be codified in the fitness function – this is an avenue for further research.

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## Structure of Expenditures on Research and development in the Slovak Republic

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**Abstract:** Current technological environment with quick changes is featured with the great expenditure to the field of science and research. Research and development is under condition of sources limitedness important factor of production growth, thus economic growth. In a long term, research and development affects potential product of a country. The result of research and development is new, innovative product. These products would provide competitiveness for the country in worldwide comparison. Goal of the paper is to examine structure of expenditure on research and development in the Slovak Republic from various perspectives and consider development of expenditures on R&D during the business cycle

**Keywords:** Science, research and development, structure of expenditure

**JEL classification:** O32, E22

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### 1. Introduction

Slovak Republic uses on Research and Development (further R&D) lower amount of funds from produced gross domestic product in comparison to other developed countries. Using of less funds has no direct and immediate impact on the performance of the country. However, the effects of the R&D usually comes in a long run. Due to this, we have to consider fact that R&D is one the most important determinants of the growth of potential product. Countries realizing this opportunity try to enhance, motivate, or support companies with innovative activities, support research within the country funded scientific organisations and support research at universities. The results of research themselves are not sufficient, if the practical application is missing. Applied research shall follow the basic research and institutions conducting basic research have to cooperate with practical placement (the example is cooperation of universities with companies). Paper deals with the analysis of the structure of expenditures on R&D in conditions of Slovak Republic. It captures several views to expenditures division, respectively several possibilities to classify expenditures on R&D. Expenditures on R&D might be considered as long-term investments with future returns in incomes as well as increasing production capacity of the country. In other words, current R&D expenditures create future incomes and growth of potential product at aggregate (macroeconomic) level and increase or even keep the competitiveness of companies at microeconomic level (individual profits and production capacities). Except for the necessity of R&D to increase competitiveness of the country by using new, modern and high-tech technologies, expenditures on R&D have multiply effect for the economy, even if we use it for salaries, consumption, material usage, purchase of equipment, or to larger investment items as machines, technologies or similar. Considering this, expenditures on R&D acting as regular

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investments, might be fiscal stabilizers. To explain this, in time of the economic growth, companies dispose enough funds to be used for R&D (as well as for other investments) and use them. For that reason, there is not necessity that country must complement funds for R&D (of course, some funds are still used, e.g. for research at HEIs or academies of science funded by government). However, in time of recession or economic downturn, the missing private enterprises sources shall be complemented by governmental sources to support R&D and thus support economy to recover in short-run, but indirectly to support economy in long-run by creating conditions for growing innovation potential resulting in growth of potential product.

## 2. Literature review

Research and development is point of interest of many economists, but also interest of several international institutions. Reports related to R&D are regularly published, for example, by OECD (OECD, 2015). OECD also collects statistical data on R&D (OECD: Research and Development Statistics - RDS, and OECD: Main Science and Technology Indicators -MSTI). Similarly, reports and data is reported by Eurostat (Eurostat, 2015). R&D is very close related to its result – innovation. It is obvious that expenditures on R&D oriented to increase innovation activity and innovative capacity are more concentrated in private sector, to be more detailed, in companies within the industry sector. On the other hand, basic research is conducted by government/public funded institutions (e.g. academy of science, scientific institute, research institute, etc.), and by sector of universities. Hudec & Prochádzková (2013) found that companies' expenditures on R&D determine innovative performance of a company and thus contribute to increasing of innovative capacity of particular country, in which company is conducting business. The relationship between expenditures on R&D and innovative capacity is considerable and statistically significant. Griffith (2000) focused on the question of importance of private expenditures on R&D to economic growth of a country. He also arisen question of subsidizing of R&D from public funds (central government or local governments budget). His questions came from idea that primary motive for expenditures on R&D is the future yield or revenue. However, we have to distinguish between private yield and public (social) yield that is higher as private. For this reason, encouraging economic growth and increasing standard of living might be only excuse for governments that subsidize R&D sector. The role of R&D in enhancing economic growth is obvious. However, we need to know, how expenditures on R&D are developing during the business cycle. Theoretically, we might see to different options. Firstly, during the economic downturn, companies have not enough funds for financing R&D and focus on operational activities or replacement of old machineries by new, more effective. An opposite situation might occur during the boom phase, when companies dispose of more funds that might be used. Secondly, situation is revers. Expenditures on R&D would increase during the recession as country needs to encourage and support economic growth (would be applicable mainly for public R&D sector) and decrease during expansion as the economic activity is sufficient and does not need additional inputs in form of R&D. According to this, the development of expenditures on R&D shall be countercyclical. Wälde & Woitek (2004), on the basis of data for G7 countries in period of 1973 – 2000, found the tendency of expenditures on R&D to be procyclical. Is obvious that the relationship between research and development and innovation activity, respectively innovations is relatively strong. Innovations are considered as the integral part of the development of knowledge based economy. This view is given by Gašparíková (2010), who emphasizes the role of R&D as one of the most important factor to develop or improve knowledge based economy. An important part of research in R&D is spillover effects that relate to the inflow of foreign direct investment (FDI). FDI inflow is assumed to have positive effect on the level of

expenditures on R&D not only in foreign affiliations established by the FDI inflow, but also in domestic companies challenging new competitors on the market. As a result, existence of foreign companies stimulates and enhances innovation activity in domestic companies. Spillover effects are in the interest of several economists as Bevan & Estrin (2004) or Lipsey (2002).

### 3. Expenditures on R&D in Slovakia

Slovak Republic funds R&D relatively low. The share of expenditures to Slovak GDP is very low. Most of developed countries use higher share of GDP for R&D funding as the Slovakia. The average share for EU28 countries is presently on level about 2% of GDP. When considering EU countries, in period of 1995 – 2017, the highest share of GDP use for the R&D is in Sweden (3.36%) and Finland (3.14%). To the contrary, the less share of R&D expenditures on GDP is in Cyprus (0.39%) and Romania (0.47%). The average level of this share for the EU28 is in 2017 at the level of 2.07% of GDP. Slovakia only slightly exceed the level of countries with the lowest share of R&D expenditures on GDP with the share of 0.88% in 2017 and average share of 0.70% in studied period. Following figure shows the development of expenditures on R&D for Slovakia, other V4 countries (as comparison to the neighbouring countries) and average of EU28 for period 2000 – 2017. The period used is due to the lack of date before the year 2000 in some countries. Clearly, expenditures on R&D in Slovakia has the lowest share not only in comparison to EU28, but also in comparison to other V4 countries, which share is almost double (except for Poland) and has never achieved 2% of GDP and only once exceed the level of 1%. As seen, the trend of the R&D expenditures as % of GDP in Czechia, Hungary and Poland is increasing. Only R&D in Slovakia has slightly decreasing since 2000 to 2009. Slovakia has achieved high rates of economic growth before the arisen of financial crisis that influenced and hit Slovak economy mainly in year 2009. The absolute volume of R&D expenditures was also growing, but not enough in comparison to GDP growth. As a result, the share of expenditure on R&D to GDP is decreasing. A decline seen in all V4 countries is year 2016 is relating to global economic downturn, respectively stagnation in previous year – 2015, which often considering as third wave of global financial crisis. Such behaviour of companies (and government as well) in R&D funding is common. In case of endangering the future yields, production or functioning the company, it will decrease long-term investments including R&D. In addition, the income of government is falling when economic downturn, what cause the funds reduction that might be used. As government needs to finance obligatory, segments, there is less funds remained for R&D and other investments.

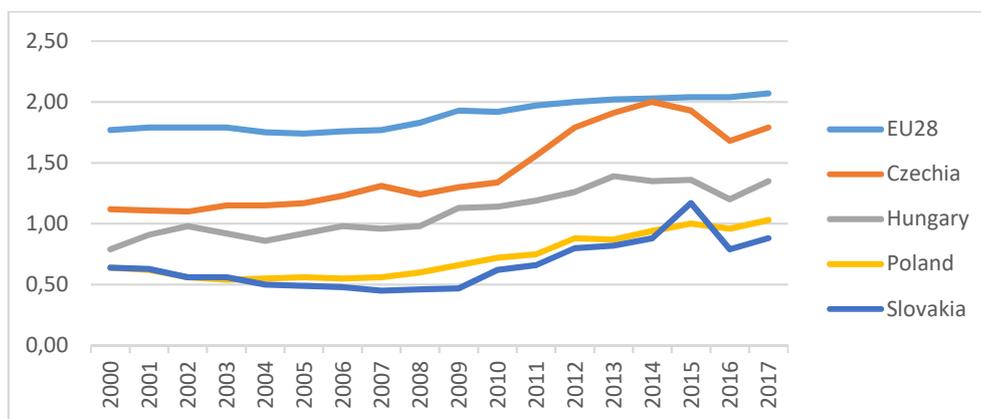
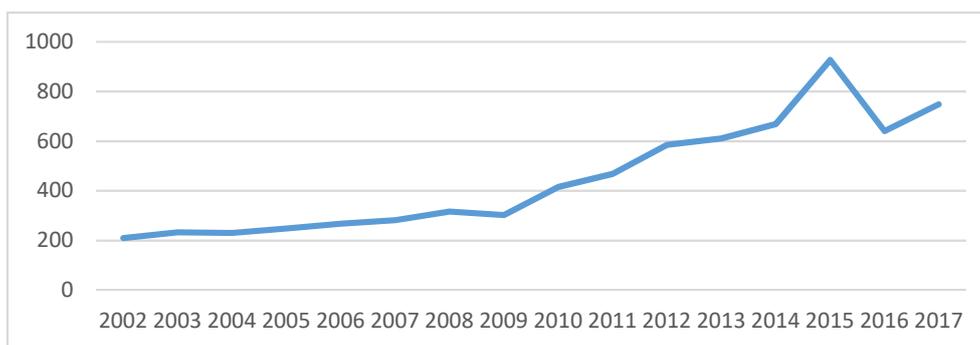


Figure 1: Expenditures on R&D between 2000 – 2017 in V4 countries and EU28 (% of GDP, Eurostat)

### 3.1. Development of expenditures on R&D

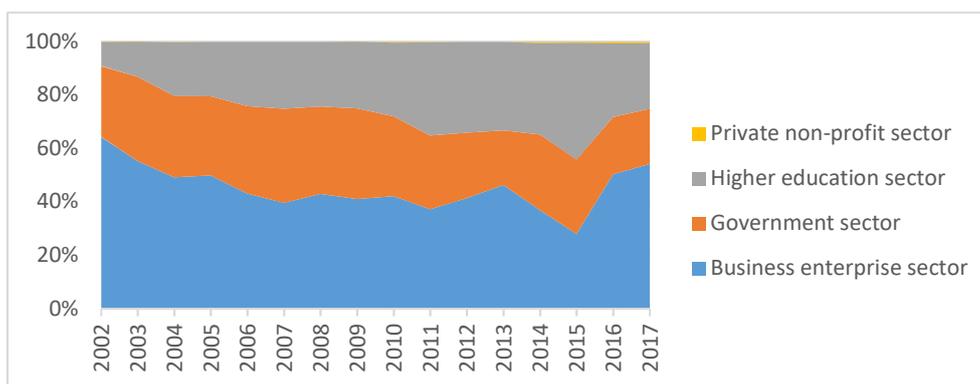
There is several views how expenditures on R&D might be classified. Different classifications help us to understand trends, positive as well as negative that are observed in Slovakia in R&D funding. Due to the lack of date, we have decided to capture period 2002 – 2017 to the analysis. For same classification, also date before 2002 are available. However, to use the same methodology and time period for comparison, we will use only mentioned time period. As seen in Figure 2, expenditures on R&D expressed as total has increased. It means that Slovakia, even slightly, is funding R&D more and thus enhance the innovation capacity of the country.



**Figure 2: Expenditures on R&D in Slovakia in period 2002 - 2017 (in mil. EUR, Statistical Office of the Slovak Republic)**

### 3.2. Expenditures on R&D – sectoral analysis

View on the overall R&D expenditures cannot be sufficient. Even, if we know that expenditures in volumes and in relative values are increasing, the necessary is to analyse structure of expenditures from several views. Firstly, we will analyse expenditures on R&D classified by sectors in the economy. Figure 3 shows that at the beginning of the analysed period, the business enterprise sector had the highest share on the R&D expenditures. On the other side, higher education sector (or universities) was not considerable. However, higher education sector has gradually increased its share just to the exclusion of business enterprise sector. The share of public sector was about the same during the analysed period without significant changes and private non-profit sector is almost not considerable and contributes to R&D expenditures at very low level. The important change in development has occurred in 2015 by the fall of business enterprise sector share and growth in higher education sector. This year is also time with the highest expenditures on R&D. Considering both these situations, we might conclude that the growth in R&D expenditures in 2015 was allocated in sector of higher education. Next two years of analysed period, the share of business enterprises sector has raised, the higher education sector and the government sector have declined. Changes in share of R&D expenditures mean that the higher education and government sector used more funds in R&D in year 2015 (year of stagnation) as private enterprise sector. Next years, in time of economic growth, public sector (universities and government) has continuously declined – thus used less funds. In other words, in this situation, expenditures on R&D act as anticyclical fiscal stabilizers regardless to the source of funds used in public sector.



**Figure 3: Expenditures on R&D – sectoral analysis (in %, Statistical Office of the Slovak Republic)**

### 3.3. Expenditures on R&D – funding sources

An important part of the R&D analysis is the source of funding. Generally, we would assume two major sources – business enterprise sector and government. In other words, R&D is funded by companies that invest to development of new technologies, managerial methods, equipment, machineries, etc. and by public sources via various institutions as academies of sciences, institutes, etc. The difference between these two sectors is the goal of the R&D. Companies fund R&D in order to obtain competitive advantage and thus higher yields as their competitors. Public institutions 'goal is not achieving profit from R&D results, but expansion of the state of art among researchers, academia or even people to improve quality of life or other aspects of life. If the private company wants to succeed in competition with other domestic and foreign companies, it must use funds for R&D to assign for the potential profit in the future by selling new, modern and high-tech goods. In other case, goods become out dated and competitors would overtake customers with negative impact on profit and sustainability of a company. As seen on Figure 4, the level of funding by private business sector is during the analysed period almost the same at level of 40%. Government is funding R&D about the same level, but the ratio is slightly decreasing. On the other side, the funding from foreign sources is growing. This fact is result of raising FDI inflow to the Slovakia. Moreover, foreign companies allocate investment not only for production, but also more often to the development of new technologies, R&D centres, centres of strategic services, etc. Only exception from above mentioned raising ratio is the end of analysed period, when the ratio has fallen (year 2016). However, the highest FDI inflow to Slovakia was between 2002 and 2007. In that time, most of investment was in automotive and manufacturing. It is reason, why there is not significant growth in R&D funding from foreign sources. It was not necessary, as the motivation of investors was efficiency seeking - cheap cost of production, cheap and qualified labour force; and market seeking – access to Slovak and neighbouring markets. Only present development of world and European economy forces investors to focus on R&D as the fundamental precondition of sustainability. In case of funding, situation is same as in case of sectoral analysis. The trends of the share between particular sectors are quite clear, with only change in year 2015 with the noticeable growth of share by foreign sources to the exclusion of private enterprise sector. The year of financial crisis in 2009 has not impact on the development of shares of R&D funding. If we consider analysed years (2002 to 2017) as years of continuous economic growth (except for 2009 with decline – there was smaller or larger GDP growth in all years), the share of government sources has decline. Business enterprise sector was relatively stable with volatility at the end of period and positively, foreign sources to finance R&D have increasing trend. From fiscal point of view, there is not necessity to fund R&D from public sources, as there is raising share of foreign investors. The increasing share of foreign sources is very important and is the sign of increasing technological and innovation environment of the Slovak Republic. Foreign affiliations in Slovakia were mostly established in manufacturing as efficiency seeking investment due to the cheap and educated labour and lower cost of production.

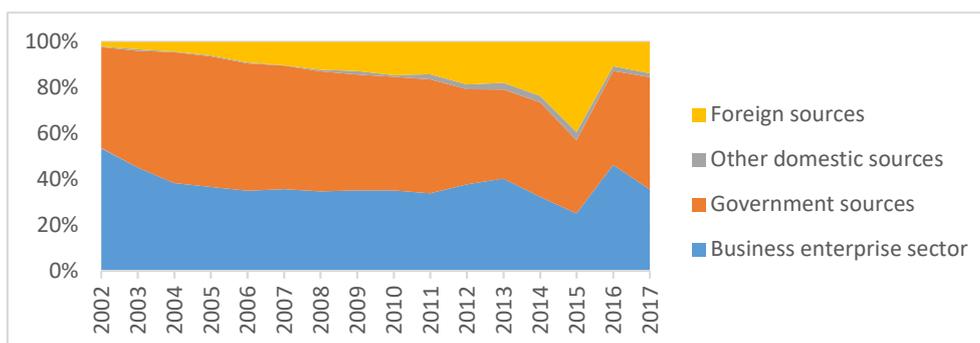


Figure 4: Expenditures on R&D – source of funding (in %, Statistical Office of the Slovak Republic)

### 3.4. Expenditures on R&D – activities of R&D

As mentioned at the beginning of the paper, the most important part of the R&D is the application of the results of R&D in practise and real use of R&D outcomes. Therefore, it is necessary that R&D would evince in innovative products, thus in innovations or in growing innovation capacity. From this point of view, applied research would have be more intensive. To the contrary, basis research, even important for increasing the state of knowledge, would have fewer activities as the applied research. However, in a long term, Slovakia focus on the basic research, which is about 50 % of all R&D activities. Other 50% is made of applied research and development with higher ratio of development.

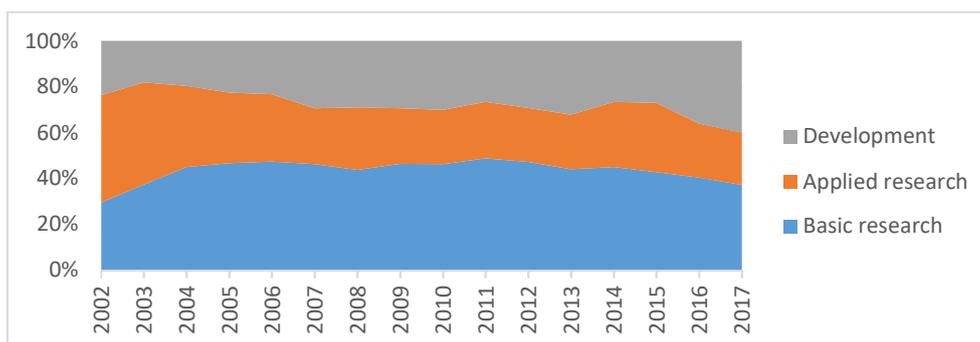


Figure 5: Expenditures on R&D – activities of R&D (in %, Statistical Office of the Slovak Republic)

## 4. Conclusion

Expenditures on research and development in the Slovak Republic have positive, raising trend. Despite of this, the use of funds to this area is less in comparison to other developed European countries. Concerning to the structure of R&D expenditures by allocation, high part of sources is allocated in business enterprise sector. However, the participation of higher education sector has growth the fastest during the analysed period. An important task of R&D is its funding. R&D is financed the most by the business enterprise sector, followed by government. A positive situation is the participation of funding by foreign entities conducting business in the Slovak Republic. This is a proof that Slovakia is start to be considered among foreign investors as opportunity for creating research and development centres or affiliations. Thus, the view on the Slovakia is changing from mostly manufacturing as efficiency seeking investments (cheap labour cost of production, etc.) to country with potential in new and high-tech technologies. Deficiency of the use of the funds on research and development is the ratio of basic research. Almost half of all funds is allocated to basic research. Most of these funds is

funding of higher education sector (universities) and governmental sector represented by institutions and their organizational entities funded from central/ministry funds (e.g. Slovak Academy of Science). Only the remaining half is distributed among applied research and development, which should be the source of innovations and contribute to growth of innovation capacity of country. The important role of the R&D expenditures might be found in enhancing the economic growth. These expenditures are important in short-run, but crucial in long-run while creating innovation capacity and increasing potential product of the country. Under some assumption, expenditures on R&D (in public sector) might help to stabilize the economy and increase performance of the economy as they would act as other government expenditures or investments.

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## Determinants of Trust in Local Currency: Case of CEE Countries

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**Abstract:** In a small open economy, trust in local currency constitutes a cornerstone of monetary policy. We investigate determinants of trust of households in stability of local currency using publicly available results of OeNB Euro Survey conducted by Austrian national bank. Employing range of econometric techniques we find that even though inflation and exchange rate development are the most important drivers of the trust in local currency, there is also evidence that institutional factors such as public debt are also significant. We also find that there is a considerable degree of persistence in trust in local currency.

**Keywords:** monetary policy, central bank credibility, panel data

**JEL classification:** E52, E58

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### 1. Introduction

During the second half of the 20<sup>th</sup> century, issue of optimal monetary policy has been one of the most important research questions of macroeconomics. Much of the research focused on whether monetary authorities should be bound by rules or whether they should be allowed to resolve macroeconomic issues in a discrete manner, consensus being that rule-based monetary policy is superior to the discrete one (see e.g. Clarida, Gertler & Galí, 1999). However, assuming that a central bank commits to the concrete rule, how important is that this commitment is credible? And once importance of credibility is established, how should central bank build it and what are its main determinants? In this paper we provide brief literature review on importance of central bank credibility and methods of its measurements (Section 2) and use publicly available data from OeNB Euro Survey to estimate most important determinants of central bank credibility in Central and Eastern Europe (Sections 3 and 4).

### 2. Literature review

The case for the importance of central bank credibility goes back to Kydland and Prescott (1977) and Barro and Gordon (1983) whose models explain “inflationary bias” in a monetary policy that can be overcome by *credible* commitment (or appointment of conservative central banker who, by definition, is prone to targeting low level of inflation). In 2000, Blinder (2000) asked 127 central bankers and 115 academics to rate the importance of credibility on the scale from 1 (unimportant) to 5 (of the utmost importance). Average score given by practitioners of monetary policy was 4.83, academics gave average score of 4.23. According to the survey conducted by Blinder, the most important reasons why credibility matters are less costly disinflation and low inflation (general link

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between costs of disinflation and credibility was provided by Ball, 1992). Similar findings were obtained from private-sector economists by Waller and de Haan (2004).

Even though importance of central bank credibility is currently a well-established fact in the literature, remarkably little is known about how credibility is built and what determines whether central bank will enjoy trust of economic agents. One of the reasons is that credibility is not only notoriously difficult to define (for example, in the paper Blinder defines credibility of a central bank as having “*people believe it will do what it says*” but intentionally left credibility undefined in the survey and left it up to the interview to fill the void for himself/herself) but also to measure.

First of all, it is important to understand that approaches used to measure another “soft” aspects of a central bank such as independence, accountability and transparency cannot be used to measure credibility. For example, central bank independence is usually quantified using questioners where different variables such as “*term of office of chief executive*” officer or “*who appoints CEO*” are given numerical scores and aggregated (Cukierman, Webb & Neyapti, 1992; Bodea & Hicks, 2015). Similar approach is used to measure central bank transparency and accountability by Fry et al. (2000) (more recent estimates of transparency are by Dincer & Eichengreen, 2014). However, *credibility* cannot be measured by numerically coding existing legal status or existing practices of the central bank – what matters is what households, firms, financial institutions and other economic agents *think* about the central bank, mainly about its ability to reach announced goals. Therefore, two completely different approaches to measuring central bank credibility were developed:

The first one assumes that is known what factors are essential to establish credibility. Index of credibility is obtained by aggregating indices reflecting these different factors. This approach has been used by Stephanos, Sidiropoulos and Spyromitros (2014) and Mackiewicz-Lyziak (2016) who combine measures of inflation, public debt and transparency, independence and accountability of a central bank to obtain final measure of credibility. However, this methodology has a very straightforward problem – determinants of credibility and their weights are always more or less arbitrarily chosen by the analyst.

The second approach is based on inflation expectations of either households or professional analysts. Credibility is quantified either as a rate of convergence of inflation expectations to the inflation target (Bomfim & Rudebush, 2000; Lyziak, Mackiewicz & Stanislawska, 2007; Demertzis, Marcellino & Viegj, 2009) or, more commonly, as function of a difference between inflation expectations and inflation target (Cechetti & Krause, 2002; de Mendoca, 2007; de Mendoca & e Souza, 2009; Levieuge, Lucotte & Ringuedé, 2015). This approach has been used in one of the few papers examining determinants of central bank credibility, namely Bordo & Siklos (2014, 2015). These two authors find that in low-inflation environment, central bank independence has positive effect on credibility, levels of public debt as well as of credit-to-GDP ratio are negatively associated with credibility

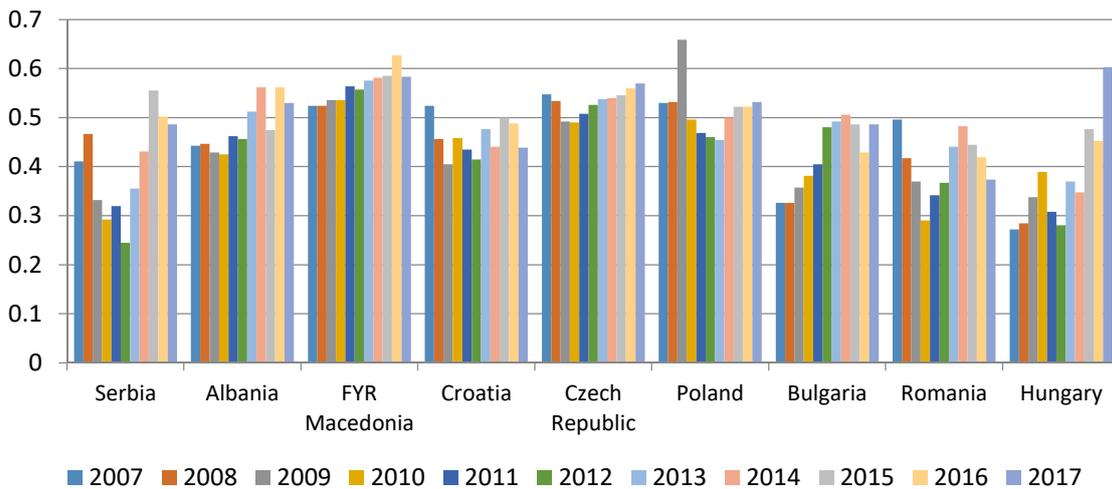
There are several unresolved issues with this approach, for example: Should undershooting and overshooting of the inflation target be penalized in the same way? Should temporary deviations from the target be penalized? How to measure credibility in countries which do not target inflation (Bordo & Siklos, 2015 address this by using implicit inflation target inferred from the estimation of the Taylor rule for a given central bank). How should tolerance bands be treated?

Nevertheless, in Central and Eastern Europe, central bank credibility can be investigated in more straightforward fashion. Austrian national bank (OeNB) regularly interviews households in the region and ask them (among other issues) to rate their trust in stability and trustworthiness in local currency. This is the approach we adopt in this paper.

### 3. Data and methodology

As mentioned, primary source of data are publicly available results of OeNB Euro Survey conducted by Austrian national bank (OeNB, 2018). Households are asked to rate their level of agreement with the statement ‘over the next five, the local currency will be very stable and trustworthy’ on scale from 1 (strongly agree) to 5 (strongly disagree). Average responses are available from the OeNB. We normalized the data to scale from 0 to 1 where 0 signifies zero credibility (strong disagreement with above statement) and 1 full credibility (full agreement).

Data cover period 2007-2017 and are available for Serbia, Albania, Macedonia, Croatia, Czech Republic, Poland, Bulgaria, Romania, Hungary and Bosnia and Herzegovina. Since Bosnia and Herzegovina operates currency board (local convertible mark is backed by euro), we exclude this country from the analysis. Figure 1 depicts levels of credibility from 2007 to 2017 for countries in our sample.



**Figure 1: Normalized credibility index based on OeNB Euro Survey**

(source: calculations based on OeNB, 2018)

In what follows, we estimate following model A:

$$cred_{i,t} = \mathbf{x}'_{i,t} \boldsymbol{\beta}^A + \delta_t^A + \varepsilon_{i,t}^A$$

where  $cred_{i,t}$  is a normalized credibility index for country  $i$  in period  $t$ ,  $\boldsymbol{\beta}^A$  is a vector of coefficients,  $\mathbf{x}_{i,t}$  is a vector of country characteristics as listed below,  $\delta_t^A$  is a time-specific fixed effect and  $\varepsilon_{i,t}^A$  is error term. Superscript  $A$  refers to specification  $A$ .

We also estimate model with fixed country-specific effects, i.e. specification  $B$ :

$$cred_{i,t} = \mathbf{x}'_{i,t} \boldsymbol{\beta}^B + \delta_t^B + \mu_i + \varepsilon_{i,t}^B,$$

where  $\mu_i$  is a country-specific fixed effect.

As determinants of central bank credibility  $\mathbf{x}_{i,t}$ , we use following variables (chosen variables reflect findings by Blinder, 2000 that most economists find history of fighting inflation and sound public finances to be instrumental to ensure credibility):

- average inflation rate over last 12 months  $\pi_{i,t}$  (*source*: Eurostat)
- standard deviation of inflation rate over last 12 months  $\sigma(\pi)_{i,t}$  (*source*: Eurostat)
- average rate of depreciation over last 12 months  $dep_{i,t}$  (*source*: Eurostat)
- standard deviation of rate of depreciation over last 12 months  $\sigma(dep)_{i,t}$  (*source*: Eurostat)
- standard deviation of rate of log of exchange rate over last 12 months  $\sigma(E)_{i,t}$  (*source*: Eurostat)
- debt-to-gdp ratio  $debt_{i,t}$  (*source*: World Development Indicators)
- Standard & Poor's sovereign rating  $SP_{i,t}$  (*source*: tradingeconomics.com; we turn S&P rating into numerical values according to following scheme: AAA = 10; AA+ = 9.33 and each further downgrading is penalized by loss of 0.33 points, i.e. AA = 9.00, AA- = 9.67, ..., C- = 1.67)
- GDP growth rate  $g_{i,t}$  (*source*: World Development Indicators)

It seems reasonable to assume that trust of households in stability and trustworthiness of local currency reacts on economic fundamentals with time lag. Therefore, we also estimates models in which we include one-year lags of  $\pi_{i,t}$ ,  $\sigma(\pi)_{i,t}$ ,  $dep_{i,t}$ ,  $\sigma(dep)_{i,t}$  and  $\sigma(E)_{i,t}$ .

Furthermore, we estimate specifications in which lag of  $cred_{i,t}$  is included to allow for time persistence in credibility.

#### 4. Results

Estimations results are provided in Table 1. As explained in the previous section, specifications differ in set of explanatory variables. Note that irrespective of type of specification, there is a significant negative relationship between central bank credibility and nominal stability measured by rate of inflation, its volatility, rate of depreciation and its volatility.

However, volatility of *level* of exchange rate is not statistically significant in any specification. Interesting argument why stable exchange rate is not necessarily linked with credible monetary policy is provided by Bordo and Siklos (2014). Unnaturally stable exchange rate can be viewed as a signal that central bank pays undue attention to exchange rate and will therefore neglect inflation in monetary policy decisions.

Interesting result is obtained in specifications (3)-(6): It is past rather than current inflation what determines trust in local currency.

There is weak evidence that sound public finances are conducive to central bank credibility – we obtain significant result in specification (1).

Estimations (5) and (6) suggest that there is a considerable degree of persistence in central bank credibility. However, estimations of model (6) can be biased since using OLS estimation in dynamic panel leads to Nickell bias. Reestimating model (6) using Allarano-Bond estimation produces lower

degree of persistence and coefficient corresponding to lagged credibility is only 0.283 ( $p$ -value=0.081).

**Table 1: Determinants of central bank credibility - estimation results of pooled OLS and FE OLS**

Specification	(A1)	(B1)	(A2)	(B2)	(A3)	(B3)
$cred_{t-1}$	-	-	-	-	0.690*** (0.081)	0.394*** (0.117)
$\pi_t$	-1.058* (0.554)	-0.480 (0.278)	-0.011 (0.657)	0.040 (0.293)	0.325 (0.409)	0.248 (0.343)
$\sigma(\pi)_t$	-3.442** (1.612)	-4.318** (1.293)	-1.364 (2.266)	-2.288 (1.621)	0.323 (1.515)	-0.517 (1.437)
$dep_t$	-0.376 (0.278)	-0.376* (0.186)	-0.445* (0.253)	-0.378** (0.157)	-0.201 (0.193)	-0.244 (0.153)
$\sigma(dep)_t$	0.078 (0.74)	0.174 (0.362)	1.561 (1.212)	0.388 (1.274)	0.241 (0.897)	-0.087 (1.047)
$\sigma(E)_t$	0.260 (1.082)	0.853 (1.180)	-0.489 (1.200)	0.392 (1.749)	0.268 (0.713)	0.510 (1.249)
$\pi_{t-1}$	-	-	-1.494** (0.594)	-0.862* (0.445)	-0.811* (0.446)	-0.859 (0.549)
$\sigma(\pi)_{t-1}$	-	-	-0.060 (2.046)	-0.838 (1.514)	1.094 (1.488)	0.158 (1.479)
$dep_{t-1}$	-	-	-0.254 (0.259)	-0.396* (0.192)	-0.204 (0.190)	-0.322* (0.142)
$\sigma(dep)_{t-1}$	-	-	-0.195 (0.666)	-0.597 (0.599)	-0.590 (0.427)	-0.831 (0.635)
$\sigma(E)_{t-1}$	-	-	-1.362 (1.713)	0.784 (1.651)	-0.082 (1.346)	0.970 (1.569)
$debt_t$	-0.105** (0.052)	-0.172 (0.119)	-0.082 (0.055)	-0.063 (0.129)	0.031 (0.042)	0.042 (0.117)
$SP_t$	-0.004 (0.010)	-0.003 (0.014)	-0.004 (0.011)	0.021 (0.017)	0.006 (0.006)	0.026 (0.014)
$g_t$	0.707 (0.528)	0.546 (0.427)	0.278 (0.549)	0.243 (0.450)	0.315 (0.349)	0.189 (0.351)
constant	0.553*** (0.099)	0.553*** (0.103)	0.565*** (0.116)	0.380*** (0.106)	0.053 (0.087)	0.103 (0.122)
time-specific fixed effects	yes	yes	yes	yes	yes	yes
country-specific fixed effects	no	yes	no	yes	no	yes
$N$	99	99	90	90	90	90
$R^2$	0.30	0.38	0.35	0.41	0.68	0.47

note: robust standard errors in parentheses; \*\*\*, \*\*, \* denotes significance on 10%, 5% and 1% level; time-specific fixed effects  $\delta_t$  and country-specific fixed effects  $\mu_i$  are significant in all specifications, but not reported for brevity

## 5. Conclusions

Despite the wide consensus that central bank credibility is instrumental for effective conduct of monetary policy relatively little is known about its determinants. We use publicly available results of

OeNB Euro Survey to investigate factors of trust in local currency in CEE countries. We find that low inflation and stable exchange rate development are conducive to central bank credibility and we find weak evidence of positive link between sound public finances and central bank credibility. We also find that there is a certain degree of persistency in central bank credibility.

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## “Mrs. Body Shop”- Business Vision

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**Abstract:** The breathtaking business story of Anita Roddick (1942-2007), an Englishwoman who sold natural cosmetics, non-animal and not-tested on animals products in "The Body Shop" chain, has helped to promote ethical principles in trade and commerce and is fully in line with the keynote of this year's conference: "Profit or Purpose"? When Anita Roddick and her husband Gordon started their business in 1976, it was a revolutionary step at the time - selling cosmetics "differently" than usual. The statement *“Companies that do not act morally, but only from the eagerness for profit, hurt their own business”* became Anita Roddick's business motto. It was a successful business, which is testified to, for example, by the *Dame Commander of the Order of the British Empire* awarded to her in 2003.

**Keywords:** Anita Roddick, business, fair trade

**JEL classification:** M12, M14, M31

**Grant affiliation:** IGA\_FF\_2019\_002 Shifts in Entrepreneurial Approaches in the Contemporary Economy

### 1. Introduction

Trading has varying intensity in various stages of economic development in different countries, as well as different sales trends. A very strong trend of the last quarter of a century is the sale of organic products, not only in the field of food and drink, but also in other areas. Natural cosmetics is a very significant industry, where the increase in demand is quite apparent. When this trend was beginning, one of the first pioneers was Anita Roddick, an exceptional and very successful businesswomen of our age. Her eco-cosmetics project was revolutionary as well as the direction of her business established in 1976: to produce natural cosmetics and sell them in refillable and recyclable packaging. There was another aspect, however, of her business that also attracted attention, this being her vehement commitment to the fight for human rights and fair trade with the Third World and her provocative campaigns against violence, child labour and animal experiments. Anita Roddick and her radical ways have been much discussed, admired and criticized, yet she has become a model for many business persons, as she has successfully demonstrated that success in sales and responsibility in business can be combined together. All sources on her life speak of these features (Kasterster, 2005). This is evidenced by her book, in which she writes about her ethical principles and visions of the economy and business of the future, as well as the failures and harsh struggles she had to undergo in order to promote her ideals.

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## 2. Business differently

The main character of the story is Anita Roddick. She was born in 1942 as a daughter of Italian immigrants in Littlehampton. According to her family, she was interested in ethical issues since childhood. She read a book on the Holocaust when she was ten, which hit her very hard. Anita Roddick initially wanted to become a teacher. She started working on one of the Israeli kibbutzes, and this stay encouraged her to travel around the world. Shortly after returning to England, her mother introduced her to a young man from Scotland. Gordon Roddick was a very handsome man and Anita fell in love at first sight. They started doing business together. First, they opened a restaurant and later a hotel in Littlehampton. They married in 1970 and had two daughters. On 26 March 1976, Anita Roddick opened her first "The Body Shop®" store, among other things because the family was faced with financial problems.

Anita had no education and no experience, only that she had earned on her earlier travels. She had worked on farms, lived in fishing villages along with fishermen and their families, moved in areas where the way of life was still traditional, based on pre-industrial conditions. She could imagine the beautifying rituals of women, and she was also inspired by the thrift of her mother who, for example, said: *"Why should I throw this cup out if I can refill it? And why should we buy more than we consume?"* This moment was important as the reuse of packaging and recycling was the beginning of a business focused on environmental protection. Good timing was the second success factor, as in the 1970s, Europe sought to promote greenness and the green colour had become the colour of her company. Her husband Gordon joined the business and introduced the idea of franchising, a principle that they began to implement when opening new "The Body Shop®" stores all around the world. Their company entered the Stock Exchange in 1984.

Anita Roddick was deeply convinced that companies have the potential to assume social responsibility. From the very beginning, the motto of her business was: *"We want to influence social and environmental changes"*. In another declaration she stated: *"Our stores and our products will contribute to attracting public attention to human rights and environmental protection"*. One of the examples of Anita Roddick's fearless fight was her support for Nigeria. In 1993, at the International Human Rights Conference of the League of Nations in Vienna, she learned about the efforts of the Nigeria-based company Ogoni to prevent the devastation of their country by the Shell multinational company. Roddick managed to get the case into the world press and after four years of pressure Shell adopted a corporate charter in which it committed itself to respecting human rights and preserving the environment. Anita Roddick was very proud of The Body Shop's contribution to this result. As of 2001, the company started cooperation with Greenpeace and others in a campaign that drew attention to the relationship between using fossil fuels and global warming and informed about the use of renewable types of energy.

One of the areas that Anita Roddick primarily focused on was the "Trade - Not Aid" campaign. The Body Shop was the first in the cosmetics industry, which has established direct relationships with municipalities and sourced local natural resources. Originally the programme was launched with suppliers from India and later expanded around the world and helped many thousands of people receive their own, regular earnings. The "Fair Trade" programme helped, in countries such as Ghana, children to attend school regularly, provided medical care, built schools, provided drinking water, etc. The connection between Anita Roddick and The Body Shop was strengthened in the public perception and the company has become a global company in which thousands of people profess the same values and inspired others. This moment resulted in major recognition from other companies not only in cosmetics, but also in other industries.

### 3. International fame and communication

Anita Roddick became more and more radical as she grew older at the beginning of the new millennium, but this was not reflected in her company's economic performance. In 1999, she joined the protest meetings against the WTO policy, and in 2000, she published her first biography "Take it Personally" in which she objected to alleged myths and globalization, as well as the strength and power of WTO. Her book was a success, which led her to the idea of establishing the "Anita Roddick Publications" communication centre. In 2003, she released two books: "Brave Hearts, Rebel Spirits: A Spiritual Activists Handbook" and "A Revolution in Kindness." and another book, "Troubled Water: Saints, Sinners, Truths & Lies about the Global Water Crisis", was published in 2004. Since 2001, she has been operating her website [www.AnitaRoddick.com](http://www.AnitaRoddick.com) and in 2004 she launched the activist portal [www.TakeItPersonally.org](http://www.TakeItPersonally.org). She was fascinated by the possibilities of the Internet to bring together people of the same views and to inspire people to shared action.

The Body Shop was bought by L'Oréal in 2006 and Anita Roddick labelled this situation as "without doubt the best gift to the 30<sup>th</sup> birthday of The Body Shop." L'Oreal has pledged to continue the concept and preserve the values of The Body Shop. Anita Roddick was appointed to the Board of Directors. In 2007, she announced that she was infected with hepatitis C through a blood transfusion in 1971, which was diagnosed in 2004. As is typical for her, she made use of this fact to raise awareness of people about the disease and utilize her own experience in a campaign to change the attitude of politicians and society. Anita Roddick died amongst a circle of her family in September 2007.

### 4. Conclusion

The Body Shop and Anita Roddick undoubtedly hold a strong position in the business world for their active impact on society. Thanks to her business, she has influenced the fields of human rights, animal protection and the natural environment, as well as the principles of fair trade. The news of Anita Roddick's death circled the world. British Prime Minister Gordon Brown praised her life by saying: *"She pushed for the environment in a time when it still was not modern and encouraged millions of people to supply markets with sustainable products within mass production. She was one of the most successful businesswomen of our country and a great inspiration to all around the world."* Similar responses came from other personages, all of them emphasizing the word "pioneer", which expresses the most characteristic feature of her business and life.

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## The marketization of services in small towns in Poland

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**Abstract:** Services market in Poland in the years preceding the economic transformation was inhibited. On the one hand, by limiting the development of the private sector, and on the other by the failure of the state sector. New opportunities for this sector have opened up with system changes in the last century. Another important moment was 2004. Poland became a member of the European Union at the time. Present times are the widespread marketisation, which means more participation of private entities in the provision of services. This phenomenon is especially important in the case of public service market. The effect of marketisation is to increase competitiveness, improve quality and increase service market. The article focuses on the phenomenon of marketisation of services in small towns. The aim of the study is to present the marketisation of services in the smallest settlement units in Poland (less than 20,000 inhabitants). In addition, it shows whether this process is similar to that in large cities and how it affects the economic and social situation of small towns. Analysis used data on the number of entities registered in the REGON system divided into sections of the economy according to the PKD.

**Keywords:** marketization of services, small towns, services market

**JEL classification:** O24, N74

### 1. Introduction

In the last century, in Poland, the mechanisms governing relations in the services market were seriously disrupted. The period of the centrally controlled economy prevented normal free market provision of services. On the one hand, service providers have encountered numerous barriers blocking development; on the other hand, consumers have encountered difficulties in satisfying their needs. The system transformation taking place at the turn of the eighties and nineties of the last century brought changes which opened new possibilities for the services market and brought huge changes in this sector of the national economy. Transition from model of a centrally controlled economy to the market economy model resulted both quantitative and qualitative changes in services. Many small companies appeared initially based on disintegrated cooperative and state enterprises. The prices of services have been released and made real, and for the companies with foreign capital, competition has appeared.

The turn of the 20th and 21st century is a period of progressing privatization of the services market, systematic broadening of the service offer and continuous employment growth in this sector of national economy. Unfortunately, the quality of many types of services turned out to be a problem.

Another breakthrough event on the services market was Poland's entry into the structures of the European Union. On the one hand, the accession opened new markets; on the other hand it caused that Polish service providers had to take adaptation measures to meet the Union's requirements.

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Recent years have been the period of popularization of the electronic economy which is one of the more dynamically developing areas of the global economy. Most activities carried out on the Internet can be qualified to the so-called e-services. They satisfy various consumer needs, ranging from trade and information, to health, financial and legal services, providing communication and entertainment, as well as many niche needs.

## **2. The process of marketization**

Market making or marketization is the introduction of competition to the sector public. In other words, marketization is creating within the public sector such mechanisms for which the market is a model (Musialik, Musialik, 2013, pp. 294).

In its widest sense; this process may also include liberalizing business activities (for example removing price controls), restricting regulations and opening market system of resource allocation. In a narrower sense, the market is related to changes in public sector aimed at introducing market mechanisms into the sector public. The goal of such a marketization is the greater participation of private entities in providing public services and commercialization of public service providers. Such a situation would, as a consequence, force competition in the public services to ensure their better quality and reduce their costs.

In Western European countries and in the United States, post-production is a process which we have been noticed for years. It applies to many areas of public life and has the task to create better conditions for the service consumption of the society. The genesis of service market is related to the need for changes in public sector management. These changes were the 80s and 90s of the 20th century and were preceded by the economic and political crises. The reforms were aimed at improving efficiency of the state sector and finding alternatives to the traditional administration model. The changes focused on denying the model of the ideal bureaucracy of M. Weber, as in the effect led to the development of a new public management (New Public Management - NPM) (Młodzik, 2015, pp. 186). According to G. Musialik and R. Musialik (2013) an important feature of NPM is the centralization of relations within the public sector and between the public and market sectors. Countries in which successfully began implementing NPM reforms are the United States, New Zealand and the United Kingdom. In smaller or greater extent changes in public sector management inspired by NPM, introduced the Netherlands, Australia, Canada, Sweden, Singapore and Hong Kong (Musialik, Musialik, 2013, pp. 297). The new public management has received numerous scientific and theoretical analyzes (min. J.O'Flynn, C. Hood), as well as critical voices (including T.Entwistle, S. Martin) (O'Flynn, 2005, pp. 233-242).

In Poland, in a country that in the last decades of the last century transformed the economy from centrally-controlled to market-oriented services can be considered from two perspectives. First of all, as a marketplace for the entire services sector after changes related to systemic transformation. Secondly, as a public service marketization. The article focuses on the first aspect of service marketization in Poland that is, to the entire sector of services.

Changes characterizing the process of marketization of the entire services sector are well characterized by an increase in the number of service enterprises starting from 90s of the last century. The systematic growth of entities is clearly visible service. In the initial period, in 1994, in the REGON system, registered were over 1720 thousand enterprises considered to be service providers. In 2016,

enterprises almost twice as many registered their services - almost 3300 thousand. We should pay attention to 2005, when service entities registered about 120 thousand less compared to the previous year. The outflow could have an impact on this state of affairs private enterprises providing services to new open markets of the European Union.

### **3. The process of marketization in small cities**

In the literature of the subject there is no clear indication of which settlement unit can be considered a small city. The most common classifications of cities according to the number of their inhabitants do not define this issue unambiguously. For the purposes of these studies, all settlement units with less than 20 thousand of residents were considered to be small towns. In 2018, the entire population of cities in Poland constituted 940 units settlement with the status of the city. Cities below 20,000 residents are 722 units settlement, which accounted for 76.8% of all cities in the country. For the needs of the study the group of small towns was divided into four groups: cities with a population of up to 2,500 inhabitants - 137 cities (14.6% of all settlement units in the country), cities with a population between 2,500 and 4,999 inhabitants - 218 cities (23.2% of all settlement units in the country), cities with a population between 5,000 and 9,999 inhabitants - 180 cities (19.1% of all settlement units in the country), cities with a population between 10,000 and 19,999 inhabitants - 187 cities (19.9% of all settlement units in the country)

The article focuses on the process of marketization in small towns. They have a different structure of the offer for residents who in many aspects of life are in the zone of the influence of major urban centers. They commute to work, schools, for shopping, cultural or entertainment purposes. However, this situation is slowly changing. A good example here is the commercial marketization (Gosik, 2016, pp. 109-123) and its impact on the residents of small towns. Formerly, residents of smaller urban centers went shopping to major cities. Currently in the era of extensive expansion of the large area stores the situation is changing. A commercial offer in small cities is equally rich, which influenced consumer behavior of the inhabitants of these cities who only choose to buy occasionally in the larger centers (Gosik, 2017, pp. 53-64). Therefore, it seems correct to say that marketization affects not only extension of the market rules to service activities, but also affects social life.

### **4. Analysis of the process of marketization in small cities**

The study is the result of the author's many years of research on the subject of marketization. The research was conducted on the basis of literature studies, empirical studies, inventory surveys and questionnaire surveys. The analysis of the research gives a good view on the process of marketization of services in small towns in Poland

To bring closer the process of marketization or the marketing of the service sector, the percentage share of private sector enterprises in general service enterprises was analyzed. Data on the number of entities registered in the REGON system were used for this purpose divided into sections of the economy according to PKD. Considering the ownership aspects, the domination of the private sector is clearly visible (Table 3). In the case of sections G, H, I, J, K, M, N and S, nearly 100% of entities are in the private entrepreneurs' hands. The situation looks different when we look at the sections of the public service categories, which access for residents is the responsibility of local authorities. The section O - Public administration and national defense is interesting and obligatory social security. In the case of this section, the bigger the city is the number of private entities is smaller although the

number of entities registered in this section in the REGON system is growing. A larger number of entities is the answer to the demand of the inhabitants; however, most entities of the O section belong to the public sector. An increasing number of service entities in the private sector is visible in section P - Education, Q - Healthcare and social assistance, R - Activities related to culture, entertainment and recreation. For these sections, the number of service enterprises increases with the size of the city and in this case they are entities in private hands.

**Table1: Percentage share of private sector service companies in general surveyed service companies registered in the REGON system by economic section (PKD)**

PKD sections 2007	Cities by the number of the residents				Average
	Up to 2499	2500-4999	5000-9999	10000-19999	
G	99,8	99,7	99,7	99,6	99,7
H	100,0	99,5	99,5	99,1	99,5
I	97,5	98,9	98,6	98,8	98,5
J	100,0	98,7	100,0	98,9	99,4
K	100,0	99,7	99,4	99,5	99,7
L	80,2	79,5	72,2	76,3	77,1
M	96,1	97,4	98,2	98,8	97,6
N	97,6	99,6	99,4	98,7	98,8
O	35,5	35,1	31,3	15,4	29,3
P	33,3	45,6	55,9	63,9	49,7
Q	84,4	90,0	93,3	95,3	90,8
R	71,9	77,8	85,0	89,6	81,1
S	99,3	99,6	99,4	99,5	99,5

G - Wholesale and retail trade; repairing the vehicles, including motorcycles, H - Transport and storage, I - Accommodation and food service activities, J - Information and communication, K - Financial and insurance activities, L - Real estate market services, M - Professional, scientific and technical activities, N - Administrative and support services activities, O - Public administration and defense, compulsory social security, P - Education, Q - Healthcare and social services, R - Cultural, entertainment and recreation activities, S - Other service activities

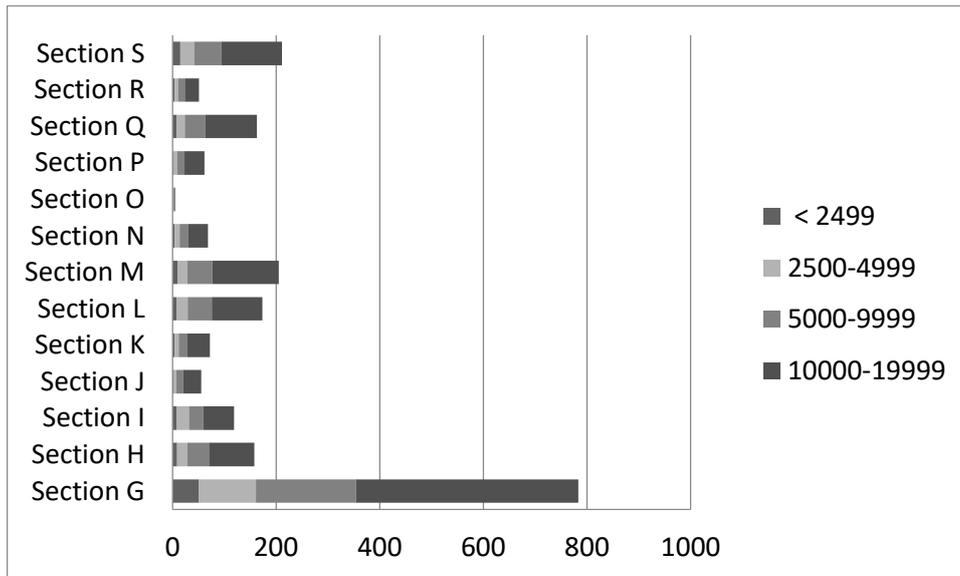
Source: Own study based on data from the Central Statistical Office

The absolute number of service sector entities in the general surveyed service entities registered in the REGON system by economic section (PKD) is presented in Chart 2. The localization of private sector service entities in particular size groups of the cities is as follows: cities with a population of up to 2,500 inhabitants - 127 entities, cities with a population between 2,500 and 4,999 inhabitants - 275 entities, cities with a population between 5,000 and 9,999 inhabitants - 524 entities, cities with a population between 10,000 and 19,999 inhabitants - 1202 entities.

Analyzing individual sections it is clearly visible that the largest number of service entities is represented by section G - Wholesale and retail trade; repairing the vehicles, including motorcycles (783 entities). The next section in terms of the number of entities is section S - Other service activities (211 entities) and section M - Professional, scientific and technical activities (205 entities). Definitely

the fewest service entities in the private sector are included in section O - Public administration and national defense, compulsory social security (only 5 entities).

Another interesting issue is the share of private sector service entities in general for the PKD sections: G, H, I, J, K, L, M, N, O, P, Q, R, S, in individual size groups of small cities. It is clearly visible that the largest number of service enterprises located in private hands is located in the cities from the group of 10,000 - 19,999 (94.0%), and the least in the smallest cities from the group up to 2,499 inhabitants (90.0%). In cities in the range of 2,500-4,999, the percentage of private entities is 92.5%, and in cities between 5,000 and 9,999 - 92.6%.



**Figure1. Number of private sector service companies in general surveyed service companies registered in the REGON system by economic section (PKD)**

**Source: Own study based on data from the Central Statistical Office**

## 5. The summary

The process of marketization is an indispensable element of the market economy. It introduces market principles in many aspects of business operations, including in various types of services. The phenomenon of marketization in Western economies, both European and global, appeared in the eighties of the last century as an attempt to change the functioning of the public sector. In Poland, this process was slightly different in the initial period due to the economic situation of our country. The transformation of the economy from centrally controlled to the market economy has influenced dynamic changes in the services sector. These changes were both quantitative and qualitative as well as ownership. Small private service companies were established, which could only start as a result of the system transformation. Polish companies with foreign capital have also started to enter the Polish market. As a result, in the Polish conditions, service marketization can be considered in two ways. First of all, as a marketization of the entire service sector taking place after changes related to systemic transformation. Secondly, as a marketization of the public services. Transformations in the services sector are best illustrated by quantitative changes in service entities. In 1994, more than 1720

thousand of the service enterprises were registered in the REGON system. In 2016, this number increased almost twice - to almost 3300 thousand entities.

The article showed that the changes are also noticeable in small cities; it means those with a population below 20,000. Research has shown that the service sector's marketization in small centers is similar to the larger ones, while the level of service marketization is slightly lower in the smallest cities. In summary, small towns that once were in the sphere of influence of larger centers are now becoming more self-sufficient. They have a wide offer that provides their residents with access to various types of services.

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## Use of the marketing mix in a recruitment campaign

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**Abstract:** This paper is a case study of the recruitment campaign by Police of the Czech Republic (“PCR”) from the perspective of the marketing mix of personal marketing. Employer branding has become more important due to the shortage of workforce on the Czech labour market, together with personal marketing, which is a crucial component of the employer branding. PCR is to recruit 4 000 new policemen by the year 2020, while it has to face the consequences of demographic development, low unemployment and its own low competitiveness as an employer. This recruitment campaign therefore serves as an example, that the marketing mix has its applications not only in the traditional area of products and services, but also in the area of human resources management.

**Keywords:** employer branding, personal marketing, marketing mix, recruitment campaign

**JEL classification:** J23, M37

**Grant affiliation:** IGA\_FF\_2019\_002\_Shifts in Entrepreneurial Approaches in the Contemporary Economy

### 1. Introduction

The term “War for talents” has first appeared in the year 1998, in the article by Elizabeth Chambers and her colleagues. The fundamental idea of this article is that the organisations should focus on recruiting and retaining of talented employees. Authors suggested, that if the economic growth of the US rose up to the 2 percent in average annually, the American employers would need 15 percent more executive officers, while it was expected, that there will be also a decline in numbers of available employees aged 35 – 44 years by 15 percent. They have mentioned the importance of the company’s brand, which includes attractive corporate culture and inspiring values. The organisation should also consider who would be targeted in its recruitment campaign, i.e. what kind of talent it wants to attract. (Chambers, Foulton, Handfield-jones, Hankin, & Michaels ill, 1998)

Evaluation of their prediction would require a much deeper analysis of the situation in the US, but if we apply the before mentioned prediction on the current situation in the Czech Republic, it is possible to point out, that there is a growing share of enterprises, for whom the most crucial obstacle is just a shortage of labour (Český statistický úřad, 2018). Czech statistical office states in its last quarter Czech labour market analysis, that the level of unemployment was only 2,1 percent. Although the employment services registered more than 324 000 vacant positions, there was only 111 000 of those, who were actively seeking an employment. The Czech statistical office considers these values as record breaking values (Holý, 2019).

Therefore, we might suggest, based on these statistics abovementioned, that the labour market situation is turning. The workforce demand among the employers is higher than supply and it is expected that the availability of workforce will not be increasing soon. Thus the situation comes to the

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point, where employers are the ones desperately seeking new employees. Accordingly, the employer branding gains more importance as a key element, which might be a deciding factor, whether an organisation loses or wins the war for talents.

## 2. Employer branding and personal marketing

Employer branding is based on the knowledge of HR and marketing. It is a strategic effort of influencing the perception of a company by the potential and current employees and the public, so they might see it as a great place for work. This image contains both, the reputation in the field of products and also the reputation in the field of corporate culture. Thanks to this image, the organisation has an opportunity to attract the best talents in the field (Uppal & Vashist, 2017).

Employees in marketing and HR management should keep in mind, that their actions influence one and the other. The employer brand may affect others, such as the company's product brands. Connection between internal and external reputation of the company is of utmost importance. For companies, which suffer from low customer awareness, may be much harder to find highly skilled human capital, because the potential candidates are less aware of this employer. Similarly, if a company's product is unattractive on the market, potential candidates have negative views towards the company and may be reluctant to consider employment in such organisation (Wilden, Gudergan, & Lings, 2010).

## 3. Marketing mix of personal marketing

Personal marketing is based on the knowledge of human resources management and classic marketing. That is why it also uses similar practices as marketing in the original sense, i.e. product or service oriented marketing (Andrejčák, 2013). Therefore, personal marketing treats a job offer as a product, which is then sold on the labour market, while the workforce is perceived as an external or internal customer (Rodica & Rodica, 2017).

Though it is logical to perceive employer branding as a link between human resources management and marketing, very few authors actually address the application of the marketing mix to personal marketing in their studies and works. Mária Antošová is one of such authors, who can be mentioned of the Czech landscape, although her articles are not of academic nature (Antošová, 2005). It is also possible to mention the works of authors Lvovna and Viktorovich as a more scientific source, whom approach the marketing mix of personal marketing from the perspective of an employer and also from the perspective of a job applicant. (Lvovna & Viktorovich, 2017). For more detail see Table 1.

**Table 1 4P of personal marketing. Source: (Lvovna & Viktorovich, 2017)**

4P	Employer's view	Employee's view
Product	Vacant job	Human work
Price	Time/education/qualification	Salary
Place	Workplace	Workplace
Promotion	Recruitment notice	Job application

Regarding other authors, who address the same topic, there is Wickham and collective, who came up with the concept of Employment Marketing mix, however they are working with the concept of marketing mix expanded to 7P (Wickham, O'Donohue, & Hanson, 2008). Sofica and collective only

expanded their theory (Sofica & Cosma, 2018). However, these approaches extend beyond the framework of the recruitment campaign itself and therefore this paper does not address them in more detail.

#### **4. Recruitment campaign of the CPR**

The recruitment campaign essentially influences the external employer branding of the employer so, that the organisation attracts more job applicants. The following case study focuses on the recruitment plan of the PCR, the tools, which have been used to promote vacant positions and the ongoing results of this recruitment campaign.

##### **4.1. Recruitment plan of the CPR**

In 2015 the Police Presidium of the Czech Republic has published a document called "Development of the PCR in the years of 2016 – 2020", describing the security reasons for which it plans to increase its numbers by 4000 police officers in total during period of five years (Rozvoj Policie České republiky v letech 2016 – 2020, 2015). In 2017, the Czech Republic Police Presidium published the concept of development of the Czech Republic Police Department until 2020 (updated 2017), which followed the document from 2015 and specified its objectives. It is a reaction to the labour market situation and mentions the lack of available workforce, which is taken into consideration due to the demographic development. The documents highlight the low competitiveness of the CPR as an employer subject, mostly because of the unsatisfactory low salary. Concurrently suggests slowing the pace of growth and development, i.e. prolonging of the recruitment plan up to the year 2022. Current demographic development does not only mean, that there will be a decreasing amount of job applicants soon, but also a decline of their quality due to the aging population, as the vacant jobs are demanding a certain level of physical prowess and good health. (Koncepte rozvoje Policie České republiky do roku 2020, 2017)

##### **4.2. Marketing mix of the CPR recruitment campaign**

The scope of this case study allows to pursue the basic 4P of the marketing mix and apply it to the recruitment campaign of the PCR. The subsequent text is based on the work of Lvovna and Viktorovich (Lvovna & Viktorovich, 2017). The extended marketing mix by Wickham, O'Donohue and Hanson (Wickham, O'Donohue, & Hanson, 2008) could then be the subject of further research.

###### **4.2.1. Product – job/human work**

PCR is currently offering one job position, where the PCR requires a university education, namely position of the Air service pilot (Chief Commissioner – Captain/major). The description of this position is as follows (original Czech description has been translated to English for the purpose of this study):

*„Air Service provides air support – to the departments of the PCR, to the Czech Republic Fire Rescue Service and to the Ministry of the Interior and its organisational units, units of the integrated rescue system, in the situations of crisis to the Crisis management authorities, when coordinating the implementation of rescue and liquidation work by the units of the integrated rescue system, to other armed security corps and armed forces, if they are in cooperation with the police carrying out activities to ensure order and homeland security, to other subjects according to a specific law, agreement, or if the police president decides that providing of air support is in the public interest. " (Pilot letecké služby, 2019)*

Furthermore, there are currently six vacant positions requiring only an apprenticeship certificate, these are the positions of Officer (Staff Sergeant), and 410 positions, which require high-school education with high-school diploma. These are usually the positions of senior referents with the rank of a Constable. The descriptions of all these vacant positions are very similar. An example might be position of the Head of the District (Local) Department (original Czech description has been translated to English for the purpose of this study)

*„Job description – maintenance of public order in the assigned territory, crime prevention and apprehension of offenders, securing of the crime scene and traces, securing witnesses, protection and assistance of the general public, performs the tasks of reporting services, conduction of search for persons from the place of the event, overseeing road safety and fluency, escorting and guarding detainees in a police cell. (Vrchní referent obvodního (místního) oddělení, 2019)*

*There is also an exactly same list of benefits for every vacant position: "Basic service time of 37.5 hours per week, 6 weeks of leave, business leave with service income (e.g. Blood donation, work as the head of the camp for children and adolescents, nursing a sick child under 10 years...), study leave with entitlement to a service income, network of departmental health establishments, a number of resort sports or recreational facilities, contribution to the supplementary pension insurance, catering allowances, recreational stay, spa rehabilitation stay or cultural events, reimbursement of expenses (travel, sustenance), possibility of accommodation (both in service accommodation facilities and in service flats). " (Vrchní referent obvodního (místního) oddělení, 2019)*

#### **4.2.2. Price – knowledge, access and skills / wage / salary**

PCR requires for all the vacant positions a minimum age of 18 years, education according to the position, Czech citizenship, psychological and physical capability to perform the service and legal capacity. In the case of a pilot job offer, requirements are further specified in regards to his/her qualification. No further expectations from candidates have been ascertained from publicly available sources.

The basic gross monthly income for a position, which requires university education, is 36 340 CZK. The basic gross monthly income for positions, requiring an apprenticeship certificate, is 22 710 CZK and lastly, the vacant positions, which requires only high-school diploma, offer the gross monthly income of 24 220 CZK with the recruitment allowance usually being CZK 75 000.

#### **4.2.3. Workplace**

The PCR career website shows an interactive map. This map indicates the number of vacant positions in the given area. A job applicant is able to filter the positions according to the region and the minimum required education. It is possible to click on a certain point with figure on the interactive map, which will allow to see more information about the job position, for more detail see Figure Figure 1 (Nábor, 2019). Specific characteristics of workplaces do not appear in the recruitment campaign.

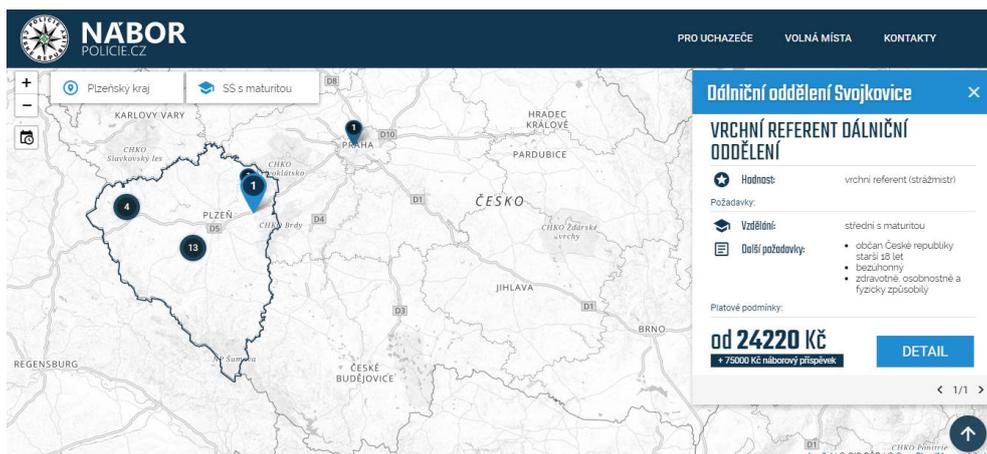


Figure 1: Interactive map of the PCR vacant jobs. Source: (Nábor, 2019)

#### 4.2.4. Promotion – recruiting/applying for a job

The PCR makes use of both, the real and virtual places. Job fairs and public events are ones of the real places, where the PCR is able to attract potential job applicants. Career websites, YouTube videos or Facebook (and other social media) represent the before mentioned virtual places (Nábor, 2019), (Přidej se k nám!, 2018), YouTube videos (Policie České republiky, 2019) or Facebook (Policie České republiky, 2019). Job offers can be found on other virtual platforms too, but to a limited extent, e.g. only three jobs are displayed under the keyword "policeman" on the most commonly used work portal Jobs.cz (Analýza pracovního trhu, 2019). Potential job applicants can also contact the Personal department of the PCR, using the contact form on the career website. Other kinds of self-promotion of job applicants might be a subject to a further research, due to a limited scope of this study.

#### 4.3. Evaluation of recruiting campaign of CPR

The PCR has launched a recruitment campaign to achieve the goal to recruit 4 000 new employees in 2016 - 2020, however, the goal was not yet fulfilled, as shown in the Figure 2, which displays aggregated numbers of PCR employees for the given period. As the figure shows, the recruitment has been mostly unsuccessful, despite the expectations (Rozpočet MV ČR, 2018). Afterwards, the Plan of recruitment was prolonged till 2022. And therefore the resulting evaluation of the recruitment will only be possible after the given date.

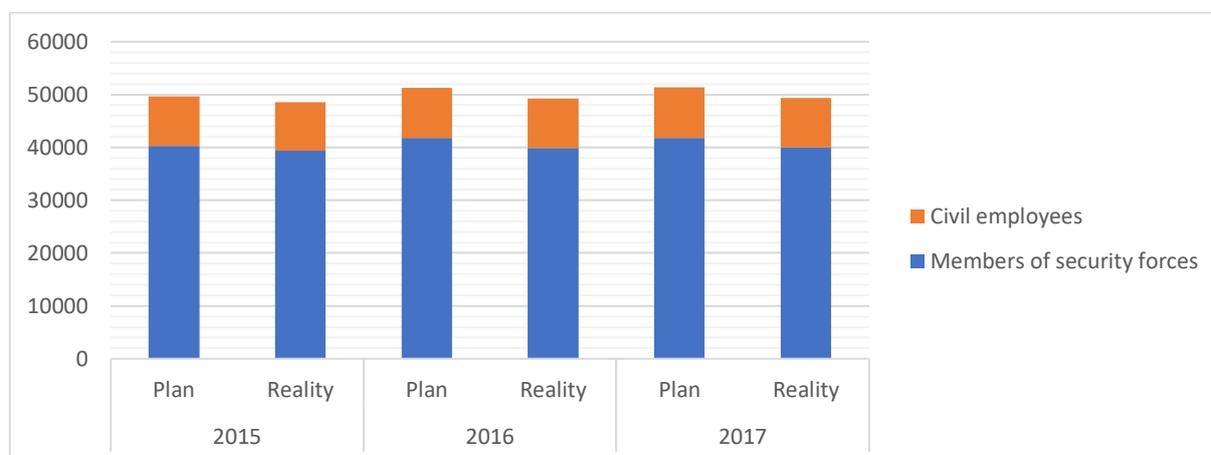


Figure 2: Plan and reality of the Czech Republic Police recruiting. Source: ("Rozpočet MV ČR", 2018)

## 5. Conclusion

The current labour market situation escalates the war for talents. And demographic development suggests, that this trend will not change in the near future, but will continue to grow in importance. For this reason, the organisations should take care of their brands as an employers and should approach recruitment in a similar way as they would approach to marketing of their products or services. This case study concludes ways, how the marketing mix can be leveraged in the personal marketing area. Nevertheless, it is obvious, that a recruitment campaign alone does not result in the successful recruitment plan. But application of marketing mix is able to address this issue from a completely new point of view on recruitment campaigns and might help employers target their recruitment campaigns more precisely. Such an application exceeds the scope of this case study, however it should be noted, that it should be a subject to further research. This research should focus on all P's of marketing mix, including the one extended version.

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## Changes of B2B promotion in the Czech Republic

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**Abstract:** The paper aims to describe the evolution during last decade and current state of the B2B marketing in the Czech Republic. Data by B2B monitor were analyzed and interpreted to identify the trends in the B2B marketing. The paper shows the tendency to save money in the context of B2B marketing activities. New trends in an application of B2B marketing tools are presented. The study is completed by an interesting view of an expert in the B2B marketing. A deep interview with an expert has confirmed data by B2B monitor and discovered other problems in the B2B marketing at present.

**Keywords:** B2B marketing, B2B monitor, B2B promotion, events, marketing budget

**JEL classification:** M31, M37

### 1. Introduction

Functioning B2B relationships are the most important aspects of business success. Appropriate building and development of long-term relationships with suppliers and buyers is crucial. Nevertheless, B2B marketing theory and marketing research is weak. 17,853 marketing articles published in the time period 1936 - 2006, only 1,204 deal with B2B marketing (LaPlaca & Katrichis, 2009). B2B marketing research is significantly concerned on practical examples, studies and best practices. A dynamic interaction is necessary, first between universities, consultants and practitioners to ensure suitable connection of academic research and managerial implications (Cortez & Johnston, 2017).

Similar to B2C marketing, the integrated marketing communications are desirable. The integrated marketing communications are consistent, clear, and compelling company and brand messages (Kotler et al., 2017). However, in the comparison between B2C and B2B market is necessary to see differences and apply different marketing tools. The main different characteristic is that the B2B market includes many types and sizes of organizations, multi-player chain of buying or selling goods or services (Fill & McKee, 2013). But with relatively fewer buyers on the B2B market and on the other side, oligopolistic competition (Vitale, 2011). It means that every organization in supply chain has own needs, which could be in contrast to other links, e. g. one link could prefer less stock supply, the other security of

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production. It is also connected to geographic concentration of B2B market structure and potential interruptions in supply or due to local marketing customs and preferences.

## **2. B2B promotion**

Promotion in B2B marketing places emphasis on personal selling, dialogue (Vitale, 2011). An advertising is not primary tool. On the other hand, it still belongs to B2B promotion as a part of integrated marketing for its informing and reminding potential. Most frequent using of advertising is in trade journals and newspapers or catalogs, product brochures, data sheets. A new trend is an online video, demonstrating products, providing cases studies, delivering conference and corporate events to remote audiences (Fill & McKee, 2013). An advertising of B2B organizations is provided on web sites. Many shared information and different technologies enable to personalize their content according to the company they want to reach (Sluis, 2014). Creating personalized marketing content is vital to B2B online communication (Štroch & Stoklasa, 2017). Manufacturers realized the need of product customization. So, product configurators are standard part of B2B promotion in most sectors, nowadays.

A special interest is focused on social media. The popularity of social media is of an increasing tendency in B2B market. Social media plays an important role in commerce, sourcing information, sharing information and interaction with each other (Dahl, 2015). Thus, it takes over some aspects of classic advertising. Social media supports a long-term relationship with suppliers and customers (Michaelidou, Siamagka & Christodoulides, 2011). Good relationships with the B2B partners are important in a context of trust and commitment (Morgan & Hunt, 1994). Researchers see the problem with social media framework application in the time spent to locate, analyze and organize the data (Mehmet & Roney, 2016). Nevertheless, using the social media has an increasing trend in B2B market.

Sales promotion, defined by Kotler et al. (2017) as “short-term incentives to encourage the purchase or sale of a product or a service”, generates an action or change in attitude of the B2B partners. Sales promotion in the B2B marketing targets 3 audiences: intermediaries, end-user customers or sales force (Fill & McKee, 2013). The different types of sales promotion are applied in the context to these 3 audiences. The B2B marketers use price-offs, allowances, buy-back guarantees, free goods to retailers and wholesalers to get products on the shelf, specialty advertising items (Kotler et al., 2017).

PR (public relations) are used for establishing and maintaining relationships with various stakeholders in the B2B marketing. Press releases, press conferences, interviews or events are organized in the contexts of media relations. The B2B marketers would like to disseminate a message through third-party media. The lobbying of B2B organizations help them to stand up for their interests and it can influence the legislation and the regulations. The awareness in the target market is developed by the sponsorship. The business in the B2B market face the crisis situations. Therefore, the crisis communication or the plan for crisis management is crucial in the PR of the B2B organizations (Fill & McKee, 2013). The importance of transparent crisis communication confirms scandal with car emission manipulation. Even though Czech consumers are not much concerned about it, the government has to deal with it, as well as business partners in order to avoid to connecting with crisis (Jaderná, Přikrylová, Picková & Mlázovský, 2018). Trade shows and conferences propose the opportunity to identify and start relationships with customers or reinforce relationships with existing customers (Vitale, 2011). Trade fairs are still one of the most important promotion tools in the B2B marketing.

The direct marketing is used in the B2B marketing in the connection with CRM IT system. CRM creates a database of B2B partners. The marketers use the database to connect with customer and to send a personalized offer. Direct marketing includes 3 main approaches: direct mail, telemarketing or web enabled tools for direct mail or telemarketing. Outbound or inbound calls are used to generate leads, make appointments, close sales, collect information about the market or collect orders, provide support, information for both customers and the sales force, coordination of sales activities (Fill & McKee, 2013).

Personal selling is the most important and the most expensive tool in the B2B marketing. The definition by Kotler et al. (2017) describes role of personal selling: "Personal presentations by the firm's sales force for the purpose of engaging customers, making sales, and building customer relationships." Sales force builds the relationship, demonstrates a product, explains and reminds. Communication one-to-one has a considerable power to persuade the customers. Personal selling realizes B2B brands. The primary form of brand communication is through the sales force (Lynch & Chernatony, 2007). Brands influence attitudes and behaviour of the B2B partners (Riezebos, 2003), some authors have argued that branding is even more important in B2B than B2C markets (Minett, 2002). Therefore, personal selling plays a necessary role in the B2B marketing, supporting branding.

### **2.1. B2B monitor**

A unique project of the research agency B-inside, s. r. o. shows to the B2B businesses, how to apply the B2B marketing to increase their sales and profit. The project is called B2B monitor. The B2B monitor consists of a portal B2Bmonitor.cz and a B2B monitor research. The portal B2Bmonitor.cz offers an inspiration, advice and tips for an effective B2B marketing. The B2B monitor research has been realized twice a year. Single areas of the B2B marketing are monitored. The results of the monitoring are used for comparison in the different fields, by the different sizes of businesses or types of ownership. The objective is to conduct a survey of position the marketing in Czech businesses.

The B2B marketing has underwent a significant evolution over 8 years. The B2B monitor presents studies about the marketing activities, about an investment to the B2B marketing over the time. The Czech B2B marketers noticed the large impact of world economic crisis after 2010. The budget of B2B marketing decreased from 1,17% of turnover in 2011 to 0,82% in 2013 (B2B monitor, 2014). Unfortunately, the decreasing tendency is keeping. The marketing budget was 0,63% of turnover in 2017. That companies, considering marketing for the strategic issue, made an investment to the B2B marketing of 0,92%. These companies have noticed a higher turnover growth (B2B monitor, 2017).

The structure of the marketing budget in the Czech businesses has changed, too. Traditional activities, such as trade fairs, sales promotion, brochures, catalogs, events, direct mail, constituted 75% of marketing activities in 2012. The digital media, web sites, email marketing, PPC, SEO or social media, were used in 21% in 2012 (B2B monitor, 2013). The number of used marketing activities has decreased. Typical marketing activities (web, fair trades and printed advertisement) is significantly complemented by sales promotion. The important change has come in a using of social media. The social media was used in 5% in 2012 and in 56% of B2B businesses in 2017 (B2B monitor, 2017). The Czech B2B marketing has changed in many other attributes, the following study presents the transformation of B2B marketers' attitude.

## **2.2. Study of the Czech B2B marketing**

The study of changing B2B marketing in the Czech Republic was based on results of the realized deep qualitative interview with an expert in the B2B marketing. The expert has noticed the important changes during her 14 years practice in the B2B marketing. The interview was semi-structured, the discussed topics were based on the results of B2B monitor. But the questions were used only as a correction of the interview – the expert had wide flexibility in replying and the topics, which she considered as important. At the end, the analysis of B2B monitor data was completed with her own experiences.

Firstly, there was not used any leading questions or showed previous results due to avoiding bias. The purpose was gain information about general state in B2B marketing and budgeting. Subsequently, there was discussed the analysed topics of B2B monitor and some selected results. Finally, the other significant changes in the B2B marketing, meant by the expert, are described.

The tendency to save money in the economic crisis was mentioned above. But, B2B marketers still struggle with lower marketing budget. B2B businesses invest lower finance, only 0,63% of turnover in 2017. The expert stated the budget, reduced to 50% in 10 years. Furthermore, many businesses provide some B2B marketing activities in house. This situation leads to that the B2B marketing has no concept, nor marketing strategy. Public relations are a separated part of B2B marketing and it is not managed central, in the context of the marketing strategy.

B2B businesses requested a complex marketing service by a famous international agency 10 years ago. They spent much more money for B2B marketing and for different marketing activities, recommended by a marketing authority. The market differentiation was followed. Nowadays, POS materials are not adapted to the different markets. International businesses use the same format and content of message, to save money.

B2B marketing feels a lack of a high quality due to a lower budget. B2B marketers purchase specialty advertising items in an e-shop. The decision process of online purchase is mainly influenced by price, without interest in a quality of the items. In the other approach B2B marketers are not interested in specialty advertising items at all. It is also connected to the next problem – human resources in B2B marketing are undervalued. At the end, it leads to decrease of marketing service quality.

The expert has monitored the tendency to save money in the context of events, too. Large companies spent a lot of money for a majestic event 10 years ago. No special events for B2B partners are arranged to develop brand, to support business relationships or to invite potential customers, nowadays. Only events during trade fairs are organized, at present. But those do not reach the earlier imposingness.

## **3. Conclusion**

According to the current researches and consultation with expert it is possible to state that the B2B marketing is often ignored in the Czech Republic. Businesses put low finance to support marketing activities in the B2B market. They often insource marketing activities. But they radically reduced own marketing departments, in past. And now, their marketing departments are not able to realize the strategic marketing planning. In spite of the fact that businesses with marketing management in B2B have noticed the turnover growth of 10,2% and businesses with a limited role of marketing only 5,2%, the interest in marketing planning is not increasing (B2B monitor, 2018).

In addition, the tendency to save money in the B2B marketing is significant. B2B marketers work with the half budget than 10 years ago. Marketing activities are reduced to trade fairs and personal selling, supported by advertising items or sales promotion during the negotiation process. Only the tendency of using social media is increasing.

An important change has come in an organization of events. The then majestic events for business partners have been substituted by the less interesting events during trade fairs. The comparison of the then event and now organized events would be an important research objective in the future.

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## Stock Price Prediction Problem Using Artificial Intelligence

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**Abstract:** The presented paper deals with the application of artificial neural network and fuzzy logic for prediction of stock index price. The combination of these two techniques can provide an intelligent system with more ability and flexibility. Financial markets are becoming increasingly complex and demanding to predict stock price movements due to their non-linear and dynamic nature. The adaptive neuro-fuzzy inference system (ANFIS) model is trained and tested for the PX stock index listed on the Czech Stock Exchange. The stock index is forecast based on historical returns for the period 2010 to 2018. The proposed model is designed to help investors identify profitable opportunities in stock markets.

**Keywords:** ANFIS, artificial intelligence, fuzzy logic, neural networks, prediction stock price, stock market

**JEL classification:** G11, G12, C45

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### 1. Introduction

Investors' goal is to achieve the expected return in terms of the risk that investors are taking to spend their money. The original theory and models (Castro, 2016, Patel et al., 2015, Bini & Mathew, 2016) make use of assumptions that, while simplifying the solution, can cause considerable problems in practice. It is reasonable to assume that, as stock prices are influenced by deterministic and random factors, stock market forecasts can only be successful using tools and techniques that can overcome the problem of price uncertainty, noise and non-linearity, as Chang et al. (2011). A recent growing trend is the use of complex hybrid approaches combining various artificial intelligence techniques.

Fuzzy logic provides a way to draw definitive conclusions from vague or ambiguous information. Similarly, Dostál and Kruljácová (2018) add that fuzzy logic provides tolerance for inaccuracy or partial truth. As stated by Novák (2000), fuzzy logic makes it possible to cover inaccuracies and to work with the meanings of natural language words in a relatively simple way. The reason why fuzzy logic works is quite surprising because it uses vaguely characterized expert knowledge. Furthermore, Tung and Le (2018) add that an artificial neural network is one of the methods of data acquisition that is widely accepted in the enterprise area because of its ability to learn and discover relationships between nonlinear variables. Neural networks are trained so that their learned knowledge can be used to solve similar tasks.

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## 2. Literature Review

Mahajan et al. (2015) propose a neuro-fuzzy model using financial indicators. Traditional techniques such as linear programming or regression modeling often fail to estimate future values, especially if the test data is nonlinear and chaotic. This is where neural networks can play an important role in investment forecasting with their learning and prognostic properties. The fuzzy inference system can simulate human knowledge and deal with nonlinear problems and uncertainty. The proposed model has five inputs and one output, and the output signals a high-return, low-risk investment portfolio. Gunasekaran and Ramaswami (2014) are dedicated to optimizing the equity portfolio through adaptive neuro-fuzzy inference system (ANFIS) and the capital asset pricing model (CAPM). The aim is to determine which stock titles to allocate to the portfolio based on investor needs and requirements and changing market conditions. Experimental results show that the proposed hybrid intelligent ANFIS-CAPM provides better performance than existing portfolio models.

Chandar (2017) proposes ANFIS based on subtractive clustering to predict Apple stock price. The study proposes four technical indicators that serve as inputs to the neuro-fuzzy system. In the context of the gradual information forecasting mechanism, the study by Brzeszczyński and Ibrahima (2019) examines the predictability of the stock market by proposing and evaluating a trading system that is conceptually close to fuzzy logic based on the "IF-THEN" rule. More specifically, it examines the extent to which foreign and domestic stock markets are returning signals of varying size and direction and consequently help predict the performance of domestic capital markets. Fanita and Rustam (2018) use the ANFIS hybrid model to predict the Jakarta Composite Index, which is one of the stock indices of the Indonesian Stock Exchange. Experimental results provide 90% prediction accuracy. Vlasenko et al. (2018) propose a hybrid five-layer neuro-fuzzy model and an appropriate learning algorithm with application in predictive tasks of stock market time series. The key difference between the classic ANFIS architecture and the proposed model is in the fourth layer, where a multidimensional Gaussian function is used to achieve better computational power and representational capabilities in processing highly nonlinear volatile data. The experimental results show the advantages of the described model.

## 3. Material and Methods

Fuzzy logic and artificial neural networks are suitable for determining input and output relationships. Artificial neural networks work with numerical and quantitative information, while fuzzy logic uses symbolic and qualitative information. The fuzzy processing process includes three basic steps: fuzzification, fuzzy inference, and defuzzification. Fuzzification means transforming real variables into language variables, with language variables based on basic linguistic variables. Dostál et al. (2005) state that three to seven attributes of this basic variable are usually used. The degree of attribute of a given variable in a set is represented by a mathematical function. In practice, many forms of jurisdiction can be encountered.



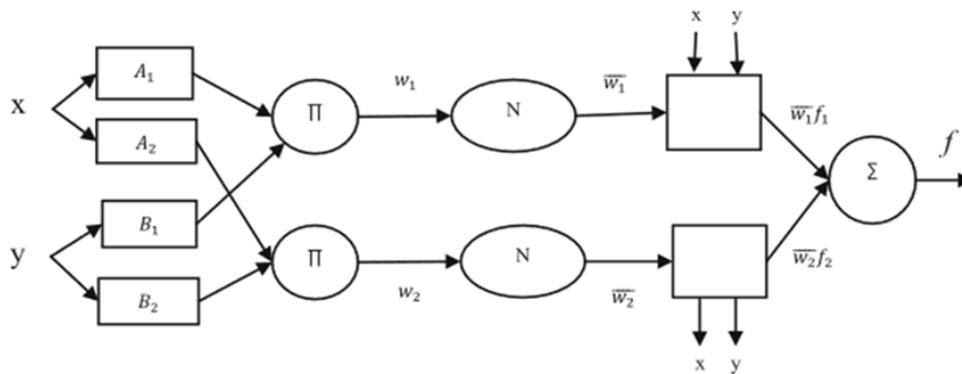
**Figure 1: The fuzzy process**

Source: Dostál et al. (2005)

Fuzzy inference defines the behavior of the system using rules <IF>, <THEN> at the language level that evaluates the status of membership of a variable. These conditional sentences have the following form:

$$\langle IF \rangle Input_1 \langle and \rangle Input_2 \dots Input_n \langle THEN \rangle Output_1 \quad (1)$$

Each combination of the attributes of the variables entering the system and occurring in the condition expresses one rule. Consequently, for each rule, the degree of support or the weight of the rule in the system needs to be determined. The result of fuzzy inference, as state Dostál et al. (2011), is a language variable. The final step is defuzzification, which converts fuzzy inference results back to fair values. The purpose of this operation is to convert the fuzzy value of the output variable to best represent the results of the fuzzy calculation.



**Figure 2: ANFIS architecture**

Source: İsen and Boran (2018)

As pointed out by Sathe and Mali (2017), joining fuzzy logic with a neural network creates an intelligent system that is commonly referred to as a neuro-fuzzy system that effectively uses the quality of both of these approaches. The neuro-fuzzy system combines the human logic of fuzzy systems with the neural network training and interconnection structure. The most used neuro-fuzzy system is the adaptive neuro-fuzzy inference system, known from the acronym ANFIS. ANFIS is a forward neural network that uses a hybrid learning method for network learning. The 6-layer ANFIS architecture is shown in Figure 2.

ANFIS is used in prediction and classification studies. Layer 1 is referred to as an input layer because it only distributes the input values  $x$  and  $y$  to the next layer. Layer 2 is referred to as a fuzzification layer that performs fuzzification of input  $x$  and  $y$  values using the selected membership function  $A_i$  and  $B_i$ . Layer 3 is named as a layer of rules, where each neuron represents one rule. Basic rule structure is as follows:

$$Rule\ 1: IF\ x\ is\ A_1\ and\ y\ is\ B_1\ THEN\ f_1 = p_{1x} + q_{1y} + r_1 \quad (2)$$

$$Rule\ 2: IF\ x\ is\ A_2\ and\ y\ is\ B_2\ THEN\ f_2 = p_{2x} + q_{2y} + r_2 \quad (3)$$

where  $A_i$  and  $B_i$  are membership function of each input variables  $x$  and  $y$  while  $p_i$ ,  $q_i$  and  $r_i$  are linear output parameters, notes by İsen and Boran (2018). Layer 4 is referred to as a normalization layer that serves to normalize the force of a rule. The input of each neuron is the output of neurons from the

previous layer, from which the normalized force of the corresponding rule is calculated. To evaluate the rules premises result in:

$$w_i = \mu_{A_i}(x)\mu_{B_i}(y), \quad i = 1,2. \quad (4)$$

where  $\mu_{A_i}$  and  $\mu_{B_i}$  are membership functions (MFs) of fuzzy sets. Layer 5 is called a defuzzification layer that determines the strength of the consequences of each Takagi Sugeno rule of the first order. Evaluating the implication and the rule consequences gives:

$$f(x, y) = \frac{w_1(x, y)f_1(x, y) + w_2(x, y)f_2(x, y)}{w_1(x, y) + w_2(x, y)} \quad (5)$$

The last layer 6 is the summation layer that determines the network output as the sum of all its inputs, as described by Negnevitsky (2002).

#### 4. Proposed model

Prague Stock Exchange (PSE) is the largest and oldest organizer of the securities market in the Czech Republic. The official PSE index is the PX index, which was created in 2006 by merging the PX50 and PX-D indices. The PX Index is a market capitalized price index composed of the most traded stock titles. It currently contains a total of 12 stock titles. Daily PX closing rates for the selected period 2010 to 2018 are used.

Since the stock index value is relatively large and the index differences are significant, which may have a negative impact on model performance, it is necessary to pre-process the original data using the following standardization procedures used in Li and Xionga (2005) and Zhai et al. (2010):

$$y_t = \frac{x_t - m}{M - m} \quad (6)$$

where  $x_t$  is the closing daily price of the PX index at time  $t$ ,  $M = \max\{x_t\}$  and  $m = \min\{x_t\}$ . Then the vector of the variables entering the model is defined as follows:

$$(y_{t-3}, y_{t-2}, y_{t-1}, y_t) \quad (7)$$

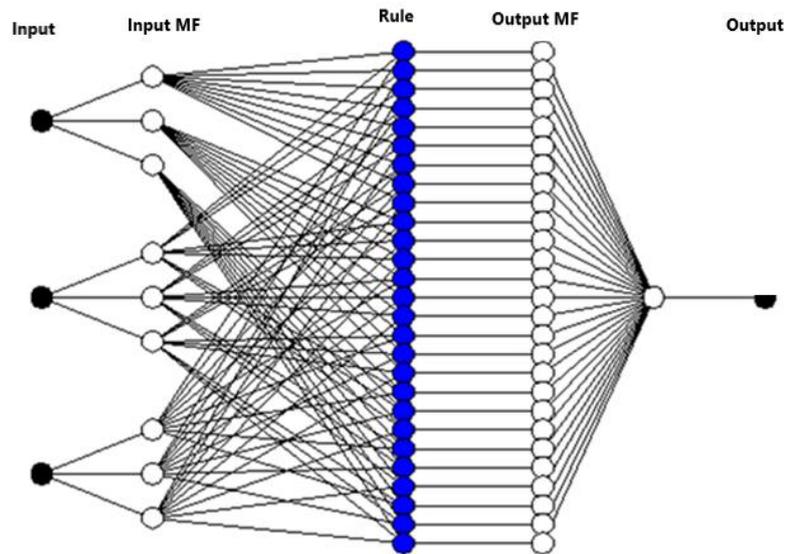


**Figure 3: Historical daily PX closing rates**

Source: PSE (2019)

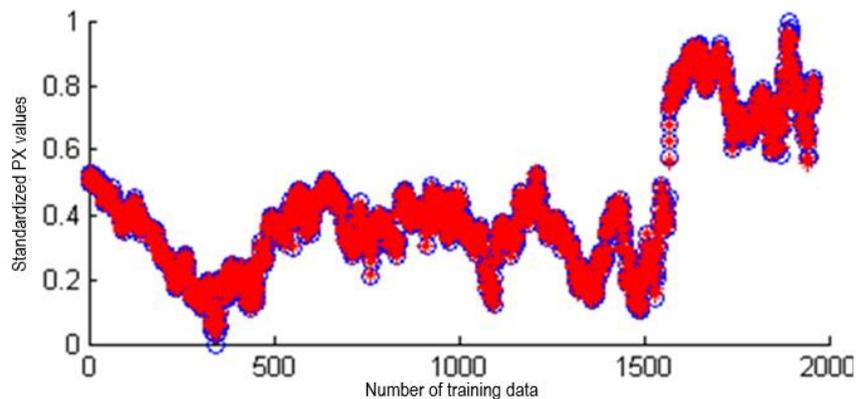
A fuzzy inference system of the Takagi-Sugeno type is selected, where three input variables and one output variable are selected. Depending on the nature of the selected stock market data, a Gaussian

membership function is selected that achieves the best results. In addition, Gaussian function is recommended by other stock market forecasting studies, such as Talpur et al. (2017). The created FIS is divided into three fuzzy sets (low, medium, high). In the proposed fuzzy model, the rules of IF-THEN type Sugeno are used, which are created by adaptive neuro-fuzzy inference system. ANFIS has created a total of 27 rules. The ANFIS architecture for the model created is shown in Figure 4.



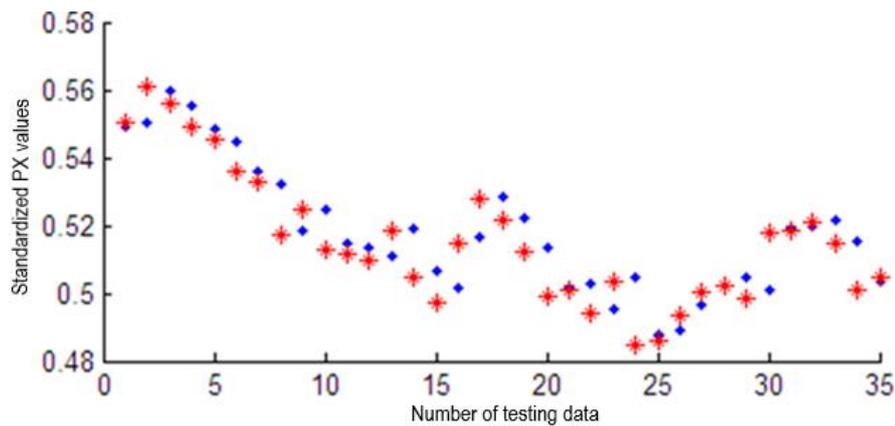
**Figure 4: ANFIS architecture for the designed model**

Figure 5 shows the training result of the ANFIS model containing the output values and the number of trained data. The output values are represented by a standardized PX value adjusted according to equation 6. Nearly 2000 PX index values are selected for model training. Obviously, most training values are approaching or equal to real values. Ten iterations are chosen to train the model, while the error has fallen below the desired value 0 already at the second iteration.



**Figure 5: Training the ANFIS model for stock price prediction**

For testing purposes, the number of values is considerably smaller, in order to keep the model performance better, specifically only 35 testing data. Figure 6 shows the values obtained from the ANFIS model, which are represented by an asterisk and compares them with the actual values. It can be stated that the forecast for the development of the PX index and therefore the performance of the ANFIS model is sufficient and acceptable in practice. The total relative error for the training data dataset is 0.0200 and the total relative error of the test data is 0.0899.



**Figure 6: Testing the ANFIS model for stock price prediction**

## 5. Conclusion

The paper deals with the prediction of the PX stock index through the adaptive neuro-fuzzy inference system (ANFIS). The created model predicts the return of the stock index listed on the Prague Stock Exchange through historical returns. The created FIS model consists of three input variables and one output variable. The reference period is selected from 2010 to 2018. The model is trained and tested using ANFIS, with a training error of 0.0200 and a test error of 0.0899. The created model can be further refined to improve its performance, for example by validating and reducing the rules created by financial experts or analysts, or by selecting other input variables into the model.

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## EFFICIENT LEADERSHIP IN THE 21<sup>st</sup> CENTURY

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**Abstract:** The success of a company operating in a dynamic environment conditions may be determined by the quality of its leadership and the power and efficiency of its leader. It is up to the leader to choose the leadership style. In principle, it depends on the leader's experience, knowledge and personality, i.e. the emotional intelligence. The main task of the leader is to take care of the team as it is the team that will implement the corporate tasks and goals. A trusted army of people – managers and ordinary employees - is therefore the most precious asset of each great leader. By choosing the management style based on the knowledge of human nature, thanks to which the needs related to recognition, sense of belonging, development and self-realisation of employees are met, each company can make the world a better place apart from achieving its own strategic goals.

**Keywords:** leadership, management, leader, emotional intelligence

**JEL classification:** A13, M14, M54

### 1. Introduction

In the 21<sup>st</sup> century, businesses operate in the conditions of rapid development of technology, civilisation progress, globalisation and hyper-competition, and the success is frequently determined by a lucky coincidence. However, there are companies that manage to develop and succeed even in such conditions. How does it happen? First of all, each organisation has to determine its main goal, i.e. to answer the question "Why" the company operates at all. To achieve this goal, an effectively managed organisation needs leaders without whom no company can succeed. One of the key success factors is the power of the leader. As Dwight Eisenhower used to say, the power of the leader is the art of getting the employees to do something the leader wants done and to do it because they want to do it themselves. It is this quality of leaders that is asserted as the key factor for the company on its way to success (Editorial team of the Forbes magazine, 2009). Both in the dimension of effects and higher morale, motivation and commitment of employees. The CEO Challenge study carried by The Conference Board international association and Capgemini Polska draws attention to other key issues related to leadership: the capability of strategic thinking and acting by the company management and the consistent implementation of strategic goals (Obój, Zdziarski, Łudzińska, & Pyka, 2007).

The purpose of this paper is to draw attention to the fact that in the 21<sup>st</sup> century, the leadership quality that prevails in the company is often decisive for the company's "to be or not to be." At the same time, by choosing the management style based on the knowledge of human nature, each company can make the world a better place. As Henry Ford emphasised, "A business that makes nothing but money is a poor business."

In her research, the author mainly used literature sources related to management, social science and psychology as well as case studies. The choice of a method based on conducting studies and analyzing

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literature in the indicated fields of science results from a change in the approach to management in the 21st century, both from the level of the organization and the level of the employee. In the last century, it was relatively common to have an approach based on the belief that work is a job, and family life is something else. Nowadays, you can see a more holistic approach – every person is shaped by both the environment in which he is located, contacts with other people and everyday experiences, both at work and outside. Successes, but also failures at work can affect the quality of life of employees, their family relationships and friendships or social integration. The awareness that such a dependence exists allows us to look at work through the prism of self-realization and development, and not only money. This approach puts particular challenges ahead of the leaders.

## **2. The leadership style and the leader's personality**

The etymology of the "leadership" term, contrary to popular opinion, does not originate from power or position. The English words "leading" and "leadership" derive from the Old English "lithan" - meaning "to follow." "Lead" is a verb that also comes from "lithan" and means "make someone follow". "The closest word in antiquity relating to leadership is the Latin word *ducere* "to lead, consider, regard" and interestingly in modern Romanian language the word for leading and leadership is *conducere*" (Kelly, 2014). International research devoted to the factors determining who has the best opportunity to become a leader showed that the results achieved by the candidate were in the first place, followed by integrity and ambition. That is, they were related to the personality area.

There is no perfect management style that would be effective in any team. If a leader wants to be effective, first of all, he or she has to know what his or her natural leadership style is or which style would be better in the specific team (Goleman, Boyatzis, & McKee, 2002). It is also very important to find one's own leadership attitude. A leader is someone who wants to achieve something great. As Napoleon Hill used to say "Wins only the one who has a clearly defined goal and an irresistible desire to achieve it." However, the beginning and the basis of leadership is empathy for those that the one wants to lead. We can get to know the leader based on the emotions aroused in people. Already during the conversation with the supervisor, the employee should feel deep motivation to carry out the assigned tasks. An effective leader has to remember that the emotions, both those desired and undesired ones, affect the emotional state of the subordinates. The ability to control the negative emotions such as rage, aggression and frustration is particularly important. The source of these negative emotions is often stress that results from the necessity to undertake decisions. Although the superior may consult the issues with the reports, the decision has to be ultimately made on his or her own and the leader remains responsible for the ultimate choice. The leader, which is very important, does not eliminate risk from daily work but challenges it and can never be sure whether, acting under a high pressure of time or circumstances, he or she makes a really good decision. It may happen that judging the decision from the time perspective, the leader finds out that it was a mistake. Of course, learning from one's own or other leaders' mistakes one can, and even should, "improve" the decision-making process but one cannot eliminate all the mistakes. Psychologists dealing with broadly understood management notice that in the context of the decision-making process "Errare humanum est" - mistakes are inevitably incorporated into human activities (Nosal, 1993). While taking risks, one has to learn how to face failures or accept mistakes. To succeed, the leader, first of all, has to

act - to make decisions and accept the risk associated with them. "You cannot climb the ladder of success with your hands in your pockets" as Elias Canetti used to say.

Stress related to the decision making process does not always have a negative impact on the leader's creativity and capabilities. Recent research shows that stress can also support each person, strengthen mentally and add more energy to action. The mental attitude of the leader to stress, the way of thinking and acting may increase his or her ability to pass positive emotions. The greater the leader's expression in showing passion and commitment the easier other people become attracted by the leader's ideas. Hans Selye said: "Stress accompanies us all the time and, thus, the most important thing is to make use of it for oneself and for the others."

In practice, the leadership style is most frequently the resultant of the personality of the supervisor and the personalities of the subordinates as well as the structure of the working team. The choice of the leadership style depends on the leader - the leader's experience, knowledge, personality, the subordinates and situational factors. The greatest effects are the ability to apply different styles of leadership, appropriate to the circumstances. Nevertheless, the ongoing task of the leader is to take care of the team, and then, the team will take care of the implementation of the company tasks and goals.

### **3. The prevalence of the participatory over the authoritarian style - theory, research and practice**

Leadership concepts can differ in types, combinations of relations and the use of motivation measures (incentives).

Likert asserts the participative style as the best one. He claims that it is a model style that should be strived for. A democrat-leader focuses both on the currently performed tasks and appreciates the significance of the individualisation of the employees. This type of a leader is far-sighted and manages people by showing them the ideals and setting ambitious tasks. The participatory style is based on absolute trust between the leader and the subordinates and leads to the actual team co-management. Participation in management is the primary motivational factor for the subordinates to be committed to work for the advantage of the group and ensuring their integration with the entire organisation. Likert opposes the autocratic style to the participative one, pointing out that the autocrat-leader is the boss striving to perform tasks at any cost. Such a leader is judged by others as a person not trusting people, apodictic and unkind, which makes it difficult to obtain good results, not to say the atmosphere inside the team managed in this way. Employees who have an autocratic manager are suspicious and non-coercive. There is no cooperation in the team; there is little interaction among the team members and they are suspicious due to fear (Kožmiński & Piotrowski, 2007). This management style can be referred to as a Lord Vader's method - management by means of Anger, Fear and Aggression.

On the other hand, the classification formulated by Kurt Levin, an outstanding social psychologist, apart from the authoritarian and democratic leadership styles distinguishes the third style - a liberal one. A liberal leader, as proposed by Levin, does not participate in the decision-making or problem-solving processes at all. Such a leader does not control or interfere with the team. Such a leader provides the team with materials only and tries to create an atmosphere for a free exchange of ideas. Nevertheless, the team

gets frustrated by the lack of leadership and a small amount and poor quality of work. This situation favors the emergence of informal leaders.

Paul Hersey and Ken Blanchard made the effectiveness of the leadership style dependent on the maturity of the subordinates. The level of maturity is defined as the performance readiness. As the subordinates develop, the style of influencing should change alike. It is a situational concept. The manager, in accordance with this theory, should constantly take care of the development of the subordinates, supporting them in achieving a higher and higher level of the performance readiness.

We can observe the same direction in a very popular theory within social science formulated by Bernard M. Bass and Bruce Avolio. The leadership model presented by them distinguishes two types of leaders: transactional and transformational ones. Transactional leaders operate based on the exchange process, where subordinates, are rewarded for meeting determined goals (pay rise, promotions or bonuses). On the other hand, a transformational leader is a leader who tries to transform the individual values of other people and raise them to a higher level of needs and aspirations. Such a leader is able to convey the vision as a vision of a higher goal that is so important that the team willingly achieves it. Such leaders are able to stimulate people to actions with their mere enthusiasm. "This higher level of setting values between the leader and the subordinates is what constitutes the strength of transformation leaders. They release the inner motivation of the subordinates better than other leaders" (Goleman, 1997).

To sum up, we can say that attitudes towards leadership have been redefined in the 21<sup>st</sup> century. It is clearly observed by The CEO Challenge research conducted by The Conference Board international association and Capgemini Polska. Several years ago managing people was the least important issue for the CEOs of companies in which (one could risk a statement) the leadership model based on issuing orders and exercising control prevailed. Such an outdated approach to management will not be welcomed in the future. George Johnstone, one of the CEOs of PricewaterhouseCoopers, said that the biggest challenge is people - maintain a high level of employee satisfaction from work and motivate them to achieve the best results (Editorial team of The Forbes magazine, 2009).

The direction of changes with respect to leadership is also confirmed by the worldwide research carried by Professor Christine Porath (Professor of Management at Georgetown University) which clearly indicate that employees who had participatory leaders claimed 89% higher job satisfaction, 56% better well-being, 92% more ability to set priorities and 26% more sense of their work meaningfulness (Rachlewicz, 2018).

Talking about modern leadership, it is impossible not to mention another aspect. According to many practitioners, a leader should be a specialist in his field at the same time. It must have substantive grounds to be able to influence its employees. Just like kings, admirals and commanders had to be prominent warriors in order to rule over their army. The case of Napoleon Bonaparte, or the most famous commander of the British Navy, Horatio Nelson, despite the lapse of many years points to key aspects of leadership that can be helpful to modern leaders. The strategic importance of leadership is best illustrated by the famous Battle of Aboukir Bay and the great victory in the Battle of Trafalgar by Admiral Horatio Nelson. It is in these battles that the style of command and motivation used by the Admiral led to the victory. One can say that Nelson was a participative leader. He instinctively knew how to build a team culture that was based on loyalty and trust. He indicated the main goals and before each battle he planned different

variants in detail. Above all, however, he listened to the remarks of all his commanders and underlined their responsibility for the victory in the battle. When the battle was beginning, he entrusted leadership to his subordinates - he shared his experience of the best methods of attack and plans about what to do at the time of the contact with the enemy. Therefore, during the actual fight, the deputies of the Admiral could act without further instructions because they were aware of the ideas and intentions of their commander. The commander delegated duties to competent individuals and allowed them to act. He explained the goals and tasks clearly, and then did not interfere any more. If he noticed mistakes, he personally or through his captains corrected the artillery and manoeuvring skills and suggested more effective tactical moves leading his team to victory. Consequently, in the Battle of Aboukir Bay, the Royal Navy won over the French Navy commanded in a traditional, authoritarian style, where the captains of the battleships did not know what to do and were afraid to take the initiative. The extent of the victory is also reflected in the Battle of Trafalgar - 33 battleships of the Spanish-French Navy were destroyed without losing even one own warship (Rachlewicz, 2018).

Horatio Nelson, like all the naval army officers, used formal sources of power based on rewards and punishments. However, thanks to his knowledge of the navy, the requirements of the battlefield and, above all, the knowledge of human nature, he implemented informal rules of cooperating with people. The strength of his management style was the fact that he was always full of praise and recognition. He believed that being noticed and appreciated was very important to his crew.

Contemporary business leaders, Jeff Nischwitz - a member of the Business Learning Institute, Jack Ma - the richest citizen of China and billionaire Mark Cuban also underline the fact that to achieve success it is necessary to have competences related to communication, interpersonal and social skills, i.e. emotional intelligence.

#### **4. The role of motivation**

The leader focuses on people (co-workers), motivates and inspires them. In global companies, the concept of leadership is opposed to the concept of management. Management is defined as "doing something through others," while leadership is referred to as "making others want to do something." So leadership is intrinsically linked to motivating and influencing others. The actual style of management is a practically shaped and actually applied integrated system of methods, techniques and other tools of exerting impact on the subordinates, tailored to the assumed goals, tasks and specific working conditions. Motivating employees should not be restricted only to rewarding or punishing because it is a continuous process. To motivate people, the leader has to know the ways of recognising the subordinates' needs, understand the motives (needs and interests) that drive them and be able to satisfy them. Jerzy Gutt and Wojciech Haman pointed to the fact that even the contact of the boss with the subordinate can have a motivating or demotivating effect (Gutt & Haman, 2009). If the boss has the qualities of a leader, there is no question of demotivation. Even if one has to punish or scold someone, one should always give people a second chance and react immediately when the improvement is observed. Leaders do not have to command, shout or threaten - people follow the leader who is confident and his skills. Fair treatment and respect, a bit paradoxically, only reinforce the morale. Ordinary employees also need to be respected with dignity.

Strong, open communication up and down the management chain and open discussion on the intentions of the leader also motivate the subordinate employees to undertake good decisions and quickly adapt to changing circumstances. A personal example of the leader - consistent words and actions along with the certainty of actions inspire and strengthen the subordinates. Integrity builds trust. People need to be sure that the information they get is true regardless of whether it is good or bad news. The foundation of effective leadership is trust. People have to trust that the course adopted by the leader is good for everyone, not just for the leader.

## 5. Conclusions

In the 21<sup>st</sup> century more and more companies recognize the need to change the current ways of managing human capital. The burden of making such a change in every organization will lie with the leaders who must initiate an organizational culture that enables employees to self-realize and develop. Each leader is based on a team and for him the human factor in being a leader is decisive. People will be committed to the work and ideas that accompany the leader but the leader has to have high communication skills and present the right attitude. People work more efficiently when they identify with the company's mission, its values and goals. They will follow, observe and imitate the leader. However, each leader has to remember that authority means, first of all, a responsibility for people - if their leader loses enthusiasm, they will lose it as well. As Professor Ludwik Hirsztfeld used to say "Whoever wants to light the flame in others has to carry the flame himself". That is what all the great leaders have been like; without whom achieving goals has not been possible and without whom no company can succeed. However, since the main task of a leader is to take care of the team as it is the team that will carry out the tasks and objectives of the company, is it not true that any company can make the world a better place by choosing the right management style? People spend 8 hours a day at work on average and if at that time they can meet their needs related to recognition, belonging, respect by others, security, the right to express opinions, development and self-realisation, it will not only affect the quality of their work and their commitment to achieving the company goals. It will affect the quality of their lives, family and friends relationships and social integration as well. We are shaped in our work and bring it home - achievements and failures at work can have an impact on the family atmosphere. When an individual has a satisfied need to recognise his own value, he believes in his own strength. Such a person is happy and only a happy person can make the world a better place.

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## Functional and administrative conditions of city development

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**Abstract:** *The dynamics of development of urban functional areas contrast with the usually static administrative division. As a result, there is a problem of the irrational way of providing these services, resulting from the lack of ability to coordinate between communes within the boundaries of the functional area. The aim of the article is to analyze the development of relations between functional and administrative space of cities. We formulated a hypothesis that in order to better coordinate the activities of the various public actors, administrative boundaries should take account of functional changes. Against the background of the review of international literature, we conducted a case study of the functional area of the city of Lubin, divided into the urban commune and the surrounding rural commune. The results of our research rather support arguments for institutional modification of management forms. The cooperation of communes is not sustainable and too much depends on the logic of their authorities' term of office.*

**Keywords:** local government, city, functional area, management

**JEL classification:** R12, R58, H7

### Introduction

The spatial arrangement is not without its influence on the process of providing public services. Their efficient and effective implementation requires coordination of activities and cooperation in order to adjust their scope to local conditions. There is, therefore, an emphasis on the territorial dimension of public policies (territorial governance). The subject of management here are functional areas. Their definition is important from the point of view of development policy, because its implementation on closed administrative borders does not correspond to real needs in the field of public services. It is therefore necessary to conduct research on the relations between the functional and administrative zones of individual cities.

The objectives of the paper is, first of all, to explain to what extent the functional space of a selected city exceeds its administrative boundaries and what is the dynamics of this process. Secondly, examine whether the management of public services is adequate to the growing functional zone or whether there are some dysfunctions in this respect. Thirdly and finally, examine what institutional solutions seem to be the most effective here to ensure the continuity of high quality services throughout the functional area. Declaratively, inter-communal cooperation is able to eliminate many problems and adjust the scope of the tasks performed to the developing functional zones. However, in practice, there are few effective and stable examples of such actions. Sub-optimal solutions dominate, in addition, their sustainability is largely based on the personalities of leaders and not on institutional (cadena) solutions. This results in a research hypothesis of this article expressing the conviction that in order to

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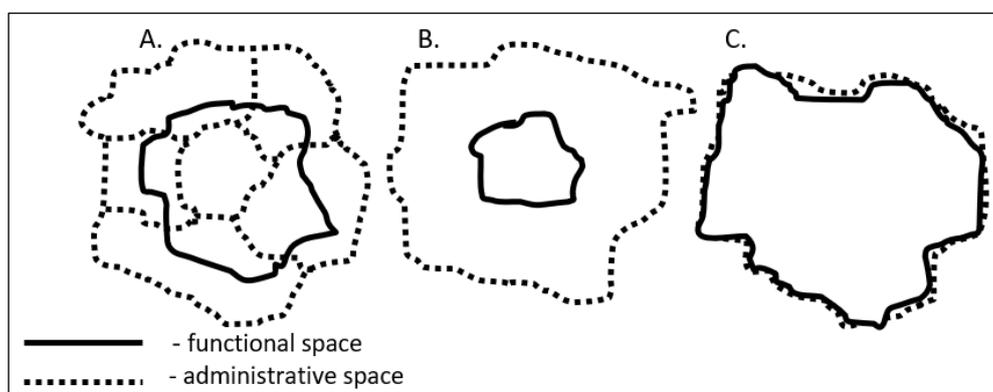
better coordinate the activities of various public entities, administrative boundaries should take into account functional changes. In practice, this means that the changes in administrative boundaries should follow the changes in the functional zone.

Usually, such analyses concern agglomeration systems, excluding medium-sized cities. Meanwhile, the effects of polarization and diffusion development are also visible in subregional centers of about 70-100 thousand inhabitants. Therefore, the subject of our analyses is Lubin - a city located on Sudeten Foreland, in the Lower Silesian Voivodship in south-western Poland (Potocki et al. 2014). Lubin is the capital of the Copper Basin, with a population of approximately 80,000 inhabitants. The urban sprawl processes diagnosed here are typical of many similar centres, so this case study can be representative of many cities.

The results presented here are a fragment of broader research on the functions of cities (Przybyła, Kachniarz 2017) and the effects of administrative changes (Przybyła, Kachniarz, Hełdak 2018). A full report on these results is included in the expert report on the changes in administrative borders of Lubin (Czamara et al. 2019).

### 1. The functional and administrative space - background

The nature of many public tasks performed by local government units (LGU) often exceeds their administrative boundaries. Those issues were addressed in detail by Benett, distinguishing between administrative and functional space (Benett 1997). Defining the relationships between these types of space, he distinguished three model situations, which are presented in fig. 1.



**Fig. 1. The models of relations between administrative and functional space**

Source: Own elaboration based on (Benett 1997)

In the first model (A) small administrative structures divide a uniform functional space, in the second (B) the functional structure is contained entirely within the administrative unit and is much smaller than it, and in the third (C) administrative boundaries are matched to social, economic and environmental functions. In practice, the third type of relationship is very rare, where there is a good connection between the administrative boundaries and the gravity zones. In the case of agglomeration systems, we usually encounter the first type, in which a smaller administrative space is included in a wider functional area. In such a case, more efficient and effective provision of public services requires coordination of activities, institutional forms of cooperation, or changes in administrative boundaries.

A functional area is a geographically, spatially and socio-economically coherent zone of city influence, based not only on the existence of functional links, but also on advanced urbanization processes

(Śleszyński, 2013). According to OECD, urban functional areas are considered in terms of population density, which allows determining the core of the city and streams of flows (fluctuating mobility of the population on a daily basis) determining the suburban zone (OECD, 2013). In other words, it is a compact urban settlement system (core) and a functionally related urbanized zone. This complex, economically, socially and spatially coherent area allows the coordination of flows that shape the quality of life of the inhabitants (Yangiang, 2014; Przybyła et al. 2014, Hansen, 1959). The extent of these flows, therefore, determines the cohesion limit of a given functional area. Its efficient management requires an integrated and horizontal territorial approach. It optimizes costs, increases efficiency and rationalizes the prices of services provided, ensuring efficient implementation of the needs and expectations of a given community.

Such a research problem is the subject of many discussions, polemics, and research concepts. Representatives of the traditional school of metropolitan reform, such as R. Stephens and N. N. Wilkstrom (2000), lean towards formal solutions. Municipalists, on the other hand, like V. Ostrom, C. Tiebout, R. Warren, (1961), based on the theory of public choice, believe that the situation can be controlled without creating additional legal entities. In Poland, such discussions were initiated during the debate on the draft metropolitan bill. Important speeches on this matter were made by Kulesza (2010), Dolnicki (2010) and Lackowska (2009). The basic subject of this discussion was the element of the deficit of cooperation between LGU, the level of which, despite formal possibilities and functional expectations, does not satisfy anyone.

## **2. Materials and methods**

We have used many different primary and secondary sources to carry out the analyses concerning the subject of our research. First of all, these were statistical databases aggregated in the Local Data Bank of the Central Statistical Office (e.g. population, migration) and source materials obtained as a result of researches in communes and infrastructure management companies (e.g. society services, public communication, transport).

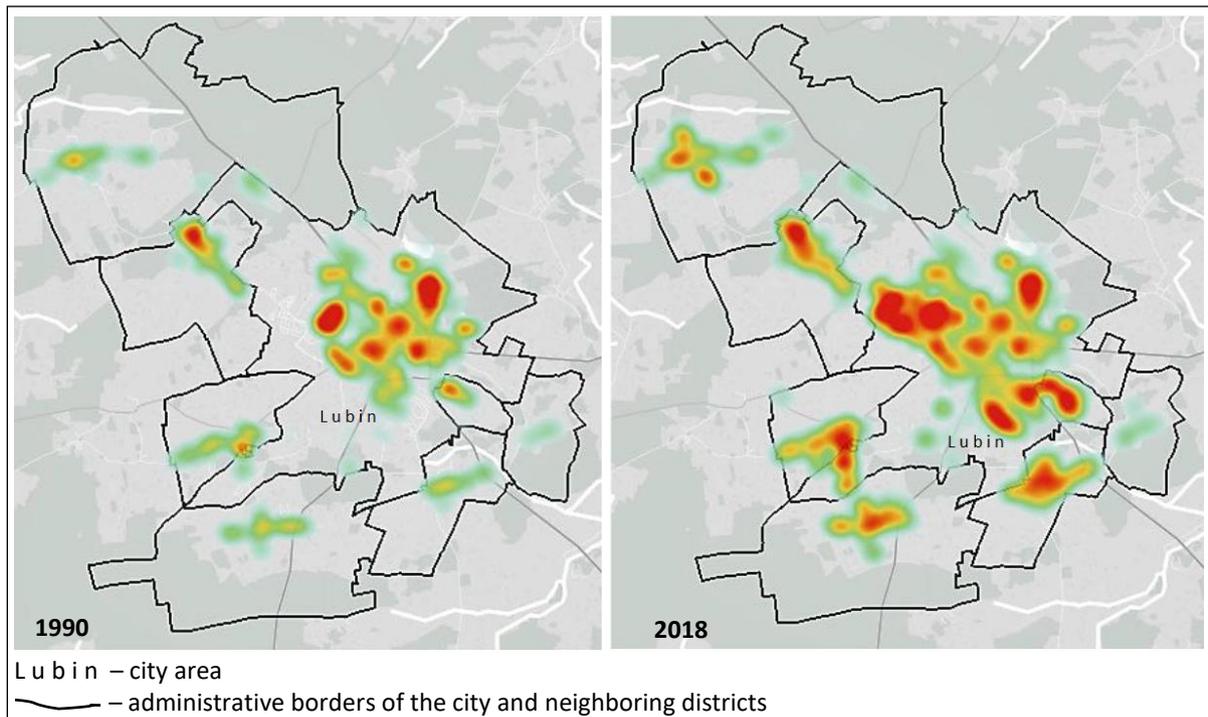
In order to achieve the objectives of the paper, we used many research methods. We have created trend analyses of the basic characteristics related with the subject of the study on the whole functional area. We've taken into account, among others, population, number of buildings and scope of built-up areas, scope and intensity of daily migrations, flows of children to schools, technical and communication infrastructure and so on. In order to determine the changes in the number of buildings and the scope of development, we used the remote sensing method (analysis of aerial photographs). They to determine the functional dynamics of the city along with the identification of the causal causes of these processes (economy growth and suburbanization). At the next stage of our work, we used the methods of spatial data analysis with the use of ArcGIS and Tableau systems (Szewrański et al. 2017). They allowed, firstly, to visualize the results obtained in previous statistical analyses and, secondly, to create maps of potentials. They illustrated the spatial and temporal dynamics of processes that have a decisive impact on the range of the city's functional zone. In this way, we sublimated the most important elements that determine the power of impact and flows in the functional zone of Lubin. In the last stage, we analyzed the issues of public service management. We supplemented the research with direct interviews with local government leaders in order to identify dysfunctions in functional zone management and the proposals to eliminate them.

### 3. Results and their interpretation

In the case of Lubin, we have defined strong external suburbanization processes in which the city loses its inhabitants to neighboring communes. This is related to spatial effects ("spill-over" of the city), economic effects (taxpayers' relocation) and social effects ("washing out" of active social groups from existing urban structures). The consequence is, clearly defined by us, difficulties in integrated management of this functional area. After 1988, despite the expansion of the functional zone, management remained within the old administrative boundaries. Earlier, along with the process of the spatial development of Lubin, its borders were also extended. The last significant change took place in 1988. We noted that the suburbanization processes accelerated especially after 2002. Their intensity in the scale of Lower Silesia is higher only in Wrocław suburbs. As a result, the former rural areas directly adjacent to Lubin underwent significant transformations - the expansion of new buildings (single- and multi-family), completely changed the character of these areas, not only in terms of infrastructure, but also in social terms. They are the residential base of Lubin, and their inhabitants are connected with the city by both work and daily migrations in order to satisfy their life functions. From the social point of view, it was not the villages that integrated with the city, but the inhabitants of the city moved largely to the suburbs. Despite this, the administrative borders of the city were not widened, so the natural effect of such a situation was the spill of the functional zone of Lubin beyond the area of its jurisdiction. In fact, the city reaches wider than its formal borders, the course of which in many places seems rather random (see fig. 2). This requires a coherent spatial policy for the entire impact zone. Meanwhile, we have identified many conflict situations between fragmented authorities and lack of a coherent vision of spatial development.

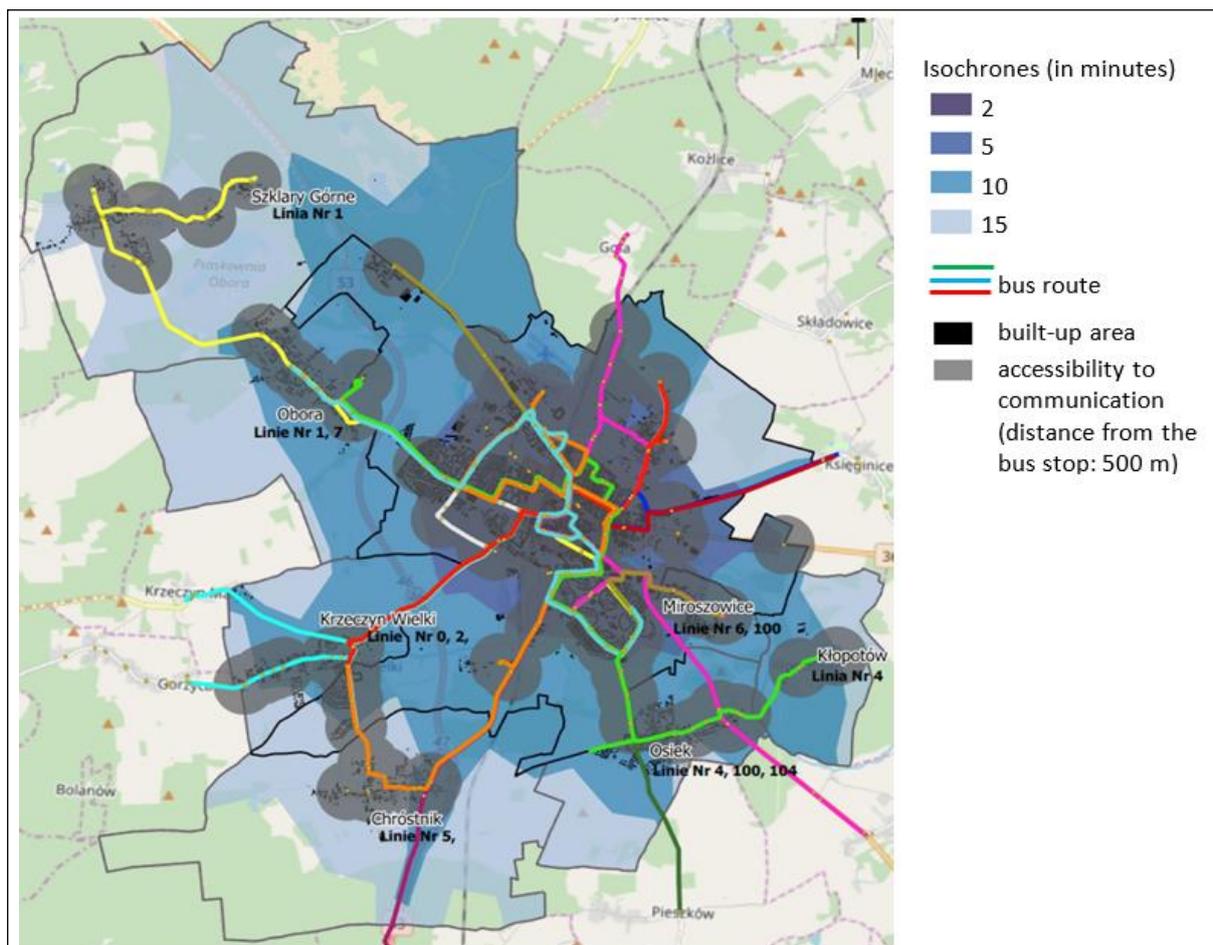
This raises the question of the efficiency of logistics of the entire functional area. In the processes of flow management identified by us, the impact of administrative borders is clearly visible. Despite many attempts at municipal cooperation, it was not possible to break this inbred activity. Extending the administrative borders of the city by its suburban area gives a chance to create a single, socially, economically and spatially coherent management area. It has the potential to continuously improve the standard of public services and complement their basic scope with highly specialized services. Extending the administrative borders of the city seems necessary in the face of the increasingly frequent inefficiency of cooperation and partnership between neighboring units. It is supposed to stabilize development tendencies of the entire functional zone, rather than only its part. From the point of view of urban logistics, which fits very strongly into the scope of social logistics, it is an area allowing for long-term shaping and coordination of appropriate organisational (availability of schools, kindergartens, health care, sports and recreation facilities, etc.), economic and temporal flows of resources and accompanying information in order to improve the quality of life of the inhabitants. Neither a city separated from its suburbs nor suburban areas separated from the city is able to meet such a condition. Responsibility for the future fate of Lubin and its functional zone makes us strive to combine these two potentials. From the point of view of efficient management, one should strive for a conjunction of management forms to the scope of the functional zone. This eliminates the costs of coordinating the activities of two or more authority centers.

Even if there were a high degree of consensus among these centers, the costs of coordination are inevitable and are an obstacle to many decisions being taken. They increase rapidly when the conciliation approach is replaced by inbred approach on at least one side. In our work, we have clearly proved that the practices of such cooperation in Lubin are surprisingly unstable. While undertaking



**Fig 2. The density of buildings on the city area and neighboring districts**

Source: Own elaboration based on (Czamara at. All., 2019)



**Fig 3. Accessibility to complimentary public communication in Lubin functional area**

Source: Own compilation based on (Czamara at. All., 2019)

many coordination initiatives, suboptimal solutions were not avoided, from the point of view not only of costs but also of the quality of services offered to citizens. Although the process of suburbanization was carried out in a relatively orderly manner, and the localities were generally expanding within the limits of their investments, the effect of selective development and infrastructure conflicts was not avoided. Clearly, there was a lack of a coherent policy for the whole functional area. The great determination to create a coherent public transport system should be appreciated, but it is still not immune to the risk of a revolt by either side of the agreement (see fig. 3). Without centralizing communication decisions for the entire functional area, it will be difficult to counteract transport congestion. These actions are very capital-intensive and their ineffective implementation results in high economic and social costs. The water supply and sewage system infrastructure of the functional area is only partly connected and partly developed selectively. In view of the potential of the whole system to be served by urban infrastructure, it is pointless and inefficient to perpetuate the independence of separate systems. Attempts at the coherent organization of the educational system have resulted in quite original solutions - a rural commune formally has its own junior high school and kindergarten, but in reality, they are located in the city center (neighboring commune). Because it is the municipalities that finance the education of their inhabitants, they have disputes about which children are whose and how much they have to transfer funds for each other. A large scope of people's movement between communes generates considerable financial liabilities. The Polish system of financing education is not adapted to such cases. All these problems result only from the mismatch of administrative boundaries to the educational zone of gravity that the city produces.

#### **4. Conclusions**

The new dimension of the cohesion policy, as well as the Polish development policy, put more and more emphasis on the territorial character of public policies. This means a departure from sectoral management in favor of territorially integrated management, expressed in the integration of measures of various entities towards territories defined not administratively but functionally. The growth of the functional zone of the city, beyond its administrative borders, makes it necessary to coordinate spatial policy, urban logistics, and appropriate infrastructure management. In light of the research results presented above, the postulate that this coordination should be based on the principle of municipal cooperation is not supported in practice.

In order to better coordinate the activities of different public entities, administrative borders should take into account functional changes. In practice, this means that changes in administrative boundaries should follow the changes in the functional zone. Thus, the research hypothesis put forward at the outset has been confirmed by us. From the point of view of spatial, logistic and management elements, the management system of the city of Lubin should be adjusted to the zone of its strong influence.

This case study is a clear signal for the national policy. Taking into account the institutional conditions, it can be assumed that it is even important for international considerations concerning the management of functional areas. In light of our research, the dilemma of using soft solutions (communal cooperation) or hard solutions (changes of administrative borders) favors the latter solutions.

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## The euro celebrates 10 years in Slovakia – a brief economic background

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**Abstract:** In 2019 Slovakia celebrates the 10<sup>th</sup> anniversary of the introduction of the single currency, the euro. The main objective of the article is to highlight several positive changes in Slovakia connected with the introduction of euro. The lower transaction costs benefited the international trade, particularly the trade realized between the Eurozone countries. This was reflected in increased import and export activity, resulting in faster economic growth. Based on secondary data we analysed the foreign direct investment in Slovakia. Beside the benefits, several challenges related to the introduction of the single currency had been addressed. Loss of the autonomous monetary policy was listed as the biggest disadvantage. The most discussed issue was the positive impact of the strengthening Slovak koruna. Disproportionate increase of consumer prices appeared as a significant challenge.

**Keywords:** euro, Slovakia, EMU, monetary policy

**JEL classification:** G 00, E 49, E 59

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### 1. Introduction

The euro was adopted by nineteen European countries in 1999 with an expectation to achieve stronger trade relations and deepen the political cooperation. The EMU combined the European member states into a cohesive economic system, increased price transparency and competition, lowered the transaction costs between the members, as well as provided further trade and financial benefits. The countries utilized these benefits in accordance with their circumstances. Loss of control of monetary policy sovereignty had different impact on states entering the EMU. The experience has shown that the euro area is far from the „optimum currency area“ as it was envisioned in the 1960s. The main obstacle we can see is the limited mobility of labour, wage and price rigidity and divergence of business cycles of the member states. The first cornerstone of the Economic Monetary Union was

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1 January 1999, when the single currency in non-cash form started to circulate in 11 member states of the European Union. The UK, Denmark, Sweden and Greece did not adopt the euro as a single currency. During the negotiations of the Maastricht Treaty of 1992 the UK secured an opt-out, while a protocol gave Denmark the right to decide if they want and when they would like to join the Eurozone. Sweden decided to stick with their own legal currency since negative public opinion about joining the euro. According to Martínez-García-Grossman (2016) Greece failed to meet the convergence criteria and the single currency was not adopted until 1 January 2001.

Europe experienced the biggest monetary changeover on 1 January 2002, when 12 of the 15 countries officially adopted the euro as their currency. As it was mentioned, the euro had been in use as a non-cash currency (banking transactions, etc.) since January 1, 1999. January 1, 2002 was the day on which banknotes and coins were fed out across the continent. Slovakia joined the Eurozone January 1, 2009 as the 16th member of the monetary union. The founding members of the Eurozone were subsequently joined by Slovenia, Cyprus, Malta, Estonia and Latvia. Lithuania became the 19th and so far the last nation to become the part of the Eurozone on January 1, 2015. Low transactions cost is one of the undisputed benefit of the Eurozone. Since Slovakia is an export-oriented country, it can benefit a lot from this advantage.

## **2. Benefits of the Euro and Limitation of EMU**

Decreasing transaction costs, expanding trade, increased flow of labour, capital and information are the perceived benefits of the euro introduction. The first eight years of the euro show a remarkable degree of nominal convergence. The most transparent convergence was detected regarding the interest rates and the government debt. Decreasing differences between the long-term interest rates among the Eurozone countries are indicated as the success of the monetary union as it was mentioned in BBC news (2018) about the setting of Slovak euro exchange rate. The autonomy of the monetary policy of nation states before the euro introduction resulted in differences between the nation states that were also reflected in divergence of the long-term interest rates. Following the introduction of the single currency Spain could apply for a loan with the same interest rate as Germany. The global financial crisis in 2008 had negative impact despite of the common monetary policy applied in the Eurozone countries. Disparities in Europe have increased, emphasizing the costs related to giving up the monetary sovereignty. Before adoption of the single currency both Spain and Germany benefited from the economic policy tailored specifically to their own country. The recession resulted in weak aggregate demand and increasing unemployment in Spain. The Spanish policy makers decided to devalue the national currency (peseta), in order to stimulate economic growth and boost demand. As a consequence of reunion of West and East Germany, the country continued with a strict monetary policy first applied in 1989. These two countries applied different monetary policies since both of them used different currencies in the past. When Spain and Germany entered the Eurozone in 1999, they lost their monetary policy sovereignty, as well as they lost their sovereignty to use exchange rate as a policy instrument. The European Central Bank started to apply its monetary policy in 1999 in accordance with the conditions of the enlarged monetary union, not as a response to specific needs of Germany and Spain. The costs of a single currency with a one-size-fits-all monetary policy became apparent during the global financial crisis of 2008–09 as it was mentioned by Juncker et.al (2015). These years were characterized by deterioration of economic conditions and significant differences were detected among the Eurozone countries, including Germany and Spain as well. Germany was hit harder during the years of downturn than Spain, but

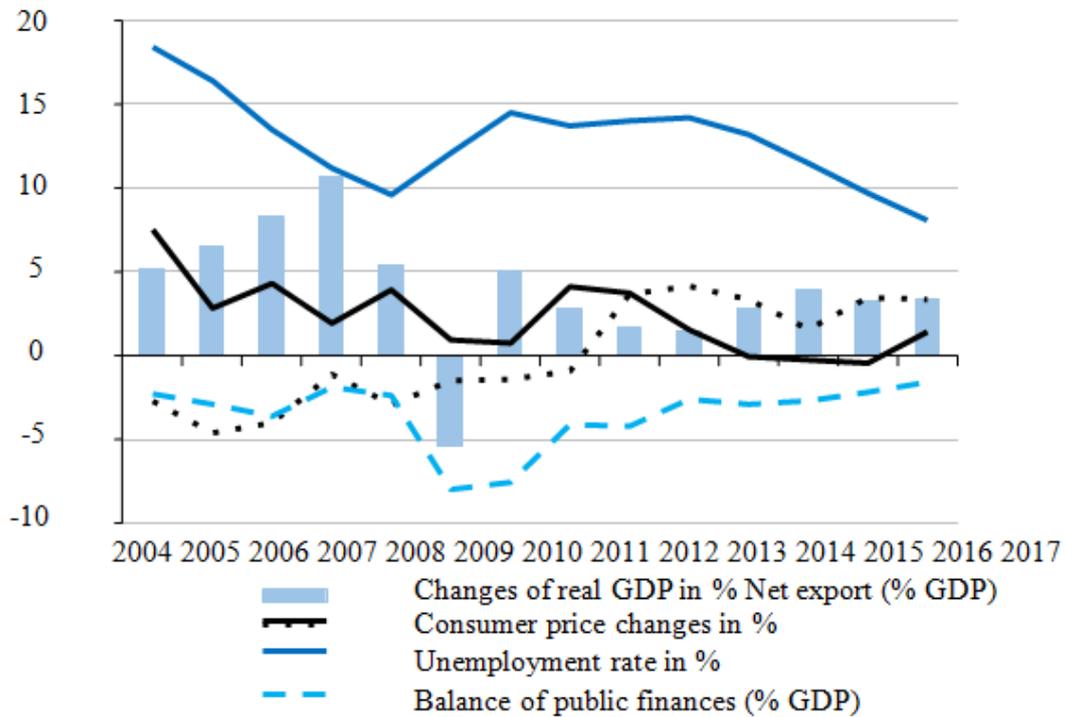
consistently outperformed the euro area during the recovery. Spain had significantly underperformed in this period. Spain could no longer employ the tools applied earlier to combat slowdown and boost exports – the combination of low interest rates and exchange rate devaluation. A weak recovery characterized the Eurozone in 2009-2012, but significant differences emerged between the member countries. The sovereign debt crisis (2010-2012), particularly in the periphery (also Spain), have emphasized the problem. The recovery strengthened because of improvement of public finances in the period of 2012-2015 as it was mentioned by Rahman– Belás – Rózsa – Klieštk (2017).

Ten years following the introduction of the euro has brought several positive changes in Slovakia. Lower transaction costs benefited the international trade, particularly the trade realized between the Eurozone countries. This was reflected in increased import and export activity, resulting in faster economic growth. Expectations about consumer price increase have not been met. However, the real benefits of the single currency were lower than expected. An important role was played by the global economic and debt crisis in the Eurozone, which had negative impact on the global economic growth. Several analyses conducted before the introduction of the single currency proved that introduction of the euro had positive impact on the Slovak economy, businesses and the standard of living. The most important benefit was the removal of exchange rate costs, i.e. removal of transaction costs. Disappearance of exchange rate risk and the reduction of capital costs were the expected steps to be taken after introduction of the euro. The direct benefits of the introduction of the euro were expected to result in indirect benefits. It was forecasted that savings in transaction costs and lower exchange rate risks can increase the influx of FDI, will boost foreign trade that might result in increased GDP growth, as well as increasing quality of standard of living in Slovakia. Beside the benefits, several challenges related to the introduction of the single currency had been addressed. Loss of the autonomous monetary policy was listed as the biggest disadvantage. The most discussed issue was the positive impact of the strengthening Slovak koruna and the subsequent sustainability of the inflation as a result of fixing the euro-koruna exchange rate. Disproportionate increase of consumer prices appeared as a significant challenge according to Lalinský – Merikull (2018).

We will never experience what direction the Slovak economy would have taken if we had not introduced the single currency. The impact of the euro introduction can be measured by comparing domestic development to development of those countries with the same development level to Slovakia before the single currency. The transition of the Slovak currency to euro took place in the period of the global economic crisis. Based on the analysis of NBS (2018) the Slovak economy faced slump in the foreign trade, the GDP of the country decreased by more than 5% in 2009. In spite of the decline of the Slovak GDP, which had been more significant than GDP decline of the EU countries not entering the Eurozone, Slovakia recorded a higher overall growth in performance and productivity in the period of 2009-2013 than it would have been in the case of refusing the introduction of the single currency.

### **3. Development of Economic Indicators in Slovakia**

The assessment of economic equilibrium after introduction of the euro based on Kališ – Lábaj – Luptáčík – Morvay – Stracová (2018) is presented on Figure 1.



**Figure 1: Development of main parameters of economic equilibrium in Slovakia**

The labour market parameters have improved for several years. The unemployment rate has decreased to current level of 8,1% in 2017. The employment growth has been intense in the past four years and the mass employment has transformed into labour shortage. Between 2013 and 2017 increased by 201.000 employees. This is a significant change on a relatively small Slovak labour market where the access/shortage in certain sectors would result in barriers to increased growth. It is possible to talk about maintaining a favourable macroeconomic balance. Decrease of the government deficit, slight surplus in foreign trade, further decrease of the unemployment rate and moderate inflation provide a favourable information about the macroeconomic equilibrium. It is one of the manifestation of sustainable economic growth. There is a tendency for relatively stable economic growth in Slovakia at the accepted level of macroeconomic equilibrium. According to Kališ – Lábaj – Luptáčik – Morvay – Stracová (2018) positive labour market trends have also been maintained.

Slovakia became the official member state of the EU in 2004. The integration reforms provided exceptional opportunities for trade and foreign investment. Investment in IT and research centres was realized in 2005, especially in the eastern part of the country, taking advantage of the high unemployment rate in the region. Kia Motors opened its production plant in Žilina. The value of investment realized in 2006 reached EUR 1.7 bn. There were 2.5 million cars produced in the plant. This is one of the most significant success stories since the EU membership. As a result of the global economic crisis, the GDP per capita had decreased in almost all of the EU countries. The recession was also followed by decline in employment. Slovakia officially introduced the euro on 1 January 2009. The country had also joined the eurozone, which had previously been joined by 15 other European countries. It remained a shelter of countries against the escalation of the global economic crisis. As a consequence of the crisis, the unemployment stood at 14% in 2010. As Chen mentioned

(2017) many investors suffered as a result of this downturn, but they were able to adapt to the new circumstances quickly. However, new capital investments were hardly realized (compared to previous years). The value of investment in 2010 had reached only 0,5% of the annual GDP. Since its launch, the euro has been the second most dominant currency producing a high turnover following the US dollar. Its aim is to improve the functioning of the single market, which triggered the smooth flow of capital, products, services and entrepreneurship in the European countries and Slovakia as well. Slovakia still relies heavily on the foreign capital and product market. The value of foreign direct investment counted for 46% of the GDP in 2016, while the investment directed abroad was only 3%. In the same year, Slovakia manufactured 1.040.000 cars, reaching the highest indicator in car manufacturing per capita. As it was mentioned by SARIO (2017) in 2013 the public debt increased to 54,7% (the public debt was 28,5% in 2008), but still below 60% set by the Maastricht Treaty. According to Investment in Slovakia (2017) three of the world's credit rating agencies (Standard and Poor's, Moody's and Fitch Ratings) Slovakia achieved A+ rating in terms of foreign direct investment. The country offers stable and consistent investment opportunities the results of which can see on Figure 2.

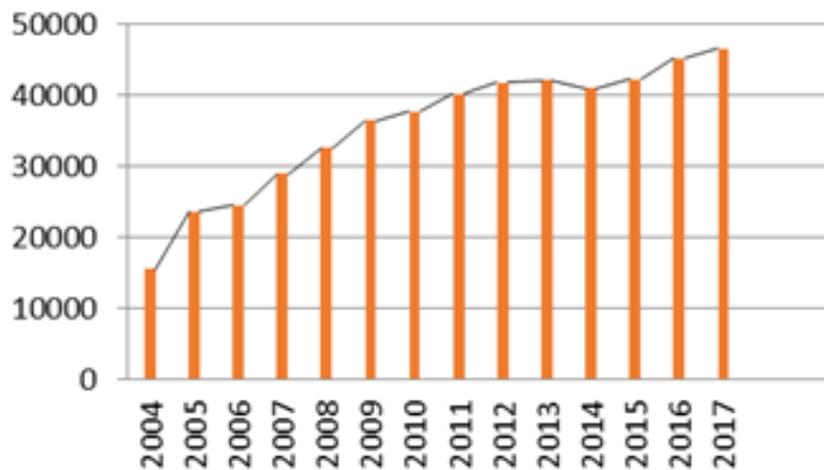


Figure 2: Foreign direct investments in Slovakia (mill.EUR) between 2004-2017

Working with the same data, relative changes are presented in another table. The indicated years express the increase and decrease compared to previous years as you can see on Figure 3 based on NSB (2018).



Figure 3: Foreign direct investment in Slovakia, the correlation of years is relative (mill. EUR)

Currently, the following factors have to be considered by foreign investors in Slovakia:

- As a member state of the EU, Slovakia participates in a number of joint projects and grants; the trade is transparent, trading activity is facilitated through reforms
- The corporate tax is more favourable compared to the tax rate of neighbouring countries
- GDP growth is one of the fastest among the EU countries
- Incentives are provided by the state to increase the foreign direct investment

The most exported products of Slovakia in the last year (services are excluded) are cars, car chassis, internal combustion engines, digital displays, TVs and computers. Oil refinery and textile industry also form an essential part of the export.

#### **4. Conclusion**

The transition to the single currency benefited mainly the traditional industry and the revenue-based sector. In addition, the micro-data results reflect that beside the average export value of the existing businesses, the number of enterprises exporting to the Eurozone countries has increased. Especially the small enterprises have shown increased export activity. The foreign trade in Slovakia benefited from decreased transaction costs. Estonia had its exchange rate for a long term pegged to euro before introduction of the single currency. The Estonian companies have thus faced a considerably lower cost related to exchange rate changes than the Slovak businesses before the euro. The introduction of the single currency increases the stability of exchange rate, the stability of interest rates, as well as reduces the transaction costs and eliminates the risk in foreign trade and investment activity. Lalinský – Šuster (2018) also mentioned that simulation of the impact of the exchange rate fixation and/or the impact of the ECB monetary policy show that the export and industrial activity are increasing, but the impact is relatively small. Therefore, we can say that permanent elimination of exchange rate risks and elimination of transaction costs are those factors influencing the trade and investment in the Eurozone countries.

Consumer price increase was indicated as the biggest disadvantage of introduction of the single currency. The development after 2009 did not confirm this concern. The complex system of consumer protection had low impact on inflation, as well as the further development was characterized by low inflation rate. Ten years following the introduction of the single currency, the average annual inflation rate in Slovakia was 1,3% - compared to the period before introduction of the euro, when the average annual inflation rate stood at 6,1%. However, there are number of factors questionable for foreign investment, some of them might be definitely negative:

- The economy is strongly linked to the influence of the international free market and the performance of the automotive industry
- Slovakia covers 90% of its energy supply by import
- Lack of infrastructure that shows slow improvement in spite of state intervention
- Relatively weak domestic market, purchasing power is weak

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## Trust In Global Virtual Cooperation

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**Abstract:** The article deals with the role of trust in global virtual cooperation. Trust is considered as one of the determinants of successful collaboration. However, because of technical boundaries limiting the communication exchange in the virtual environment, trust-building mechanisms have to reflect the limitations of IT-mediated communication and take into account the cultural and societal specifics of the collaborating parties. The article explores current approaches to trust as the determinant of global virtual teams' performance.

**Keywords:** Global virtual teams, Trust, Remote leadership, Cross-cultural management, Intercultural communication

**JEL classification:** Z1

**Grant affiliation:** IGA\_FF\_2019\_002 The changes of the entrepreneurship approaches in the current economic environment.

### 1. Introduction

Thanks to the continuous technology advancement, virtual cooperation became omnipresent and accessible to everyone. Currently, a wide range of tools and platforms allows both individuals and organisations to implement virtual elements into their workflow. As show the results of research, the virtual work and working in virtual teams increases globally both in terms of the number of users and intensity (Trends in Global Virtual Teams, 2016; 2018 Trends in High-Performing Global Virtual Teams, 2019; Ferrazzi, 2014).

Because of its main feature – crossing physical boundaries, the virtual interaction became one of the main communication and collaboration form for global teams. The “global” parameter of virtual cooperation is the most visible in the cultural heterogeneity of the team members. To be successful and achieve high level of performance, global virtual teams must cope with the challenges specific for this type of interaction. Nemiro et al. identifies six challenges determining high performance of global virtual teams. These challenges can be divided into two groups. First, the givens – representing the outer environment of virtual teams and second, the created challenges, representing the inner environment of the global virtual teams (2008).

In the 1990s, when the virtual cooperation started to proliferate as the response to the progress and accessibility of the technologies and allowing professional cooperation regardless to the physical location, trust was one of the questioned elements of working with limited personal contact. Some authors even expressed a conviction about the crucial role of personal/physical contact to successfully establish trust among team members (Handy, 1995). On the other hand, it was the trust which was emphasised by other authors as the key factor in overcoming geographical and organisational distances (Jaarvenpa & Leidner, 1999). According to Jaarvenpa and Leidner (1999), other threats to

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successful virtual collaboration such as the individual commitment and remote management related dysfunctions are closely related to trust. Despite the booming offer of various technological solutions striving to provide a virtual environment allowing seamless virtual communication, even in 2013 some authors still questioned the efficiency of virtual work in relation to the need to meet in person. They argued that some simple exchange can be successfully completed online only but more complex and judgement-based interpersonal tasks require the level of trust which cannot be easily reached online. (Huczynski & Buchanan, 2013) However, the current trends suggest that it is possible to manage and lead in the virtual environment. Nevertheless, because of its intangibility, the role of trust often remains in the shadow of more visible given challenges (Nemiro, Beyerlein, Bradley & Beyerlein, 2008) of virtual cooperation such as technology, time and distance.

The article focuses on the current approaches to trust as the determinant of global virtual teams with respect to its specifics resulting from the limitations of the virtual environment. The article explores the role of trust from several perspectives starting with the general role of trust in teamwork. In this part of the article, the transaction model of trust (Reina & Reina, 2006) as an element of organisational behaviour is introduced. Further, the article discusses the specifics of trust as one of the created challenges of virtual teams' performance. In that section, the relationship of trust and leadership in the virtual environment is discussed as well. The last section provides the synthesis of the views on the relationship between trust and culture. In the discussion and conclusion, the article provides the reflection on the role of trust in the global virtual cooperation which may help to minimise possible trust-based misunderstandings in the global virtual cooperation.

## **2. The role of trust in teamwork**

The defining features of teamwork are represented by shared mutual objectives, mutual interaction and interdependence of the team members. (Gold, 2005) Cooperation is the essence of teamwork and successful cooperation stems from trust. Fukuyama suggests that trust is the essential element for establishing voluntary cooperation (1999). In relation to teamwork, Gold (2005) defines trust as the fulfilled expectations of compliance with behavioural rules within a community. When this sense of trust is highlighted it can be even the forming factor of group cooperation. On the other hand, low level of trust hinders the cooperation within the group. In that sense, trust among the team members influences the success of the whole team. (Gold, 2005) In the teamwork, trust is considered as a reciprocal element based on a mutual exchange which is built gradually. This, so-called transactional trust is a binding element of teams' purpose, shared responsibility and accountability. (Reina & Reina, 2006)

In their transactional model, Reina and Reina (2006) distinguish three facets of trust as the teamwork forming element. So-called contractual trust defines the framework of team functioning. It helps to make the expectation clear as it creates the basis for functional cooperation among people. Further, the contractual trust contributes to the realisation of an individual's own value. The second element, the communicational trust is based on sharing information and providing true information. It creates information flow inside the team. From this perspective, trust allows asking without limitations and providing and receiving feedback. This helps to establish team norms and to achieve mutual understanding and expectations. The last element of the transactional model of trust is the

competence trust. The competence trust is based on acknowledging the skills and abilities of the team members and contributes to effective decision making and learning skills.

Trust among team members is an important catalyst of communication and relationship building. Both communication and relations are considered as the building stones of professional exchange. There is even an opinion that organisations are in fact just networks of communicative structures (Armstrong & Hagel, 1996) which implies the role of trust in the team effectiveness. Team effectiveness is built on trust as teams are relation-based and communication-based structures and trust present in the given team establishes team cohesion and influences the open communication, commitment and mutual support in the teams. (Reina & Reina, 2006)

### **3. The role of trust in virtual cooperation**

According to the methodology of Nemiro et al. trust, together with culture and leadership, belongs to so-called created challenges of virtual teams which represent internal factors determining the functioning of the virtual teams. (Nemiro, Beyerlein, Bradley & Beyerlein, 2008) The internal dimension of the created challenges also suggests that there is a higher possibility to direct these factors in favour of team efficiency. Deeper look at these created challenges of the virtual team also shows that there is a certain level of mutual interconnectedness of these elements. Trust within a virtual team is influenced by the team leadership and culture aspects and the equivalent links can be also found between leadership and culture.

The duration and purpose of the virtual teams directly influence trust-building. Virtual teams are often created to fulfil a specific goal or project, are created quickly and after fulfilling the goal they quickly disband. Therefore, trust in such a team must be built immediately. (Duarte & Tennen Snyder, 2001) However, this fact is in conflict with the gradual and long-term nature of trust building. (Reina & Reina, 2006) To overcome this conflict, facilitation through an effective leadership may be needed.

Liao (2017) suggest that, based on the current research in team development the leader's behaviour is crucial to the team effectiveness, including the establishment of trust-based virtual environment. In the global virtual teams, where diversity is one of the defining signs, the leaders have to ensure that there is mutual understanding among the members in order to establish the environment of trust. (Malhotra, Majchrzak & Rosen, 2007) The leader affects the trust environment in the team through its performance, competence and integrity. The same applies also to the individual team members. (Duarte & Tennen Snyder, 2001)

In general, the authors agree that trust determines the success of virtual teams in the same way as in the collocated teams. (Wilson, Straus & McEvily, 2006; Nemiro, Beyerlein, Bradley & Beyerlein, 2008; Duarte & Tennen Snyder, 2001; Ubell, 2010) Gold emphasises the significance of communication in establishing trust in the team (2005). Other authors point out the role of communication in establishing a deeper level of trust in virtual teams as well. (Jaarvenpa & Leidner, 1999) In this aspect meet together both the given as well as created challenges of virtual teams defined by Nemiro et al. (2008). The role of leadership – a created challenge, is to ensure the functioning communication channels using various technological possibilities – technology is defined as a given challenge of virtual teams. With increasing technological possibilities a wider range of technology-mediated communication tools is available to establish both synchronous and asynchronous communication exchange among the team members.

Although speaking of virtual teams, Jaarvenpaa and Leidner (1999) suggest to incorporate occasional face-to-face interaction to facilitate and foster the growth of trust within the virtual teams. The lack of visual cues, where the aspect of body language is lost or side-lined, was often considered as the main barrier of the communication in the virtual environment. (Ubell, 2010) However, it seems that the technology progress is slowly mitigating this virtual barrier as the synchronous video-based tools are now widely available. Nevertheless, here comes the importance of the role of leader as the element setting the framework of the communication including tools to be used.

#### 4. Trust and culture

As was mentioned above, according to the methodology of Nemiro et al. (2018), culture is the third of the created challenges of virtual teams. Same as our identification with the culture, trust is built gradually and is influenced by our experiences. (Reina & Reina, 2006) Reina and Reina (2006) also suggest that the developmental predisposition to trust develops already during very early stages of our life. The perception of culture and trust and the identification with trust and culture related behavioural paradigms forms during the same time. This indicates the existence of a dependent relationship between trust and culture. Zaheer and Zaheer (2006) point out, that trust is in the intercultural context approached as an etic concept where there is an assumption that the same values apply to trust across cultures. However, the research shows (Ikenberry & Fukuyama, 1996; Yamagishi, Cook & Watabe, 1998) that trust is rather an emic concept, where there are no universally applicable rules and various cultural groups build trust a different way.

Culture is often analysed using the so-called dimensional approach. Duarte et al. (2001) used the dimensional approach to describe the relationship between culture and trust. The selected dimensions are based on modified Hofstede's model (Hofstede, Hofstede & Minkov, 2010) and Hall's (1989) model of cultural dimensions. In this model, the following five dimensions are used: Power distance, uncertainty avoidance, collectivism-individualism, long-term/short-term perspective and low context/high context. This model is summarised in Table 1.

**Table 1: Duarte and Tennet Snyder's model of cultural dimensions and its implication for trust**

Dimension	Definition	Implications for trust
Power distance	The attitude of the culture towards power inequalities expressed by higher societal status	"The acceptance of decisions made by higher-status individuals in high power distance cultures may lead to loss of trust in low-power distance cultures." (Duarte & Tennant Snyder, 2001)
Uncertainty avoidance	The level of people's comfort in ambiguous situations	"People from cultures with high uncertainty avoidance may tend to feel and act anxious in uncertain or unknown situations. People from cultures with low uncertainty avoidance may easily misinterpret this anxiety as low trust in their or other team members' abilities or competence. In fact, the anxiety may have

		more to do with a need for structure.” (Duarte & Tennant Snyder, 2001)
Individualism-collectivism	The attitude of the culture towards autonomy.	“Behaviours such as taking individual credit for the team’s output and speaking inappropriately of other team members can have in a collective culture significantly higher negative consequences on trust. Trust in collective cultures is based more on showing concern for others and acting with integrity than it is in individualistic cultures.” (Duarte & Tennant Snyder, 2001)
Long-Term Perspective /Short-Term Perspective	The attitude of the culture towards time in terms of long term and short term orientation	“The tension that arises between these two ways of looking at things can cause distrust in a team if certain members are seen as compromising the future to look good in the short term, while others are seen as having no sense of urgency or risk-taking.” (Duarte & Tennant Snyder, 2001)
High Context /Low Context	The importance of context in the interpretation of information.	“The low-context team member may see the need for more information as irrelevant or it may be perceived as an insult to his or her competence and as a signal that the high-context team member does not trust him or her. A preference for more information-rich communication may be interpreted as distrust.” (Duarte & Tennant Snyder, 2001)

Source: Author according to Duarte and Tennen Snyder (2001)

## 5. Discussion and conclusion

Understanding of trust and its specifics in the global virtual environment can contribute to the success and effectiveness of global virtual teams. As a specific type of intercultural competence, the basic assumptions for building trusts can be introduced to the team members through targeted training. Such training can be a first step in the development of intercultural awareness as the initial stage of acquisition of intercultural competences. (Chen & Starosta, 1996) As Tretyak et al. (2013) suggest, the development of trust progresses gradually over time together with the “growth and knowledge and understanding the people with whom we interact.” Another powerful tool to increase the intercultural understanding and trust within the team members is the knowledge of the language of the team members. (Chua, 2012) Although there is usually a shared language established as the communication language of the global virtual team, the language skills go hand in hand with acquisition of national culture and better mutual understanding.

The purpose of this article was to provide an overview of the approaches to the role of trust as a determinant of the effectiveness of global virtual teams. The limitations of this article provide opportunities for further research of the role of trust in the specific cross cultural environment. For example, further insight on the perception of trust in global virtual cooperation could be obtained interviewing the representatives of specific heterogeneous virtual team, observing the relations between the team determinants and national cultures and etc. In practice, the findings of such a research could contribute to deeper understanding of obstacles of cross-cultural virtual communication and can be then applied as a facilitating activity, incorporated in to the virtually managed projects.

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## Polish Passive System of Supporting the Sector of Micro, Small and Medium Enterprises

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**Abstract:** The Polish system supporting the SME sector is mainly based on passive elements. The state does not actively engage in the functioning of selected entities with the highest growth potential. All the simplifications of the operation are directed mainly to the smallest, simplest enterprises. Simplifications mainly concern the tax sphere. The article analyses the structure of the system including personal and corporate forms of conducting business.

**Keywords:** SME, tax, support, legal

**JEL classification:** H25, O31, O32

### 1. Introduction

Just as the global economy is based on the cooperation of entities from different areas, so the strength of the economy of each country seems to be determined by the synergy of various elements. The public sector acting for the benefit of the private sector and not as an oppression apparatus leads to the flowering of the state. Likewise, SME's should be treated as a complement to the sector of large enterprises, and large enterprises as a complement to SME's. Both elements of the economy complement each other and draw from each other. Large enterprises, especially from the industrial sector, create the so-called real economy, producing goods for the mass recipient, thus satisfying the needs of millions of people. SME's on the other hand can better reach a specific recipient by presenting him with a personalized service or good. SMEs extracting the deepest layers of creativity from people can create and thanks to the closeness of the final recipient can better than large companies respond to its needs. In turn, large enterprises find it easier to create consumer needs. From the economic point of view, the significant role of SMEs in creating the labor market and EU added value should be emphasized. The vast majority of Europeans work in the SME sector and thus generate the majority of the added value of all EU enterprises.

The article presents the specificity of the Polish SME sector, and then indicates the elements of the system supporting the SME sector in the areas of social insurance and income tax. The aim of the paper is to indicate the main elements of the legal environment that serve to support the SME sector in Poland and the answer to the question whether these elements form a coherent system serving the directional development of the SME sector.

### 2. Characteristics of the Polish SME sector

The Polish SME definition (Ustawa Prawo o swobodzie, 2004) has been almost directly copied from the EU solutions as can be seen in Table 1. The main difference between the Polish and the EU solutions is the lack of consideration of the degree of dependency between the various entities within the SME qualification. Therefore, unlike in the EU regulations, in Poland a small enterprise that is 100% capital-dependent from a large enterprise will be treated as belonging to the SME. It should be emphasized

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that the EU definition is actually used only for EU-led support programs. In addition, on basis of this definition, Polish government identified entities that should be specifically supported in many different ways and official statistics are also based on this classifications.

**Table 1: Classification of SME companies by size**

Year	Micro	Small	Medium
Average annual employment	0-9	10-49	50-249
Annual net turnover from the sale of goods, products and services and financial operations not exceeding	2 million EUR	10 million EUR	50 million EUR
The total assets of the balance sheet did not exceeding	2 million EUR	10 million EUR	43 million EUR

The specifics of Polish SME is (SBA, 2018) the dominance of micro enterprises as the main employers with a much smaller contribution to the value added of the state than the EU average, which can be seen in table 2. The most probable reason for this state of affairs is the weakness of the Polish labour market in the first years of the 21st century. Many Polish so-called micro entrepreneurs are in fact employees of large enterprises forced to open their business activities by former employers. Large enterprises, from which such non-employees are still almost 100% dependent, thus lower their labour costs by lowering payments for social benefits. It should be noted, however, that in Poland there are as many as 6.4% of European SMEs characterized by high - over 10% - annual increase in employment. It turns out that in good times the SME sector may offer better employment conditions than large enterprises.

**Table 2: Polish SME sector as compared to EU 28 average in 2017**

	Number of enterprise (%)		Number of persons employed (%)		Value added (%)	
	Poland	EU 28	Poland	EU 28	Poland	EU 28
Micro	95,7	93,1	37,8	29,4	16,5	20,7
Small	3,2	5,8	12,9	20,0	13,7	17,8
Medium	0,9	0,9	17,4	17,0	21,2	18,3
SME Total	99,8	99,8	68,1	66,4	51,4	56,8
Large	0,2	0,2	31,9	33,6	48,6	43,2
Total	100,0	100,0	100,0	100,0	100,0	100,0

The Polish SME sector has its own specificity, which clearly distinguishes it from the EU average. However, it should be recognized that with the riches in society and the normalization of the labour market situation, these differences are likely to blur.

### 3. The specificity of the Polish system supporting the SME sector

The literature (Papadimitriou, S., Mourdoukoutas. P. 2002; Kozłowski, 2017) distinguishes three types of systems supporting the SME sector: passive, active and semi-passive. In active systems, the state

engages financial resources and uses them as stimulants to develop potentially best prospective investors. In passive systems, the state organizes conditions for the development of large enterprises from this sector in a similar way, first of all basing on various types of legal regulations. In practice, semi-passive systems connecting passive and active elements are the most common. However, usually one of the spheres is overwhelming.

The Polish system supporting the SME sector should be described as passive. It lacks the institutional and financial support of entities included in this sector. There are no bodies that would search for the best and most promising entrepreneurs, which may result in the loss of profits by the state treasury. The instruments used are addressed to a wide audience without searching for entities with the highest growth potential. At the same time, many different instruments are used, which intensifies terminological chaos. Polish law, apart from the EU definition, also applies additional, restrictive classifications of entities comprising SMEs. Almost every act concerning this sector introduces additional categories of entities as presented in table 3.

**Table 3: Categories of not large entities distinguished in Polish law**

Legal act	Micro
Act on the freedom of economic activity	Micro enterprise Small enterprise Medium enterprise
Accounting Act	Micro entity Small entity
Value Added Tax Act	Small VAT taxpayer
Personal Income Tax Act	Small PIT taxpayer

At the same time, many legal acts do not introduce additional terms referring to the SME sector, but only apply strictly defined criteria limiting the group of entities that can benefit from a specific form of assistance. The most frequently used forms of assistance are the reduction of various types of financial burdens and burdens of an administrative / evidential nature.

#### **4. Burdens reduction in the area of social contributions**

In the Polish legal system, the institution collecting social contributions is the Social Insurance Institution (Zakład Ubezpieczeń Społecznych in Polish). Therefore, all instruments, contributions or documents used by this institution are referred to as "ZUS" or have this component in their name.

Every Polish entrepreneur conducting business as a natural person, regardless of the amount of income or financial result, must pay over EUR 300 as social contributions a month (Ustawa o systemie, 1998). In connection with the comments coming from the market, the Polish legislator has introduced three instruments that reduce the amount of these burdens primarily in the first period of the company's operation: (a) relief to start, (b) preferential ZUS rates and (c) small ZUS. However, these forms cannot be combined with each other.

Individuals may benefit from a start-up relief for the first six months of running a business. A taxpayer who does not perform other business activities or does not work for a previous employer may at that

time not pay social contributions and pay only health contributions. This means a monthly benefit of nearly 200 euros.

Preferential ZUS rates mean that they amount to 30% of the minimum wage applicable in a given year for the first 24 months of operation or for the next 24 months after stopping the use of a start incentive. The savings resulting from the use of this relief is about 140 euros per month.

Small ZUS is targeted at individuals and their civil partnerships, whose revenues for the previous financial year did not exceed thirty times the minimum wage set in Poland (in 2018 this limit was about EUR 15,000.) Small ZUS comes down to calculating social contributions on the basis of the average income for the previous tax year and allows a maximum monthly saving of 130 euros. The maximum period of using a small ZUS is 36 months in the last 60 months of operation

While the financial benefits are obvious and indicated in this text, the reduction of future pensions of entrepreneurs using these solutions should be considered the greatest disadvantage of these forms of support.

## 5. Simplifications and reduction of charges in the area of income tax

The Polish state supports SMEs above all on the level of simplifying procedures related to their administration and accounting. The main simplifications are: (a) Simplified forms of tax registration and tax book of revenues and expenses, (b) simplifications for entities subject to the Accounting Act, (c) simplifications for entities subject to the Personal Income Tax Act, (e) simplifications for VAT taxpayers and (e) reduction of the rate for taxpayers subject to the Corporate Income Tax Act.

in the Act on accounting [UoR, 1994, art. 3.1] defining the principles of keeping accounting books in Poland, also introduced categories of micro and small units, which may be entrepreneurs meeting two of three specific criteria as can be seen in Table 4.

**Table 4: Micro and Small Entities criteria according to Polish Accounting Law**

	Maximum number of employees	Maximum last year revenues may not exceed (in PLN)	Statement of Financial Position Total may not exceed (in PLN)
Micro entity	10	1 500 000	3 000 000
Small entity	50	25 500 000	51 000 000

There are two basic forms of simplified tax registration in Poland: (a) tax card and (b) lump sum from registered income (Ustawa o zryczałtowanym, 1998). There is also a third form – “tax book of revenues and expenses” - that may be considered simplified form that is a conglomerate of solutions adopted in the Accounting Act and tax law.

This is not explicitly indicated by the legislator, but the conditions that must be met by companies wishing to settle accounts by means of a tax card and a lump sum on registered income unequivocally indicate that they are forms directed primarily at micro entrepreneurs.

An entrepreneur wishing to settle with a tax card must lead to a homogeneous, uncomplicated economic activity when employing, depending on the type of activity, from one to five persons (not counting to the employment limit, among others, of some family members, apprentices and service staff such as cleaning and administrative staff). The tax rate for "tax card" is determined in terms of amount and depends on the type of activity, number of employees and population of the place where the activity is carried out.

The maximum amount of annual turnover for entrepreneurs who want to select "lump sum from registered revenues" for 250,000 EUR. In addition, just like a tax card, the "lump sum" is directed to relatively simple business activities.

The tax rate for "lump sums" is set as a percentage on the revenues they earn, less the few deductions (including some social insurance contributions and donations for cults) and depending on the type of business. The amount of the lump sum from registered income is ranges from 3.00% for commercial and catering activities to 20.00% for so-called free competition.

The "tax book of revenues and expenses" can be regarded as the third form of the simplified register. This simplification does not have a direct impact on the amount of taxes paid (the taxpayer is accounted for on general terms), but only indirectly by reducing the administrative and accounting burdens of entrepreneurs and limiting the number of records kept by the company. The possibility of keeping records in the form of the "tax book of revenues and expenses" is held by natural persons, civil partnerships of natural persons, general partnerships of natural persons and partner companies engaged in economic activities that do not keep accounting books and do not settle with a tax card or a lump sum of registered income. The revenues of such entities cannot exceed EUR 2,000,000 million if they want to use the book as a form of tax registration.

A micro-entrepreneur who keeps accounting books has the right to make far-reaching simplifications (Ustawa, 1994) in the maintenance of accounting books consisting, among other things, in: (a) the possibility of giving up the precautionary principle in the valuation of individual assets and liabilities, (b) no need to measure assets and liabilities at fair value and adjusted purchase price, (c) the possibility of preparing a simplified form of additional information, (d) the possibility of not creating a cash flow statement and statement of changes in equity (fund), (e) the ability to prepare a balance sheet and profit and loss account in very simplified versions (each document limited to less than 10 items).

Simplifications of accounting rules available for small entities are similar to those that micro entities may use and consist of: (a) possibility of applying tax solutions and not the balance sheet law in the classification of leasing contracts and depreciation, (b) possibility of applying simplifications in the valuation and disclosure of financial instruments, (c) the possibility of not creating a cash flow statement and statement of changes in equity (fund), (d) the possibility of making a balance sheet and profit and loss account in simplified versions but more complicated then version for micro entities (Ustawa, 1994).

Similarly to a small PIT taxpayer, there is a simplification for small CIT payers (Ustawa, 1992). These entities, which in the last financial year did not exceed revenues of 1,200,000 euros, including VAT, may pay this tax at a reduced rate of 9% instead of the standard 19%.

A small PIT taxpayer is (Ustawa, 1991) a taxpayer with whom the value of sales revenue (along with the amount of due tax on goods and services) did not exceed in the previous tax year an amount corresponding to the equivalent of EUR 1,200,000 in the previous year. A small PIT taxpayer can: (a) quarterly settle for income tax advances, (b) use one-off depreciation up to 50,000 euros and (c) use the so-called tax credit.

The possibility of using one-off depreciation applies to intangible assets and fixed assets excluding motor cars. At the same time, the legislator made it possible to use this form of support not only for small taxpayers, but also for all entrepreneurs in the year when they set up their business. Similarly as in the case of one-off depreciation, also in the case of quarterly advances on PIT, entrepreneurs starting their activity in the first year of operation may also use them. In both cases, the amount of advance payment for income tax is determined in the same way as the difference between the tax due on income earned from the beginning of the year and the sum of advance payments for previous quarters. In turn, a tax credit, which is a relatively simple instrument consisting in the possibility of paying off annual tax burdens in equal instalments for five consecutive years, is subject to the highest number of conditions. These conditions include running a business for a period of no more than 22 months, employing at least five full-time employees, and achieving monthly average income of at least 1,000 EUR.

A small VAT payer, like a small PIT taxpayer, is a taxpayer whose value of sales revenue – along with the amount of due tax on goods and services – did not exceed in the previous fiscal year the amount corresponding to the equivalent of EUR 1,200,000 (Ustawa o podatku, 2004). A small PIT taxpayer may use the cash register method whereby the tax obligation in respect of his deliveries of goods and services arises on the date of receipt of all or part of the payment

## **6. Conclusion**

The system of supporting the SME sector in Poland is extensive and multi-element. It covers parts of the sector that are considered the weakest and most in need of help at a critical time. The first years of functioning of entities, especially in societies with a low level of economic education, and such post-communist states should be considered as such, are the key to their survival. Therefore, any instruments that facilitate this should be assessed positively. At the same time, the Polish SME support system is difficult to consider as coherent, because individual elements have been introduced in completely different economic and social realities.

It should be emphasized that programs that rely on the direct financial support of SMEs are not discussed in this article, because they are based primarily on EU programs and cannot be considered as Polish initiative. However, it should be emphasized that some previous experiences indicate that they are not always properly distributed (Kozłowski, 2017; Kozłowski, Kamińska – Stańczak, 2018). It should also be pointed out that in Poland there is no State-organized capital support for start-ups, which would bring direct benefits to the state treasury and not only through tax revenues.

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## Education and Financial Literacy of Technical Universities Students

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**Abstract:** Financial literacy is rightly one of the key competencies of an individual living in modern society. Its consolidation and deepening are one of the main aims of teaching economic subjects in non-economic fields. Even technical fields are no exception. The paper presents the results of a questionnaire survey at several universities in former Czechoslovakia. When using statistical analysis methods, the weaknesses of the respondents are identified. It allows setting general rules for improving the content of the economics courses.

**Keywords:** financial literacy, economics education, technical university

**JEL classification** A20, A21, A23

### 1. Introduction

Financial literacy is one of the basic preconditions for a self-sufficient life in modern society. We live 24 hours a day with new technologies that have changed human life more than anything before. The attitude towards human capital has changed significantly and new concepts have been created with a focus on human resources and qualification, which have encouraged the demand for highly qualified employees. The demands on the educational level of the population are increasing, and this is not otherwise in the case of financial literacy. Life has become more complicated and we have to make qualified decisions about our housing on a mortgage, saving for retirement, the form of investing in various funds, saving for the children study and similar. Globalization has hit all areas of our lives.

The educational attainment and level of financial literacy are closely related. If only a low level of financial literacy is achieved, it is a problem to assess the development of financial market products competently, even if they are relatively simple financial products. This is also hampered by the speed of change, the scope and the increasing complexity of the financial services offered. Newly marketed financial products bring also new risks. Digital financial services bring new types of risks, such as the risks associated with the high cost of short-term online loans (e.g., a one-minute loan product), misuse of personal data for identity theft, and related fraud.

It is difficult to avoid risks if the only criterion for investing is the vision of high returns. It is necessary to apply the skills and knowledge to manage the products they choose and decide to buy. This enables to make a qualified decision at the time of the product purchase decision - and to be aware of the possible scenarios of the choice. Surveys show that the majority of employees are not aware of the

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risks they face and, if they are aware of them, do not have sufficient financial knowledge and ability to manage them (OECD, 2016), (Lusardi, 2008), (Barrett et al., 2013) and (Behrman et al., 2012).

The problem in advanced economies is the prevalence of consumption patterns, which are related to the over-lending, reduced household income and the prolongation of the retirement age. From the point of view of society and also the individual, the self-sufficient life concept has been comprehended completely "different". Especially the young generation must be aware of the importance of the equation where debt and low income are on its one side and low living standards on the other.

Also in the EU, longevity increases, natality falls, and adult middle-aged children no longer live in their parents' place of residence. The likely outcome of these shifts will be a greater need for financial security in retirement and professional care in old age, resulting in additional government expenditure (Colombo et al., 2011). "For the first time since the Second World War, there is a real risk that today's young adults — the most educated generation we have ever had — may end up less well-off than their parents" (EK, 2017). From the previous follows that the younger generation will be more responsible for planning their own retirement savings and investments, and moreover, for covering their own health care needs as well as their parents.

## **2. Literature survey**

There is evidence confirming the close relationship between financial education and financial literacy. They confirm that financial literacy can be improved by providing high-quality financial education to broad sections of the population at all levels of the education system (Opletalová, 2015), (Lusardi, 2012), (Lusardi, 2008) and (Matthew, 2007). Financial literacy and schooling attainment have been linked to household wealth accumulation (Behrman, Mitchell, Soo, & Bravo, 2012). The relation between financial literacy and family background and educational attainment has long been known (Lusardi et al., 2010).

The research on household debt management and debt management capabilities is still actual also today. Young people in developed countries are burdened with large debt, ranging from student loans to mortgages to almost everything. Therefore, part of the world research focuses on exploring this phenomenon along with analyzing high-debt households.

Results of the (French & McKillop, 2016) research indicate that credit unions could structure an effective programme targeted at those in financial difficulties by promoting awareness of their financial situation, by encouraging them to manage bills more effectively and by improving budgeting skills. Education in the field leads to more responsible financial behaviour and is more likely that „investors who are more financially knowledgeable earn more on their retirement plan investments compared with their less sophisticated counterparts“(Clark et al., 2017). Nearly all households that score high on financial literacy or rely on professionals or private contacts for advice achieve reasonable investment outcomes (Gaudecker, 2015).

When defining financial literacy, we will build on the need for cash flow planning. „The result of the preference for planning cash flow is more uniform consumption throughout life, depending on the stage of the life cycle" (Kozubíková, 2015). According to (Kozubíková, 2015) as a financially literate person, we understand someone who uses their ability to make a qualified judgment on the basis of their knowledge, skills, and experience to maintain balanced financial security throughout life.

### 3. Methods and data collection

Data for the research was collected through a questionnaire survey. In our survey, we focused on the students of five faculties with similar study fields, all located in the territory of former Czechoslovakia. Two of them are in Slovakia and three in Czech Republic. The research questionnaires were addressed to the students of the technical fields of study, especially the computer science, transportation and logistics. Overall, we distributed 600 questionnaires among the students. After sorting the questionnaires and removing the questionnaires with malicious or incomplete responses, we obtained a sample of 475 questionnaires. This means that the response rate was 79.17 %.

In the first part of the questionnaire, we have collected certain socio-demographic data of the respondents like their age, gender, county of their residence, the highest educational level etc. We also asked about the respondents' attitudes towards financial literacy. Specifically, we mainly investigated:

- the level of importance attributed to financial literacy,
- to what extent they themselves feel financially literate.

In order to test the actual level of respondents' financial literacy, we designed the second part of the questionnaire in the form of thirteen multiple-choice questions. Each question had four answer options, one correct answer, two incorrect and "I don't know" option. The questions covered the following categories of financial literacy:

- time value of money and inflation perception
- basics of investing,
- financial decision making,
- annuities and mortgaging.

Our aim was also to detect weaknesses in financial literacy. For this purpose we used testing of statistical hypotheses. Namely, it was a Welsch t-test of the hypothesis about equality of the sample mean values at different sample variances. By applying the test to single pairs of categories, we detected areas with significantly lower levels of percentages.

### 4. Results

Before analyzing the results, let us at first look at the structure of our random sample. Basic details are summarized in Table 1. While the proportion of respondents from both countries is relatively balanced, as well as the proportion of students of informatics and other technical fields, the proportion of individual genders is dominated by men. But this is not surprising, given that it is a technical study and the gender balance of the sample is probably not even possible.

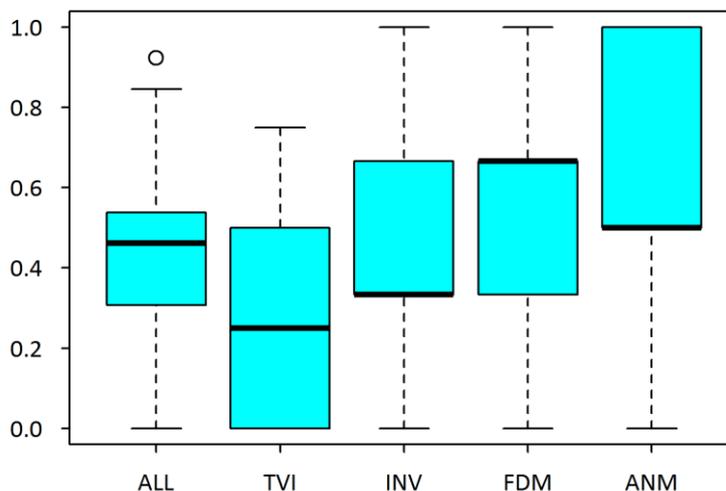
**Table 1: The structure of the research sample by different aspects. (Source: Own processing)**

Proportion of the sample by					
Country		Study field		Gender	
Slovakia	Czechia	Informatics	Other	Men	Women
232	243	252	223	402	73

Let us now take a closer look at the results achieved in each category and the overall result. From boxplots in Figure 1, we can easily deduce the results. It is clear that below average results have been achieved in two areas and above average in the other two. Thus, competencies are spread very non-

uniformly across the spectrum of financial literacy. The sample characteristics resp. the quantiles are then listed in Tables 2 and 3 resp. 3.

**Percentages of the correctly answered questions**



**Figure 1: Figure caption (style Caption, font Calibri, size 11pt, bold)**

**Table 2: The sample characteristics of the percentages according to the thematic categories. ALL – all categories together, TVI – time value and inflation, ANM – annuities and mortgaging, INV – basics of the investing, FDM – financial decision making. (Source: Own processing)**

	ALL	TVI	INV	ANM	FDM
Mean	44.40 %	24.89 %	40.35%	55.37%	56.00%
Coefficient of variation	37.63 %	82.25 %	67.97%	62.01 %	52.40 %

**Table 3: The main sample quantiles of the percentages according to the thematic categories. (Source: Own processing)**

Category	Min	1-st quartile	Median	3-rg quartile	Max
Time value and inflation	0.00 %	0.00 %	25.00 %	50.00 %	75 %
Basics of the investing	0.00 %	33.33 %	33.33 %	66.67 %	100 %
Financial decision making	0.00 %	33.33 %	66.67 %	66.67 %	100 %
Annuities and mortgaging	0.00 %	50.00 %	50.00 %	100 %	100 %
All categories together	0.00 %	30.77 %	44.40 %	53.85 %	92.31 %

The hypotheses we stated in previous deduction must be tested statistically for their exact verification. Table 4 summarizes the results of these tests of equality of the average scores. Here, according to the determined p-values, we can immediately see that the same level of competence level hypothesis cannot be rejected only when comparing categories "Annuities and mortgaging" and "Financial decision making". Extremely low p-values in other cases allow to sort the results by average percentages into a certain hierarchy. It has been shown that the weakest knowledge is in the

perception of the time value of money and inflation. Similarly, better but still below average results have been achieved in the area of investment. The remaining two categories achieved comparable above-average results.

**Table 4: The results of the Welsch t-test of the hypothesis about equal means for all pairs of the thematic categories. (Source: Own processing)**

Category	Mean	t-statistics	p-value
Time value and inflation	24.89 %	-9.8413	< 2.2·10 <sup>-16</sup>
Basics of the investing	40.35%		
Time value and inflation	24.89 %	-18.945	< 2.2·10 <sup>-16</sup>
Financial decision making	56.00%		
Time value and inflation	24.89 %	-16.613	< 2.2·10 <sup>-16</sup>
Annuities and mortgaging	55.37%		
Basics of the investing	40.35%	-8.4909	< 2.2·10 <sup>-16</sup>
Financial decision making	56.00%		
Basics of the investing	40.35%	-7.4477	< 2.2·10 <sup>-13</sup>
Annuities and mortgaging	55.37%		
Financial decision making	56.00%	-0.30476	0.7606
Annuities and mortgaging	55.37%		

The obtained findings may seem surprising. The best results have been achieved in areas that are generally considered more difficult. This can be explained by some underestimation of seemingly simple questions and looking for the simplest answers. Conversely, on more complex issues, respondents will realize the need to recalculate and validate the result. In addition, investment decisions are often associated with risk perception. However, the competence of risk governing was not independently verified, so its lack could be reflected in the result.

## 5. Conclusion

In our research, we have verified that competencies in financial literacy are very non-uniformly distributed among students of technical fields. We have shown they achieved the worst results in relatively simple situations and, on the other hand, achieve better results in more complex problems. This points to the need to deepen elementary knowledge. This provides the feedback information not only to the university but also to lower levels of education. The results also show that new, more detailed research with a more detailed breakdown of financial literacy elements is needed to further identify the causes of this situation. In this survey, we will build on the personal finance index, introduced in (Lusardi et al., 2017).

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## Disabled People as a Target Group of Social Enterprises? The Case of the Czech Republic.

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**Abstract:** Persons with disabilities are one of the groups of people who consider the European Union's social policies to be disadvantaged in the labour market. At the same time, a number of European Union countries have included in their national legislation a law on social entrepreneurship that regulates the employment of people with disabilities by social enterprises. So far, there is no valid law of this kind in the Czech Republic, although social enterprises operating in the Czech Republic help to reduce the number of unemployed persons with disabilities. The research focuses on the position of people with disabilities in the labour market. Its aim is to evaluate how people with disabilities perceive their ability to enter the labour market and to evaluate their awareness of the concept of social entrepreneurship. The research sample is represented by 102 people with disabilities. The results of the research show that people with disabilities perceive their position on the labour market as difficult and most of them have never heard about the concept of social entrepreneurship.

**Keywords:** social enterprise, disabled people, social policy

**JEL classification:** J6, M14

**Grant affiliation:** IGA\_FF\_2019\_002\_Shifts in Entrepreneurial Approaches in the Contemporary Economy

### 1. Introduction

Although entrepreneurship is formally perceived as a systematic activity aimed at profit-making, there are currently business concepts that, on the one hand, seek to make a profit, but on the other hand, aim to achieve a socially beneficial goal. We talk about goals in environmental, economic or social areas, or about the combination of all of these attributes.

Socially beneficial goals are seen in a broad sense in the case of social entrepreneurship and cannot be limited to selected activities that enterprises should develop. In general, social enterprises are defined as entities that produce products or provide services with the intention of achieving economic autonomy while at the same time pursuing a socially beneficial goal. Nevertheless, one type of social enterprise prevails in the European Union, focusing its main objective on an area that is addressed within the social policies. We talk about so-called work-integration social enterprises employing in some way disadvantaged persons in the labour market with the aim of their integration into the society or prevention of social exclusion of these persons. As disadvantaged in the labour market are seen people with disabilities, socially excluded people, low-skilled, elderly or long-term unemployed people.

According to our previous research, persons with disabilities are the target group of people most frequently employed by social enterprises in Olomouc region – in one of the regions of the Czech

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Republic (Kročil, Dopita & Pospíšil). Based on these results, we can assume that work-integration social enterprises in other regions could be similarly oriented.

The aim of the research presented in this paper is to evaluate how people with disabilities perceive their ability to enter the labour market and also to evaluate their awareness of the concept of social entrepreneurship in general.

The research presented in this paper now focuses on the whole Czech Republic. The focus could be confirmed as follows: the first organization through which our questionnaires were distributed is based in Prague (representing the western part of the Czech Republic), the second in Brno (the eastern part of the Czech Republic). At the same time, Prague and Brno are the largest cities of the country.

## 2. Literature Review

Our previous research focused on selected region of the Czech Republic shows that social enterprises are important in terms of employing people who are disadvantaged in the labour market and also in terms of meeting employment policy needs. Based on the example of the selected region of the Czech Republic - the Olomouc Region, it is clear that work-integration social enterprises are the most widespread type of social enterprise in the region and they contribute significantly to the integration of people with disabilities. Disabled people are the target group employed by social enterprises in the Olomouc Region most frequently. Based on these results, we can assume that work-integration social enterprises in other regions could be similarly oriented.

It was also found that people with disabilities may have a problem with finding a job under current circumstances in the labour market of the Olomouc region (Table 1). These findings are based on the data of Ministry of Labour and Social Affairs of the Czech Republic.

**Table 1: Relationship between supply and demand of disadvantaged groups in the labour market in the Olomouc region (April, 2018)**

Disadvantaged group of people	Kind of relationship	Size of excess
People with disabilities	Excess supply	2157 people
People with no education	Excess demand	206 people
People with incomplete elementary education	Excess supply	21 people
People with only elementary education	Excess demand	465 people

Without the contribution of work-integration social enterprises operating in the Olomouc Region, the excess of supply over demand for labour of people with disabilities would increase by 7,37 % in terms of local labour market (in the period of research, April 2018, the excess of supply over demand for labour of people with disabilities was represented by 2157 people).

If we focus on other publications, the issue of employing people with disabilities was addressed by Shier, Graham and Jones (2009), who conducted individual and group interviews with 56 people with disabilities, suggesting that people with disabilities face work discrimination and difficulties to find and

keep a job. Inequalities between people with disabilities and people without disabilities in the context of employment were discussed by Thornton (2009).

The topic of social enterprise as a partner of disabled people was dealt with by Harris, Renko and Caldwell (2013), who conducted the research with a focus on social entrepreneurs with disabilities. The theme of social economy and social inclusion of people with disabilities was linked by Hall and Wilton (2011).

Although there are studies focusing on situation of people with disabilities in the labour market, and the present research also focuses on this issue, current literature does not deal with the topic of disabled people awareness of the concept of social entrepreneurship.

### **3. Methods and Data**

The questionnaires were distributed to people with disabilities through „Charta 77” foundation from Prague, whose central project is „Konto Bariery”, which focuses on improving the lives of people with disabilities and their full participation in society, and through „Liga vozíčkářů” association from Brno. 102 people with disabilities submitted the completed questionnaire. The questionnaires were created in electronic form in „Survio” platform. Each of the above mentioned organizations shared the questionnaire link on their Facebook profile asking disabled people to complete it. Based on this request 102 disabled people decided to complete the questionnaire. Because we do not know how many disabled people noticed this request, we are not able to determine the whole target population in this case. Because the questionnaires were distributed through two organizations based in the largest cities of the Czech Republic representing the western and eastern part of the country, we consider the research sample to be valid for the whole Czech Republic.

The questionnaire consisted of the following questions:

- 1.) In your opinion, is it difficult to find a job in the current labour market from the perspective of people with disabilities? (closed question, answer YES - NO)
- 2.) Do you perceive the number of job vacancies intended for disabled people as sufficient? (closed question, answer YES - NO)
- 3.) Have you ever heard about the term of “social entrepreneurship”? (closed question, answer YES - NO)
- 4.) If so, please write briefly what does this term mean or what do you imagine under it? (open question, free answer)
- 5.) Do you know any particular social enterprise? If so, please write its name or at least the subject of its activity. (combination of closed and open question)

#### 4. Results

##### Question No. 1

Most respondents think that it is difficult for disabled person to find a job in the current labour market. (Table 2).

**Table 2: In the opinion of the respondents, is it difficult for disabled person to find a job in the current labour market (in general)?**

Answer	Absolute numbers	Percentage
YES	91 people	89 %
NO	11 people	11 %

##### Question No. 2

Most respondents also think that the current labour market does not offer enough job vacancies intended for people with disabilities (Table 3).

**Table 3: Do the respondents perceive the number of job vacancies intended for disabled people as sufficient (in general)?**

Answer	Absolute numbers	Percentage
YES	20 people	20 %
NO	82 people	80 %

##### Question No. 3

Most of the respondents have never heard about the term of "social entrepreneurship" (Table 4).

**Table 4: Do disabled people know that the concept of „social entrepreneurship“ exists?**

Answer	Absolute numbers	Percentage
YES	47 people	46 %
NO	55 people	54 %

##### Question No. 4

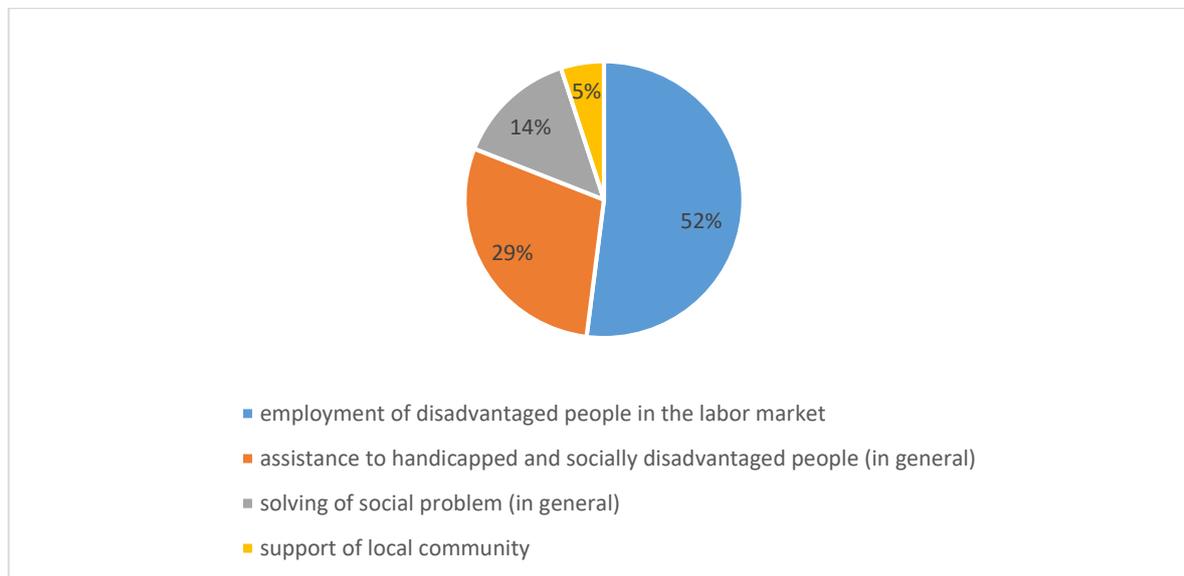
57% of respondents tried to characterize the term of “social entrepreneurship”. Only 2 people stated that social entrepreneurship combines two goals - the achievement of profit and the fulfillment of a certain socially beneficial purpose. Most respondents defined this concept as a business with a socially beneficial goal and less than a fifth as an entrepreneurship of disabled people (Table 5).

**Table 5: Social entrepreneurship characteristics defined by respondents with disabilities**

Characteristics	Absolute numbers	Percentage
Profit + socially beneficial goal	2 persons	4 %

Socially beneficial goal	45 people	77 %
Entrepreneurship of disabled people	11 people	19 %

47 respondents defined the possible socially beneficial goal of social enterprises as follows (Figure 1):



**Figure 1: Socially beneficial goal as a characteristic of social entrepreneurship and the possibility of its fulfillment in the answers of respondents (given in %, the base consists of 47 respondents)**

### Question No. 5

At least one name of possible social enterprise was mentioned by 17 respondents. 18 business names were mentioned in total and only one name is repeated. For this reason, the names of enterprises are not recorded in the graph but only in the form of a list: *Naše Café, 2p servis, Ashoka, Helpnu Ti, Senior Teplice, Ergotep, Učebnice Vaniček, Černí koně, Trend vozíčkářů, Help me Hand, Lipka, Bárka Kafe, Café na půl cesty, Kačaba, Smero, Myjómi, Podané ruce, Kolibřík.*

8 of 18 enterprises declare their affiliation to the concept of social entrepreneurship on their corporate website or by inclusion in the database of social enterprises administered by the Ministry of Labour and Social Affairs in the Czech Republic.

## 5. Conclusion

Although, according to the research conducted on a sample of work-integration social enterprises in the Olomouc Region, people with disabilities are the main target group of social enterprises, the questionnaire survey shows that the awareness of disabled people about social entrepreneurship is low in general. Most of the respondents have never heard about the existence of the concept of social

entrepreneurship. In most cases, people who tried to define the concept of social entrepreneurship said that we talk about enterprises whose aim is to achieve a socially beneficial goal. Only 2 people said that in addition to this goal, social enterprises pursue a parallel goal of making a profit (it is correct if we talk about for-profit social enterprise, for non-profit social enterprise is sufficient to be economically sustainable).

Furthermore, it can be stated that persons with disabilities often associate social entrepreneurship with its integration role, although it is only one of the possible goals of a social enterprise.

The most of respondents think that it is difficult for disabled people to find a job in the current labour market and that the current labour market does not offer enough job vacancies intended for these people. From this point of view, we can consider the importance of further development of work-integration social enterprises to be significant.

Because our questionnaires were distributed through organizations based in the largest cities of the Czech Republic (Prague and Brno) representing the western and eastern part of the country we can consider the findings presented in this paper as valid for the whole Czech Republic.

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## The Current Role of Business Purpose

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**Abstract:** The aim of the paper is to document the changing role of business purpose in the current economy and society. Using secondary data analysis, we show that there has been a growing interest in the role and meaning of business purpose but neither theory nor practice has come to clear conclusions so far. We suggest that in this case management can learn from psychology because in fact not businesses but people are influenced by a purpose. Finally, we analyze several examples of real business purposes to demonstrate that there might be a gap between existing theory and practice.

**Keywords:** Business purpose, job seekers, retention, motivation

**JEL classification:** M140

**Grant affiliation:** IGA\_FF\_2019\_002 Shifts in Entrepreneurial Approaches in the Contemporary Economy

### 1. Introduction

Interest in the phenomenon of business purpose has been growing over the past few years. Considering the number of academic and popular publications, business purpose has been highly topical since 2013 (EY Beacon Institute, 2016). Nowadays business purpose does not mean just making a profit or increasing shareholder value. Purpose is supposed to be now part of a shift toward business becoming a partner in global problem solving, mirroring a shift from value creation for its own sake to value creation for and with a broad set of stakeholders. In the first part of the paper we present business purpose as a theoretical topic. Even though the awareness of the importance of a business purpose over profit has been raising, the understanding of how and why a well-set purpose has a positive business impact might be not sufficient. We suggest that available knowledge in the field of psychology can help. In the following part of the paper, using secondary data analysis, we demonstrate the ways business purposes have been evolving in practice. We also conduct a small case study to show four concrete business purposes and their effect on job seekers and employees. Finally, we analyze the differences between the concepts of business purpose in current theory and practice and suggest several recommendations for future research as well as for practice.

### 2. Business purpose in theory

Despite the agreement about the growing importance of business purpose a common definition of purpose does not exist and there is still a broad discussion about the effects of a purpose. Henderson and Van den Steen (2015, p.2) define purpose as “a concrete goal or objective for the firm that reaches beyond profit maximization”. They state that purpose is not necessarily different from mission but typically more concrete. (As it will be shown below, in practice companies do not care much whether they speak about purpose, vision, mission or even something else.) Henderson and Van den Steen suggest that an adoption of a prosocial purpose can increase the profitability of a company by

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strengthening employees' reputation and identity which leads to higher effort. These authors point out that many firms publicly espouse a purpose beyond profit maximization and their managers and employees deeply care about it. They came with four closely related observations. First, the purposes are almost invariably directed towards prosocial goals. The society is the main beneficiary. Second, the employees usually care deeply about the purpose. Third, the purpose is very important even to the employees whose work is more supportive than directly connected to the purpose (e.g. accountants). Fourth, the companies emphasize the authenticity of the purpose in the sense that it is not just a way to make money.

The Henderson's and Van den Steen's definition of the purpose was used by Gartenberg, Prat and Serafeim (2016) who also examined the impact of purpose on financial performance of companies. They agree that a strong sense of corporate purpose is associated with better firm performance, but only if that sense is held within the middle ranks of an organization, and only if accompanied with clear direction and resources from management.

The role of purpose is particularly stressed in the concept of conscious capitalism, called also conscious business (Mackey, Sisodia, & George, 2013). A pro-socially oriented purpose is here called a higher purpose and represents one of four main pillars of conscious business. A higher purpose addresses fundamental questions such as: Why do we exist? Why do we need to exist? What is the contribution we want to make? Why is the world better because we are here? Would we be missed if we disappeared? A higher purpose is supposed to work as a magnet that attracts the right people - the right workers, customers, suppliers, and investors - to the business and aligns them. It reduces friction within the organization and its ecosystem because it gets everybody pointed in the same direction and moving together in harmony.

### **3. Purpose in psychology – what business can learn**

While business is still unsure about the definition and the effects of purpose, based on work of Viktor Frankl, the topic of the role of purpose in human functioning in western psychology has been of interest since the middle of the 20<sup>th</sup> century. The interest has even strengthened with the advent of positive psychology at the beginning of the 21<sup>st</sup> century. In psychology there is a consensus that a purpose in life represents a stable and generalized intention to accomplish something that is at once personally meaningful and at the same time leads to productive engagement with some aspect of the world beyond the self (Damon, Menon, & Bronk, 2003). The definition points out three important components of a purpose: a goal (a long-term ultimate aim) orientation, personal meaningfulness and a focus on aims beyond the self, i.e. to make a difference in the world.

People who lack a sense of purpose in life tend to suffer psychologically, they are more likely to suffer from depression, loneliness, anxiety etc. (Bigler, Neimeyer, & Brown, 2001). On the other hand, the presence of purpose is associated with positive states like psychological well-being and life satisfaction (Bronk, Hill, Lapsley, Talib, & Finch, 2009).

There are several sources of purpose and work is (or might be) one of the most important for adults (Dik & Duffy, 2013). If individuals can see a purpose in their work, they feel happier and thus also perform better (Wrzesniewski, Lobuglio, Dutton, & Berg, 2013). Why is it so? McKnight and Kashdan (2009) argue that there are five positive effects of a perceived purpose on an individual. First, purpose stimulates behavioral consistency, it is a motivating force to overcome obstacles and to maintain focus

on the goal even in changing conditions. Second, purpose generates approach oriented behaviors. Third, purpose stimulates psychological flexibility, it leads a person to be flexible in light of challenges as well as opportunities. Fourth, purpose fosters efficient resource allocation and supports productive cognitive, behavioral and physiological activity. Fifth, purpose leads to higher level of cognitive processing. A purpose influences the activity of the cerebral cortex unlike primal motivations (food, safety, pleasure) characterized by the activity in the midbrain and lower.

There are several important pieces of knowledge which can businesses draw from psychology. First, a company can declare its purpose, but this purpose does not influence the company but the people in and around the company. Second, if the purpose is in accordance with the needs of an individual, it motivates him/her strongly. Such a purpose has the above mentioned three components: is goal oriented, is meaningful and is focused on a positive difference in the world. Third, work can be an important source of purpose for individuals. And if so, it is known why people perform better than if not – they can see more opportunities, are more flexible, and more efficient physically as well as intellectually.

#### 4. Business purpose in practice

To find out how companies define their purpose and if/how it affects their business success, in 2017 the EY Beacon Institute (EY Beacon Institute, 2017) conducted a research among almost 1,500 business leaders in large companies across 12 countries in the world and 10 different industries. First, the leaders were asked to choose one of five possible general categories of the purpose which applies to their company. The results are shown in table 1:

**Table 1: The general categories of the purpose**

The category of the purpose:	Companies (%)
Maximizing shareholder value	15%
Bringing value to customers	33%
Creating value for employees	11%
Creating value for a broad set of stakeholders, including society and the environment	34%
Having an aspirational reason for being that is grounded in humanity and that inspires a call to action	6%

At the same time two thirds of the leaders said that the purpose of their company considerably changed towards the last two categories in table 1 as the result of the volatile, uncertain, complex and ambiguous world, mostly toward a broad pro-social purpose. Particularly leaders from the life sciences and government and publicly owned industries most frequently claimed a purpose that seeks to create value for multiple stakeholders, leaders from health companies most frequently claimed an aspirational reason for being.

The leaders were also asked how important the organization's purpose is for their job satisfaction. The purpose was very important for 59%, somewhat important for 37%, not very important for 3% and not at all important for only 1% of the leaders. Then the leaders were asked about their ideal employer and 54% said they would prefer a business with a broad pro-social purpose. It means that some of them work for a business which does not have a broader pro-social purpose and thus for their employers there is a risk that these managers might be willing to change their job to feel more fulfilled.

However, only 21% of the companies with a broad pro-social purpose (i.e. 9% of the total number of the companies) have this purpose very well integrated into their businesses. The leaders from these companies claimed that the purpose helps their companies built greater customer loyalty, preserve brand value and reputation, attract and retain top talent, develop innovative products, identify and mitigate risks, and identify ways to reduce costs.

When asked which factors were the most critical when integrating the purpose throughout their businesses, more than 90% of leaders cited the need to embed purpose in the business culture and the behavior, particularly of the leaders, the necessity to embed the purpose into the goals and strategies, and to embed the purpose in the company governance and decision-making processes.

## 5. Brief case study on four business purposes

It was documented above that the impact of a purpose on human behavior is strong and that many business leaders are aware of it. In the next part of the paper we present a brief case study on four companies and their business purposes. The aim of the case study was to find out if these companies declare their purpose, whether the purpose is a broad pro-social one and how important it is for job seekers and for employees.

It should be noted that even though the discussion about the business purpose is broad, the terms purpose, mission, and vision are often used interchangeably. Speaking further about a purpose we examine if the companies declare one, no matter what they call it.

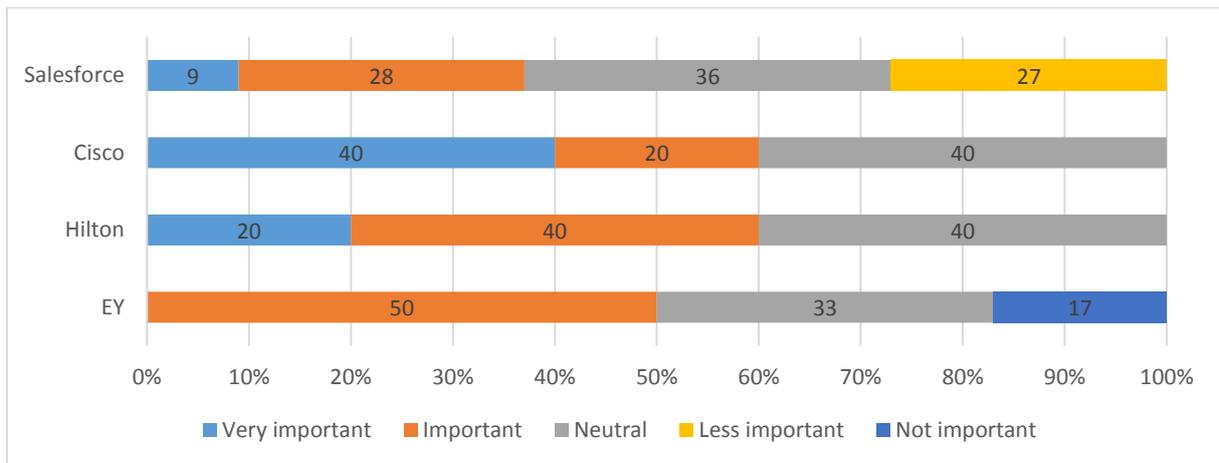
The four companies were selected as the result of the following process. First, we used the list Best multinational workplaces in Europe in 2018; the list is created by the Great Place to Work Institute (2018). The companies are evaluated according to perceptions of their employees. It is possible to say that the most essential measure is whether the employees say their company is a great workplace (great Place to Work, 2018). We decided for multinationals because they are close to large companies examined in the above mentioned EY Beacon Institute research. Europe was chosen with regard to the main target audience of the paper. The list contains a total of 25 companies. Then we used publicly accessible data from the website Comparably (2019). This website also publishes the assessments of companies from the job seekers and employees points of view. We found the companies which are on both, the list Best multinational workplaces in Europe in 2018 and the Comparably website. From this group we selected the companies which were evaluated by at least 100 employees. Comparably asks (among others) the employees how important the company mission was when they had searched for a job and if the mission is a reason to stay at the company (Comparably uses the term mission regardless of the term used by the companies). Table 2 shows the companies and their purposes and short assessments of the purposes.

**Table 2: The purposes of real companies**

Company	Purpose/Vision/Mission/About us	Is it a broad pro-social one?
Salesforce	We believe that the business of business is to improve the state of the world, and we work to make sure Salesforce is a platform for change through serving the interests of all our stakeholders — employees, customers, partners, communities and the environment (Salesforce, 2019). (Declared as vision.)	Yes. It declares the intention to improve the state of the world and considers a broad spectrum of stakeholders
Cisco	Between hope and possible, there's a bridge. Cisco, the bridge to possible (Cisco, 2019). (Declared as a company characteristic.)	Partly. It sounds positive but is too fuzzy.

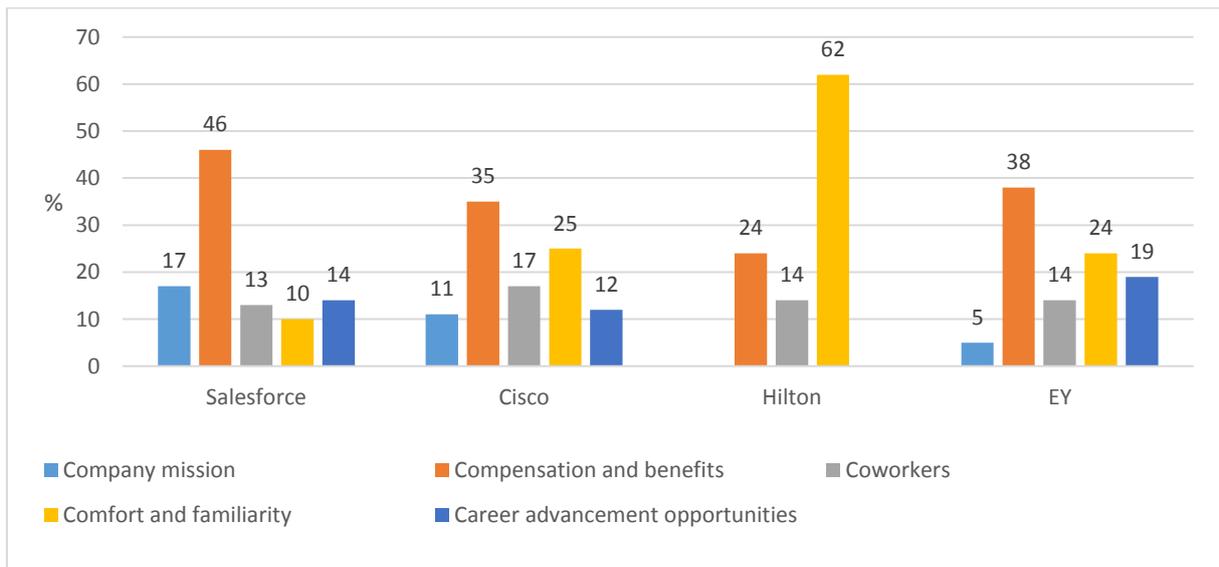
Hilton	We are passionate about delivering exceptional guest experiences. (Hilton, 2019) (Declared as a company characteristic.)	No. It is only customer oriented.
EY	Our purpose: Building a Better Working World (EY, 2019). (Declared as vision.)	Yes. The stakeholders are not mentioned, but the intention to improve the (working) world is.

The importance of the company mission was different to different job seekers (Figure 1). This case study does not provide a hint whether a broad pro-social mission/purpose (such as Salesforce has) might be important for a higher number of job seekers than a narrow one (such as Hilton has).



**Figure 1: The importance of the company mission for job seekers**

The mission/purpose did not prove to be the main reason to stay in the company (Figure 2).



**Figure 2: The main reason to stay in the company**

In three out of the four companies the compensations and benefits were the main reason to stay, in Hilton it was comfort and familiarity. On the other hand, Hilton was the only company, where nobody said the mission was the main reason to stay. It would require further research whether this happened because the mission was just customer oriented. The same applies for Salesforce, which has the best declared broad pro-social purpose and the biggest proportion of employees who said it is the main reason to stay there. However, to have a job is still a usual way how to make a living and compensation and benefits are very important to the employees. Yet still, there are people to whom the company mission is more important than compensations. Why is it so and who these people are is another interesting research question.

## 6. Conclusion

More and more people have been asking what the purpose of business is. The paradigm that the purpose of business is just making a profit is over. Few businesses had started this shift, e.g. The Body Shop in the 1970s or Whole Foods in 1980s, but soon many businesses followed this change. Also when searching for a job many people nowadays do not seek just an opportunity to make a living but they want to make the world a better place. Many customers want to support something positive when purchasing.

In this paper we pointed out that many businesses have realized that having a broader pro-socially oriented purpose is beneficial not only for the society but also for their own performance. Nevertheless, not every business defines exactly its purpose; they still speak about missions, visions, etc. There is no one general definition of business purpose and the discussion about positive effects is still ongoing. We suggest that business leaders can partly learn from psychology. Psychology explains what characteristics a good purpose should have as well as why it motivates people so strongly. On the other hand, we proved that not every job seeker cares about the company purpose and that to many employees compensation is more important than the purpose as a reason to stay in the company.

Businesses definitely should think about their purposes. To stay just with making a profit would attract neither customers nor employees. We suggest that it is not crucially important whether a company declares exactly its purpose or if they call it mission or vision. But the purpose has to be clear, well-known or at least easy to find on the company website (which surprisingly was not the case of the companies in the case study, even though they belong to the best employers). It is even more important to embed the purpose in the business culture, decision-making, and governance. Further academic research in these areas can help businesses to take all advantages of purpose-based strategies. At the end of the day, society will be the main beneficiary of the advantages.

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## **Analysis of the consequences of the UK's departure from the EU, with an emphasis on Slovakia**

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### **Abstract:**

The UK's exit from the EU is complicated and considerable uncertainty persists as it ends. There are still several variations in the timing and final form of setting up relations between the UK, the EU and other countries. For both the UK and the EU, it is certainly a preferred option to minimize the negative economic consequences. The UK is currently the 5th largest economy in the world, according to the volume of gross domestic product. Its share of the global economy is 2.3%. Within the EU, Britain is ranked second behind Germany. The United Kingdom's main trading partners are the USA (13% of total exports), Germany (11%), France (7%), the Netherlands (6%) and Ireland (6%). The United Kingdom is one of the key trading partners for the Slovak economy. When we analyzing the economic consequences, we compare all four Brexit variants. This will result in estimates of relative differences in the long-term GDP size of the UK economy for all scenarios compared to the situation where the UK did not leave the EU.

**Keywords:** Brexit, European Union, Great Britain

**JEL classification:** F23, F41, P23, P33

**Grant affiliation:** Writing this paper was supported by project VEGA no. 1/0287/19 called "Integration of immigrants in EU countries from the point of view of migration policies"

### **1. Introduction**

The future of Great Britain outside the European Union is still one big unknown. Perhaps only the fact that, even after becoming independent, the island kingdom could not afford the world's largest single market, with almost half a billion potential customers ignored, is almost certain. The UK is, after Germany and France, the third largest economy in the EU and one of the world's most open economies, and is heavily dependent on the EU internal market. Access to it is literally vital to the volume of British trade with the EU. Thus, after leaving the EU, the country would have to rebuild a range of business and institutional relations with the remaining EU members, with many different scenarios in the game. The following text discusses the most likely alternatives to EU membership based on UK government analyzes. In particular, each of the model situations is examined with regard to the scope of access to the economically key EU policy, ie the single internal market, and the related rights and obligations. At the same time, individual alternatives are ranked according to the degree of economic integration between the UK and the EU, descending from the highest degree of integration to the weakest link.

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## **2. Scenarios of the UK exit from the EU**

Economic forecasting is difficult enough in normal times. When the range of possible outcomes – from no deal to remaining in the EU – is as wide as it is at the time of writing, it is close to impossible. Nevertheless, we can look at the main scenarios.

### **2.1. Norwegian model**

The first alternative is a UK-based relationship in the European Economic Area, established in 1994 under an agreement between the European Free Trade Association and the EU, extending the European Union's internal market provisions to three EFTA countries (Norway, Iceland and Liechtenstein). The agreement includes four single market freedoms and related policies such as competition, transport, energy and economic and monetary cooperation, as well as some horizontal policies such as: Social policy (including occupational health and safety), consumer protection policy or environmental protection. On the basis of membership of the European Economic Area, the United Kingdom would be guaranteed free movement (most) of goods, persons, services and capital within the EU internal market, just as if it were an EU member. Agricultural products and fisheries would be an exception. This option would provide the country with almost complete access to the EU single market, and would have the least impact on British exports to the EU. Unlike the current situation, the country would retain full competence in areas such as agriculture, fisheries, regional policy, asylum or defense and foreign policy (but it should be noted that Norway has specific agreements with the EU in some of these areas).

However, such a high level of participation in the EU internal market would not be free. Norway has committed itself to implement in its legal system all EU single market legislation. However, as a non-EU member, he cannot directly co-create these rules, even though he is an observer in the relevant European agencies and committees and has the right to be heard through working group consultation meetings in the European Commission.

The movement of goods must respect the rules of origin, which are more demanding in terms of administration than in the case of EU membership. Equally, social security commitments and other elements of social and labor legislation must be implemented; the country would still be obliged to grant EU citizens the right to work and live in the UK. At the same time, following the example of Norway, which makes a significant contribution to the EU's cohesion policy, in which it participates, it has to contribute financially to the EU.

### **2.2. Bilateral agreement with EU**

Another potential scenario for the future arrangement of mutual relations is the conclusion of a bilateral agreement between the United Kingdom and the EU. However the scope of access to Member States' markets would depend on specific negotiated conditions, it is certain that the negotiation of any bilateral agreement between the UK and the EU would be a very complex matter and would probably require not only the unanimous consent of all 27 remaining EU Member States and ratification by national parliaments. but also the consent of the European Parliament. Achieving an agreement with such a broad scope and with so many negotiating partners trying to pursue their particular interests would be very difficult (among other things, given the uncertainty of the UK and not the overly welcoming atmosphere that would probably have been after Brexit) and lengthy. Let

us recall in this context that the negotiations on an agreement with Canada, which has not yet entered into force, started 7 years ago; In turn, the Swiss have negotiated their agreements with the EU for over 20 years. According to the UK Treasury's projection, the UK economy would lead to a 6.2% worse-than-stay in the EU after 15 years since the conclusion of a bilateral agreement with the EU (with a spread of 4.6% to 7.8%), which would correspond to a loss of GDP £ 1,800 per person. The bilateral agreement with the EU could be followed by one of the following three scenarios: Swiss, Turkish, or Canadian.

Switzerland, which is a member of the EFTA and Schengen area, but not a member of the EEA, regulates its economic relations with the European Union on the basis of a free trade agreement for goods (not for services, which is from the point of view of the UK where services make up almost 80% of the economy) essential) and many other bilateral conventions that allow it access to the single market in certain areas. Overall, it is a comprehensive set of more than 120 bilateral agreements, making this model the most developed bilateral relationship with the EU at all.

The arrangement provides Switzerland with a significant degree of flexibility and freedom, basically choosing only those areas of common interest on which it wants to participate, and deciding on what European legislation it voluntarily implements. However, this *à la carte* approach is redeemed by a more modest approach to the EU internal market. Switzerland is completely outside the EU's decision-making system and, unlike the EEA members, it does not have the status of an observer in the relevant European agencies or committees. Similarly to EEA members, Switzerland contributes to EU cohesion policy and the initiatives in which it participates (in 2011, its contribution to the EU budget was 53 pounds per capita, which is 70% less than in the UK) and the EU concluded a Free Movement Agreement however (in 2014, a referendum voted in favor of a constitutional amendment introducing annual quotas for non-Swiss citizens and favoring Swiss citizens in the labor market, which is in direct contradiction to this Treaty). In this context, it is also interesting to note that negotiations between the EU and Switzerland on an institutional framework agreement were launched in 2014, as the management of a large number of separate agreements, often with contradictions and requiring frequent updating (unlike the EEA Agreement) bilateral agreements with Switzerland are becoming increasingly complex. Under this model, the UK would negotiate participation in the customs union with the EU, just as Turkey did in 1995 (the agreement entered into force on 1 January 1996), removing customs duties and establishing a common customs tariff vis-à-vis non-member countries.

Following Turkey, with which the EU officially launched membership negotiations in 2005, would impose customs restrictions on the island kingdom in a number of areas and to a large extent limited access to the internal market. The customs union with Turkey applies only to industrial products and processed agricultural products. The United Kingdom would have to apply a common EU customs tariff in trade relations with third countries, comply with EU provisions on technical barriers to trade and goods regulation, and adopt rules on competition and state aid. At the same time, the UK would escape, for example, from the common agricultural policy, fisheries policy, social and labor law regulation and could conclude service agreements independently of the EU. It would also not have to contribute to the EU budget (on the contrary, Turkey is a beneficiary country receiving EU funding). Here, too, it is worth noting the fact that the customs union with the EU has recently been a widely discussed issue in Turkey. Indeed, the Turkish government considers it to be disadvantageous, it has been trying to revise it for a long time and its modernization is currently being prepared.

Canadian model envisages the option that the UK would conclude a free trade agreement with the EU after Brexit. The FTA is the lowest degree of economic integration that differs from the customs union by only abolishing customs duties between the countries or entities concerned and not imposing the same customs duties on imports of goods from the rest of the world.

In the past, the EU has already concluded several of these agreements (e. g. with Mexico, Egypt, South Africa or Lebanon) distinguishing themselves from different levels of access to the EU internal market. The most comprehensive in this respect is the newly negotiated Comprehensive Economic and Trade Agreement (CETA) between the EU and Canada, which will be used here as an illustrative example and whose long-term negotiation has been formally closed in September 2014 (the its ratification, which is expected in early 2017). The negotiated agreement removes the vast majority (about 98%) of customs and tariff barriers between the EU and Canada. However, the tariff elimination regime is not complete - it excludes sensitive agricultural products such as dairy products or poultry meat. In addition, tariff quotas also limit market access in sensitive agricultural sectors. Not all customs duties will be eliminated on the date of entry into force of the agreement - for example, a transitional period of up to seven years will apply to car exports. Exceptions also concern access to the market for services, particularly in sensitive areas of public services and technical infrastructure.

If Britain goes the same way as Canada, given the absence of a customs union, British companies exporting goods to the EU will face considerable administrative burdens. Despite CETA, a large number of non-tariff barriers to trade remained between the UK and Canada. British exporters would also have to adapt to EU standards and technical requirements for products, while the possibility of Britain's influence on the decision-making process in their creation would be zero. On the contrary, this alternative dispenses with the need to contribute to the EU budget and to participate in common policies.

### **2.3. World Trade Organization membership**

However, following its possible withdrawal from the EU, the UK may also choose a scenario where its relationship with the EU will be based on membership of the World Trade Organization (WTO). For example, Brazil and Russia are trading with the EU on this principle. Under the rules, WTO members must not discriminate against their trading partners in any way. To this end, the so-called "most-favored-nation" regime is used within the WTO - a mutual commitment by States to grant equal treatment to like products originating in the territory of other WTO members. Thus, if a country grants special benefits to someone, such as a lower rate of duty for certain products, these benefits (with some exceptions) must be granted to all other WTO members. Thus, British exports to the EU and WTO member countries would be subject to the most-favored-nation regime of the respective countries. The country would be fully free from the obligations of access to the EU single market for this model; it could make sovereign decisions about its trade agreements, not participate in common policies, or contribute financially to the running of the EU. At the same time, it would, of course, lose any opportunity to influence EU decision-making processes. However, leaving trade relations with the EU only a standard WTO member would bring significant tariff increases and exports of goods to the EU would be significantly more expensive for UK business than any other option. It is also highly likely that British producers would enforce the introduction of customs duties on goods imported

from both the EU and other countries, which would result in an increase in prices for final consumers. The UK Treasury study cites that the long-term economic damage suffered under this scenario would be the most sensible of all model situations. The British economy would be worse off by around 7.5% compared to staying in the EU at the 15-year horizon, and the loss of GDP would be £ 2,100 per person.

**Table 1: Impact of Brexit on the United Kingdom through channels and over time (Difference in real GDP relative to the UK staying in the EU)**

	Scenarios	GDP in % pts.
New term: 2020		-3,3
Long term: 2030	Central	-5,1
	Optimistic	-2,7
	Pessimistic	-7,7

### 3. Impacts of Brexit on Slovakia

Great Britain is the seventh most important trading partner of the Slovak Republic. Last year 5.5% of Slovakia's exports leads to this country. Our export exceeds the import by more than 2.7 bil. €, which is the second largest trade balance surplus in Slovakia. Weakening of the pound against the euro exports will be more expensive and, on the other hand, a cheaper import from the UK. Of our most prominent business partners have the strongest economic ties with Britain Germany, Poland, France and the Netherlands. Great Britain is the second biggest export market for our automakers and every seventh car made in Slovakia is heading for the English market. Another important export item is electronics, especially televisions. Cars as well as electronics belong to products responsive to price changes. Pound depreciation will reduce attractiveness and the availability of our products to British consumers. At the same time they are products consumer spending, purchases whose consumers put aside first, or otherwise, demand these goods are significantly pro-cyclical. According to IMF Brexit will hit the most financial sector and industrial production with high added value. The most pharmaceutical, aerospace and automotive sectors, i. e. branched industries with the EU countries.

The slowdown in the British economy will have a direct impact on our exporters. However, our economy will have a more pronounced effect secondary to the slowdown our main business partners. The impact of an increase in uncertainty will also be important weakening the confidence of both investors and consumers, especially in Britain but also in other countries EU. Strengthening the euro against the pound and the currencies of neighboring countries will exacerbate the price competitiveness of Slovak exporters. We do not consider our scenarios a change in the monetary policy of the BoE and the ECB, massive labor market movements in the UK or changes in EU budgetary policies.

**Table 2: Illustrative impact of Brexit on the Slovak economy (rise/fall in %)**

Year	Domestic demand	Export goods and services	GDP	HICP	Employment
2019	-0,38	-0,76	-0,31	0,44	-5,6
2020	-0,43	-0,81	-0,34	0,43	-4,8

Hard Brexit would mean the introduction of tariffs, quotas and other trade restrictions that businesses can mainly in the manufacturing sector, to bring prices up to shortages in supply of goods and imported raw materials. Firms will be forced to ensure adequate stockpiles essential elements of the production cycle, with the (short-term) need for additional capital and distort cash flow. The introduction of customs controls immediately after brexite would be for The company transporting goods represented a disruption to the flow of transport, time and financial losses until they are set to new modalities. This is especially true for short-life products. The transition from the single market to WTO rules also means non-tariff constraints that will also complicate provision of services (banking, IT, etc.).

In the area of investment, Brexit will bring threats and opportunities. As the UK will cease to be common rules for investment incentives, it can lure prospective investments from our region. On the second on the other hand, a number of foreign companies are considering or plans to move its headquarters from the UK to continental Europe, or to open branches inside the single market there. Slower job creation is also expected due to reduced economic growth. In 2017, the NBS estimated the GDP growth of the Slovak Republic at 3.3% and the creation of approximately 80,000 new ones. However, according to NBS analysts, leaving the EU from the EU could do so forecasts and to cut production by 5 300 jobs during this period. For the UK with Influence Brexit estimates a long-term slowdown in GDP growth, with an impact on rising unemployment. At the same time, the expected changes in the British migration policy presuppose a return of some citizens Slovakia working in the UK, which is associated with a possible sudden increase in unemployment in the SR. The situation on the other it will also bring opportunities to gain professional workforce to the jobs that it currently has Slovakia cannot fill. The success of using this opportunity will depend on whether employers' unions and professional organizations<sup>3</sup> manage to attract enough enthusiasm offer for Slovaks and Slovaks considering returning to their homeland and avoiding them to a great extent forced and unpopular search for missing experts in third countries (Balkans, India, Vietnam, China, Central Asia, Middle East, etc.)

A more significant impact will be seen in the programming period of 2021-2027, when the UK's withdrawal from the EU will be reflected in a reduction in the average GDP per capita in the EU, which may change the inclusion of less developed and transitional or more developed regions. It is precisely because of Brexit that there will be more transfers between these groups. Upgrading to a higher group means less of a cohesion policy budget for a given region. In the case of Slovakia, the transfer of western Slovakia from less developed regions to transition regions could occur.

Brexit means leaving a Member State to promote modernization and progressive economic reform. This can reduce the innovation potential of the EU as a whole. Leaving the EU will be for the UK the end of access for scientific and innovation institutions to funds, contacts and so on EU databases. In the case of the no-deal scenario, an impact on the transport sector can also be expected. The interest of both sides is however, to ensure its continuity. Among other impacts, the possibility of using the services of the London banks is at risk, as The UK economy is long-term and strongly linked to EU financial markets. London for years was the financial center of Europe, which housed several major investment banks, which serve the entire continent and sometimes adjacent regions. Currently up to 50 banks and others financial institutions (such as insurance companies) has already moved or is considering moving employees from London to other financial centers (especially Frankfurt and Paris,

respectively Luxembourg, Dublin and London) Amsterdam). In addition to traditional areas of the economy, the effects of Brexit will also be reflected in other dynamics developing areas such as virtual water, carbon footprint and ETS, or taxation e-commerce, cryptocurrency and so on.

#### **4. Conclusion**

Positioning outside the mainstream of integration would also limit British access to wider global markets. After leaving the EU, the country could no longer benefit from free trade zones that operate between the EU and third countries. Although these zones cannot match the EU internal market in terms of both breadth and depth, they are still among the most developed in the world. Thus, the UK would have to negotiate a large number of agreements with a large number of states (which in itself would be a very complex, challenging and protracted process accompanied by a long period of economic uncertainty), with its bargaining position much weaker than today, when it is a key part of the bloc 28 states. Finally, it should be stressed once again that there is huge uncertainty about the potential development of relations between the UK and the EU. It is not known what form the Brexit relationship will have, on what basis they will stand, how long it takes to build (re), and whether the possibilities of these model situations will be transferable to VB conditions. Thus, although extensive discussions are ongoing on the various possible scenarios among experts, everything is taking place at the level of speculation and hypothesis.

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## Cognitive age and its relevance to targeting seniors

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**Abstract:** The core of the presented paper is the exploration of age perception in elderly population and how it relates to targeting seniors. We analyse the impact of self-perceived age on attitudes towards new brands or information seeking, and the consequences for segmentation and targeting strategies. Self-perceived, or cognitive age, was found to be a potentially valuable variable for segmentation, targeting and creative decisions, when used in conjunction with chronological age, because it gives a more precise, richer understanding of older adult audiences. Empirical research among seniors was conducted on a sample of 486 respondents aged between 60-89 years. Two methods of self-perceived cognitive age were applied. The first was the method of age identification with the single-item age in targeting seniors effectively, taking into account the specifics of elderly people and avoiding some of the stereotypes.

**Keywords:** cognitive age, age identity, age-decade scale, seniors.

**JEL classification:** M 30

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### 1. Introduction

The constantly rising size of the age segment 60+ forces the companies to investigate the self concepts of the older consumers. Research studies demonstrated that stereotypes of older people in media or in society are not always identical by the perception of themselves hold by older people. Many seniors „think young“ and expect to be treated in this way. People (especially with subsequent age) perceive themselves to be younger (or older) than is their chronological age and this „self-perceived“ or „cognitive age“ can influence their behaviour (Barak & Schiffman, 1980). Marketing and advertising researchers investigate „self-perceived age“ with the aim to improve the understanding of older consumers, to identify how they see themselves and to adapt accordingly their targeting strategies.

The concept of cognitive or self-perceived age was found in sociological research. In 1956 Blau investigated age identification, asking older people whether they identify themselves as middle-aged or as old. Various other studies of seniors examining this concept used terms such as „subjective age“ (Markides & Boldt, 1983), „perceived age“ (Linn & Hunter, 1979) or „age identification“ (Guptill, 1969; George et al., 1980; Baum & Russel, 1983). The term „cognitive age“ was used in the marketing literature by Barak & Schiffman (1980), Barak & Gould (1985) and Barak (1987). The concept of cognitive age can be applied to people of any age, because even young and middle-aged adults could

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have their cognitive age different from their chronological age (Guptill, 1969). However, most frequently is the cognitive age explored among seniors.

## **2. The concept of cognitive age**

One of the most frequently used variable in marketing and consumer behaviour research is chronological age. It is easily measured and is an objective and universal variable, that is used frequently. Chronological age indicates the point at which a person can drive or drink alcohol, or receive a state pension. Chronological age is the most commonly used variable to describe the ageing process. Although chronological age has important influence on consumer behaviour, it has also its limitations. These limitations lead to the broadening of the concept of age. The idea that a person is as young (or as old) as it feels, is useful in understanding the behaviour of older people. For this reason, cognitive - or self-perceived - age rather than chronological age directly influences people's attitudes and behaviour and is used in consumer behaviour research of seniors (Barak & Schiffman, 1980; Barak, 1987). In sociology is the cognitive age defined as „an age perceived by a person self and considered as an element of self-concept“ (Barak & Gould, 1985). It is a theoretical variable; and as such, it is most easily defined by specifying its relationships with other variables.

The proportion of older people in the population who feel younger than their chronological age, is estimated in various sociological studies about 50-75 per cent. It is documented that about half of seniors over 60 feel 10-15 years younger (Barak, 1987). The cognitive age of people in their 50s and 60s is consistent with the lives they are leading. However, in the situation of a dramatic life change / life event, such as retirement, age-related physical illness or loss of a spouse, people are forced to re-examine their self-concepts and may shift to older cognitive ages. People who feel old, evaluate their life situations as unfavourable and have lower self-esteem. Cognitive age is also significantly correlated with some variables which have significant impact on the standard of living, such as disposable income or education.

Several studies demonstrate that a relatively high number of seniors feel middle-aged. It is an important knowledge in developing marketing and advertising strategies. Campaigns targeting seniors aged 60+ should portray them with other family members, in active way, and to avoid to picture them as sick, poor and powerless. Barak & Gould (1985) found in their research that older people perceived by themselves to be cognitively young, were less traditional, less old-fashioned and have had a higher self-confidence.

## **3. Goals and Methods**

The goal of our paper is to explain the adoption of cognitive age in marketing strategies; and to demonstrate the importance of cognitive age measures in targeting seniors with marketing and advertising campaigns. We reveal the influence of cognitive age on attitudes and behaviour, which is relevant for marketing communication and investigate the impact of self-perceived age on behaviour toward new brand trial and information seeking among elderly.

The research sample focused on people interviewed in Clubs of seniors in urban areas of Slovakia. Personal interviews were conducted with 486 adults aged 60+. The sample consisted from people aged between 60-89 years, with an average age of 72 years. We divided the respondents into three age groups: 60-69 years (36.7%), 70-79 years (42.6 %) and 80-89 years (20.7%).

To identify the cognitive age, we used two methods. The first and oldest method is age identity identification, indicating the age category (young, middle-aged, old) in which seniors perceive themselves to be, and is used most frequently in gerontology studies. The cognitive age is expressed by a single-item measure as a response to the question „which of the following adjectives best describes you“. Adjectives used include either 5-categories scale (young, middle-aged, elderly, old, very old), or 3-categories scale (Linn & Hunter, 1979; Markides & Boldt, 1983).

The basis of the second method was the acknowledgment of the ageing as a multidimensional process, comprising biological, psychological and sociological dimensions. In this sense the cognitive age is expressed by different dimensions of aging by asking people: how old they think they look (biological dimension), how old they feel (psychological and biological dimensions), and how old they think their behaviour and interests are (social dimension). The original definition of cognitive age comes from Kastenbaum, who asked respondents how old they felt in terms of interests, things which they do, looks and feelings (Kastenbaum et al., 1972). In marketing was the term cognitive age used first by Barak & Schiffman (1980), who revised Kastenbaum’s method from 1972 into a decade matching format (Barak & Schiffman, 1980; Barak & Gould, 1985; Barak, 1987). In our research both two methods of cognitive age were applied. The first was the method of age identification with its single-item categorical measure. We asked respondents, which of three adjectives – „young, middle-aged, old“ best described them. The second method used was the age decade scale, consisting of four dimensions „feel age, look age, interests age and do age“.

#### 4. Results and Discussion

Analysis of the single-item cognitive age measure is based on a simple frequency tabulation (Table 1). The results of single-item measure indicate that nearly half of the sample respondents perceive themselves as being „middle-aged“, whereas slightly less than a quarter of the sample feel „old“ and one in three feel “young”. Comparison of chronological age and single-item measure suggested that respondent aged 60-69 years feel themselves „young“ and all those aged over 80 years feel themselves to be „old“.

**Table 1: Results of single-item measure**

Single-item measure	% (Resp.)
Feel “young / younger”	30.8 (150)
Feel “middle-aged”	45.4 (221)
Feel “old”	23.8 (115)

Source: own calculation

The method of „age decade scales“ (Table 2) contains nine interval scales. On the age decade scale respondents have to indicate their average feel, look, do, and interests ages. They respond to the statements: “Most of the time, I feel like I am in my ...”; “Most of the time, I look like I am in my ...”; “My interests are those of a person in his/her ...”; “I do the things, which a person does in his / her ...”. The results are then compared to chronological age. We found that „look age“ proved to be closest to chronological age than any other of the three other dimensions.

**Table 2: Results of age decade scales**

Age	Feel age	Look age	Interests age	Do age*
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	% (Resp.)	% (Resp.)	% (Resp.)	% (Resp.)
Teens	0	0	0	0
20s	0	0	0	0
30s	4.4 (2)	1.5 (1)	10.4 (5)	4.4 (3)
40s	16.1 (8)	8.8 (6)	23.5 (12)	11.8 (7)
50s	29.5 (16)	25.1 (16)	26.4 (15)	27.9 (16)
60s	26.5 (15)	36.7 (24)	20.5 (11)	32.4 (18)
70s	14.7 (8)	17.6 (12)	10.3 (5)	13.2 (8)
80s	8.8 (5)	10.3 (7)	8.8 (4)	10.3 (6)
90s	0	0	0	0
Cognitive age (years)	54	66	52	58

Source: own calculation

**Table 3: Correlations between chronological age and the age decade scales**

	Age decade scales			
	Feel age	Look age	Interests age	Do age
Correlation coefficient	0.71	0.89	0.74	0.80

Significant at  $p < 0.05$

Source: own calculation

Cognitive age delivers useful information for marketers. It gives a more precise understanding of the attitudes and values of older consumers, which have an impact on consumer behaviour. Older people, who are cognitively young are not very different from chronologically middle-aged and younger consumers. They usually lead active lives and purchase the same (or very similar) goods and services (Moschis & Mathur, 2006). Seniors who are cognitively young do not necessary require any special targeting. In contrast, seniors who are cognitively old, are suitable targets for goods and services which help them to make the life easier and to see the future in less negative perspective. Knowledge of cognitive age helps in creative execution of advertising based on a clearer understanding of the self-concepts of older target segments. It means, it may help advertisers to avoid some stereotypes that could be rejected by seniors, or that could offend cognitively young seniors. In creating the advertisements it is to be remembered that the average look age of 60+ people is about 8-10 years younger than chronological age, and that the average interests age is about 10-15 years younger.

In our research we found the highest coincidence in look dimension (0.89) between chronological age and cognitive age (Table 3). Higher differences have been identified in dimensions feel-age and interests-age.

A traditional assumption is that younger age groups are more likely to switch brands and that older consumers are more brand loyal and thus difficult to persuade to buy a new brand or product. Hence, in terms of cognitive age we might expect that cognitively younger consumers will be more willing to try new brands or to be brand-switchers. Correlation between “feeling young” and new brand trial

(Table 4) is relatively high (0,76) and even in the group feeling “middle-aged” the value of correlation coefficient is only slightly below 0,7 (0,65).

Advertising targeted at cognitively young seniors may promote trying new products, since we found these people to be open towards new brand trial. Trying something new either for comparison or for variety does not appeal to the cognitively old. They exhibit behaviour with a high level of risk aversion. Respondents who felt younger, expressed more willingness to try new brands and seek information and were less likely to display cautiousness in buying. Thus, the level of innovativeness is not influenced by chronological age, but rather by cognitive age.

**Table 4: Correlations between single-item measures and behavioural measures**

Single-item measure	Correlation coefficients (%)	
	New brand trial	Information seeking
Feel „young“	0.76	0.86
Feel „middle-aged“	0.65	0.73
Feel „old“	0.39	0.52

Significant at  $p < 0.05$ ; 3-point scale, where 1=less likely to try new brand and seek information; 2=likely to try new brand and seek information; 3=very much likely to try new brands and seek new information

Source: own calculation

The knowledge of cognitive age (in addition to chronological age) is useful also for the choice of media channels, which are most efficient in influencing this segment. People who are cognitively young, are easier to reach, because they are more likely to seek new information, to watch advertisements and to read the product labels. The media that reach chronologically middle-aged and younger target segments may be also effective for the seniors who feel cognitively young. On the other hand, the cognitively old seniors are harder to reach. To pursue the cognitively old people to buy a new product / new brand, requires from the marketers to use convincing methods, such as free samples or in-store sampling, to encourage trial purchase. It is recommended to stimulate word-of-mouth, since cognitively old seniors believe more to this form than to printed advertisements.

While seniors react negatively to the stereotypical image portraying them being sick, poor and frail, they also do not want advertisements that deny evidence of ageing. Seniors patronize ads that show people living a full and active life. It is recommended not to use in targeting senior market age-related labels, such as “third age” or “elderly”, as these are perceived negatively. Instead, it is recommended to use labels “60+” and generally “senior” (particularly for those 65+). Marketers can even evoke a younger cognitive age in consumers through enhanced marketing communication. However, the willingness of seniors to try new things is not only a function of feeling younger, but it may also be a function of income or education. People with higher income tend to feel younger and to be more open than those with less money.

Cognitive age is a useful concept in targeting seniors. Advertisers can employ it to achieve more effective creative content and more efficient media selection. Cognitive age is not a substitute for chronological age, but it can enhance the understanding of a large and diverse segment of senior consumers.

## 5. Conclusion

The main finding from exploring the age perception is that the majority of older people do not identify with the age category „old“, but prefer to consider themselves to be „middle aged“. Our research, which has applied two methods of cognitive age identification to measure the self-perceived age of older people, documented that significant differences exist between cognitive age and chronological age and that the look age dimension exhibits the highest correlation with the actual age in comparison with other dimensions of self-perceived age. The results demonstrate that the vast majority of seniors feel „middle aged“ or „young“ and are not ready to admit they feel „old“. We have also been able to build on the literature through indication of the cognitive age relation to new brand trial. Our results suggest that seniors who perceive themselves as “younger” are more ready to trial new brand or to switch to another brand. This suggests that even those seniors who feel “middle-aged” in terms of cognitive age, still constitute a worthwhile segment of the senior market for marketers to pursue. Thus, seniors are an important market for business to address, and marketers need to recognize that additional segmentation variables, such as cognitive age are useful to understand this market. As people age they do not necessarily become less interested in consumption and it would be a mistake to ignore such a big market.

Cognitive age is useful concept for companies as a supplement to chronological age. It enables a deeper insight into the multidimensional segment of seniors and helps to understand the self-concepts, attitudes and behaviour of older people.

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## SME's Involvement in Eco-Innovations: An Empirical Study from Slovak SME's

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**Abstract:** Eco-innovation and green technologies are key to Europe's future and they are at the heart of the EU policies. To step towards the sustainable economic growth, there is a need for much more eco-innovations to appear in SMEs. The aim of the paper is to present the results of empirical research aimed at SME's involvement in eco-innovation activities in Slovakia and to compare them with those of EU 28 average. The stress will be given to 5 eco-innovation activities contributing deeply to the circular economy. Based on the research results formulated are the implications for SMEs managers and policy makers in Slovakia concerned with the SME's involvement in eco-innovation.

**Keywords:** Eco-innovation, small and medium enterprises, Slovak Republic.

**JEL classification:** O31

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### 1. Introduction

Europe's economic growth over many decades has been fueled by the intensive use of resources. However, today it faces multiple challenges of stimulating the growth needed to provide jobs and well-being to its citizens, while ensuring that this growth is economically and ecologically sustainable.

The Eco-Innovation Action Plan launched by the European Commission in December 2011, is a significant step forward for eco-innovation moving the EU beyond green technologies and fostering a comprehensive range of eco-innovative processes, products and services. The European Union "Green Action Plan for SMEs" introduced in 2014 brings together two important priorities for the European economy: supporting SMEs and promoting resource efficiency. The European Commission set the overall goal of "enabling SMEs to turn environmental challenges into business opportunities" (Green Action Plan for SMEs, 2014). To step towards the sustainable economic growth, there is a need for much more eco-innovations to appear in SMEs.

### 2. Theoretical background

The inclusion of environmental aspects into the discussion of innovation leads to the comparably new area of environmental, green or eco-innovation. Schiederling et al. (2012) found that the first expression – environmental innovation – was favoured in the 1990s while the latter two notions were increasingly used within the last 5 years. Furthermore, the authors compared different scientific definitions that were suggested as a terminological basis for research area. In the following, several definitions are briefly summarized to illustrate the terminological variety.

Fussler and James (1996) define eco-innovation as "new products and processes which provide customer and business value but significantly decrease environmental impacts". Hillebrand and Driessen (2002) state that green innovation "does not have to be developed with the goal of

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reducing the environmental burden” but it “does however, yield significant environmental benefits”. Arundel and Kemp (2009) emphasize that eco-innovation “can be motivated by economic or environmental considerations”.

Rennings (2000) perceives eco-innovations as new approaches that help reduce environmental burdens or achieve ecological targets and differentiate between technological, organizational, social and institutional ones. Including the economic perspective, Ekins (2010) considers as eco-innovation as being both economically and environmentally beneficial. These examples illustrate the broad variety of notations.

Concentrating on most of these aspects and with reference to the OECD general definition of innovation, the expert group of the Eco-Innovation Observatory defines eco-innovation as the following: Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organizational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and decreases the release of harmful substances across the whole life-cycle (EIO, 2011).

Eco-innovations are the key to Europe’s future and they stay at the heart of the European Union’s policies. The EU’s economic prosperity and well being is linked to its natural environment and the global demand for resource-efficient solutions will be a source of jobs and economic growth in the years to come. Eco-innovation is therefore a powerful instrument that combines reduced negative impact on environment with a positive impact on the economy and society (Ekins, 2010).

### **3. The aim and methodology of the research**

The aim of the paper is to assess the SME’s involvement in eco-innovation activities in Slovakia, to identify the actual and perceived issues (problems, difficulties) encountered with regard to undertaking eco-innovation by Slovak SMEs and to formulate the main implications for SMEs managers and policy makers concerned with the SME’s involvement in eco-innovations.

To fulfil the aim of the paper we formulated 2 research questions:

1. What is the proportion of Slovak SMEs undertaking eco-innovation activities and the kind of activities being taken during the years 2014-2016 in comparison to EU28 average?
2. What are the actual and perceived issues (problems, difficulties) that Slovak SMEs have encountered with regard to undertaking eco-innovation?

Our study is qualitative and descriptive in nature and most of the data is based on secondary sources. The data used to assess the SME’s involvement in eco-innovation activities come from the survey commissioned by the EC in the year 2016 with the aim to explore SMEs activities in relation to the circular economy (including the eco-innovation activities) in the period of years 2014-2016. The survey was carried out in 28 EU member states. As to the Slovakia 383 SMEs operating in manufacturing, services and in the industry sector were interviewed. Our analysis is aimed at 5 eco-innovation activities: a) waste recycling and minimizing waste generation; b) re-planned energy usage to minimize consumption; c) redesigning products and services to minimize the use of materials or use recycled materials; d) changes to the use of water to minimize consumption and to maximize water re-usage; e) usage of renewable energy sources.

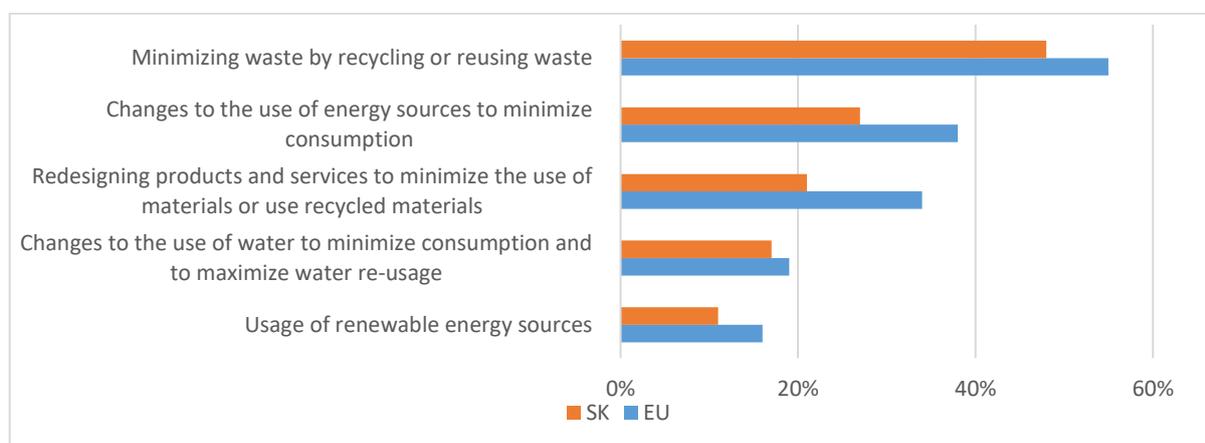
Other sources of secondary data used in our paper represent the official documents and reports of the European Commission and the Ministry of Environment of the SR. The methods used in the paper are the method of casual analysis, deduction, abstraction, comparison as well as the synthesis.

## 4. Results and discussion

### 4.1. Results

Research results confirm that during the analyzed 3 years (2014-2016) nearly 62% of Slovak SMEs have undertaken any of the 5 eco-activities, while 38% have not. That means, that 4 of 10 SMEs didn't undertaken any of the analyzed eco-innovation activities during the years 2014-2016. In comparison to the EU average, almost 73% of surveyed SMEs in Europe have undertaken any of eco-innovation activity (that is 11% more than in Slovakia).

Figure 1 presents the share of SMEs that have implemented any of eco-innovation activities (or are under way to implement them) in comparison to EU28 average during the years 2014-2016 (own processing).



**Figure 1: Implementation of selected eco-innovation activities in SMEs**

To compare the general position of Slovakia to other EU countries resulting from these results, Slovakia is on 22th place, what is not very favorable result. The situation calls for more detailed analysis (Table 1).

What concerns the *waste recycling and minimizing waste generation*, almost a half (48%) of SMEs in Slovakia minimized within the period of previous three years or has been currently minimizing waste by its recycling or by limiting its generation. Almost 46% of SMEs do not perform these activities and are not going to do them in the future. In average the EU SMEs have performed these activities to a greater extent than in Slovakia (55% of SMEs in EU).

As resulting from the survey, 27% of SMEs in Slovakia implemented *changes to the use of energy sources to minimize consumption* within the previous three years or has been implementing them currently. More than a half of SMEs (59%) do not implement these changes and are not going to implement them in the future. In comparison to EU average, SMEs in European countries implement changes to the use of energy sources to minimize consumption to a greater extend (it is 11% more than in Slovakia).

Only 2 of 10 SMEs in Slovakia (21%) *re-designed their products or services to minimize material inputs and to use recycled materials more efficiently* in the period of analyzed three years, or has been re-designing them currently. Two thirds (67%) of SMEs in Slovakia do not re-design their products and services to minimize material inputs and to use recycled materials more efficiently and are not going to do that. Within EU countries, more than one third (34%) of SMEs have undertaken these activity (it is of 13% more than in Slovakia).

Almost 17% of SMEs in Slovakia (19% in EU) implemented *changes to the use of water to minimize consumption and to maximize water re-use* within analyzed three years or has been implementing them currently. Almost three quarters (72%) of SMEs in Slovakia (70% in EU) are not going to implement such changes.

Every tenth SME in Slovakia (11%) used power from *renewable energy sources* upon the results of the survey in the period of analyzed three years, or has been using its currently. Three quarters of SMEs (75%) do not use renewable energy sources and are not going to use them in the future. As compared to EU-28 countries (16%), Slovakia is characteristic with a lower share of SMEs using renewable energy sources.

**Table 1: Share of SMEs that had undertaken any of the following activities during the three years 2014-2016**

	Activities*									
	1		2		3		4		5	
	EU	SK	EU	SK	EU	SK	EU	SK	EU	SK
Yes, activities have been implemented	36	8	24	9	21	7	12	5	10	3
Yes, activities are under way	19	40	14	18	13	14	7	12	6	8
No, but we plan to do so	5	5	12	12	9	9	7	8	13	12
No, and we do not plan to do so	38	46	47	59	53	67	70	72	67	75
Don't know	2	1	3	2	4	3	4	3	4	2

\* Activities description:

- 1: Minimizing waste by recycling or reusing waste
- 2: Re-planned energy usage to minimize consumption
- 3: Redesigning products and services to minimize the use of materials or using recycled materials
- 4: Changes to the use of water to minimize consumption and to maximize water re-usage
- 5: Usage of renewable energy

Amongst SMEs that have undertaken any of the analyzed eco-activities related to the circular economy, just over six in ten say they have encountered with some of the issues (problems, difficulties) (67%). Over one third of SMEs encountered with the problems of complex administrative or legal procedures (45%), while 31% mention the cost of meeting regulations or standards. One third of SMEs have encountered difficulties in accessing finance (33%). At least one in five SMEs has encountered a lack of expertise (18%) or a lack of human resources (21%).

SMEs that had not undertaken any of analyzed activities were asked why they had not done so. Most of SMEs indicated difficulties in accessing finance (22%). Just over 20% of SMEs cite the lack of a clear idea about investment required (17%) or a lack of expertise to implement these activities (13%), while 16% mention the complexity of administrative or legal procedures or cost of meeting regulations or standards.

## 4.2. Discussion

Research results confirm that Slovak SMEs are facing many challenges. As the main problems were indicated the low level of waste recycling and high rate of land-filling, low share of SMEs using renewable energy sources and implementing changes to the use of energy sources as well as the share of SMEs re-designing products or services with the aim to minimize material inputs and to use recycled materials more efficiently. These problems appear to be the same in the whole population of Slovak enterprises.

What concerns the waste recycling and minimizing waste generation the waste management remains a great challenge. Despite of the fact that Slovakia generates comparable amount of waste per capita in comparison to similar economies, the overall situation with the municipal and industrial waste management still needs improvement. The annual generation of waste is below the EU average with 1.17 versus 1.67 ton per capita and 83.22 versus 67.87g/Eur. Eurostat statistics for 2016 stated that up to 65% of municipal waste ended up in Slovakia in the landfills and a rate of recycling of municipal waste was only 23% (EIO, 2018). Several SMEs in Slovakia claim a dedication to responsible waste management. However, most of the SMEs implement only partial measures that save costs, but they are far away from a transition to the circular economy. Multinational companies comply mostly with policies of their parent organizations. As far as Slovak enterprises and start-ups are concerned, it is often a matter of their environmental beliefs.

The waste legislation has been undergoing major changes in Slovakia since the year 2015. One of important actions contributing to improvement in this area is the legal Act on Waste, which entered into force on 1st January 2016. It covers critical aspects of waste management, including operation of the Recycling Fund. By 2030, the municipal waste recycling rate (including the preparation for re-use) has to be increased to 60% and the land-filling rate has to be reduced to less than 25% in Slovakia.

Critical is viewed fact, that only one third of SMEs (27%) have implemented changes to the use of energy sources to minimize consumption. The energy intensity of the economy is still one of the highest in the EU, approximately 80% higher than the EU average. The most significant measure implemented in recent years (2015-2016) is the Energy Efficiency Act, which settles a framework for providing energy efficiency audits and support. The goal is to improve energy efficiency and savings and to reduce consumption. Share of renewable energy is coming closer to 14% target in Slovakia and is mostly covered by Slovakia's traditional clean energy sector based on large hydropower plants and supplemented by a small hydro power, biomass and solar. The energy policy of the SR sets main objectives and priorities of the energy sector by 2035 (EIO, 2018). The main aim is to ensure stability of energy supply, efficient use of energy sources to minimize consumption and environmental protection.

According to the results, there is also a need for better water management in the country (namely in terms of infrastructure projects), better approaches in agricultural use and landscape management (drainage and nitrates pollution) and more advanced treatment of urban waste water. Positively are viewed several initiatives from business and non-governmental organizations that focus on promoting better water management in all business sector.

Several instruments to promote eco-innovation in business practices and sustainable production and consumption are well established in Slovakia. These instruments are the ones promoted at the EU level. These include the EU Eco-Management and Audit Scheme (EMAS) and the Environmental

Management System under ISO 14001 (EMS), environmental labelling of products implemented through the European and national eco-labelling schemes, EU Eco-label and Environmentally Friendly Products. However, the results show, that the share of SMEs re-designing their products and services to minimize material inputs and to use recycled materials more efficiently is still in Slovakia low. Thought the SMEs have indicated as the main issue they encountered with regard to undertaking eco-innovation activities the financial reasons (cost of meeting regulations and standards and accessing finance), in many cases it is a matter of their environmental beliefs.

Thought Slovakia has implemented most of EU environmental and eco-innovation policies and measures into the SR legal system (EC, 2017; Ministerstvo životného prostredia SR, 2014; Ministerstvo životného prostredia SR, 2019), the progress is slow. The need for a new, modern environmental strategy which reflects the actual situation and urgent problems of the whole system of environment has resulted at the new “Envirostrategy 2030 for Slovakia” (Strategic Environmental Policy of Slovakia up to 2030), which was approved in February 2019. The strategy identifies basic system problems, sets 2030 targets, proposes framework measures to improve the current situation and contains also basic performance indicators for verification of achieved results. The strategy underlines the role of eco-innovations.

## 5. Conclusion

It can be stated that eco-innovations in SME’s sector in Slovakia face many challenges. Based on the above analysis, the main implications for policy makers and SMEs managers in Slovakia may be formulated:

- Policy makers in Slovakia should place greater emphasis on sufficient approximation of EU directions to the legal system of the SR. They have to create effective policy programs and measures supporting SME’s involvement in eco-innovation and helping to establish a stable platform for SME’s eco-innovation.
- Public funding and expenditure in the eco-research and development is still low in Slovakia. (Government environmental and energy R&D appropriations and outlays as a share of GDP were 0.01% in 2016 compared to 0.04% as the EU average.) To tackle with this issue the state, public as well as private institutions, have to be more involved in the financial support.
- Many SMEs indicated difficulties to tackle with administrative and legal procedures as well as with the lack of expertise. This underlines the importance to improve ways and opportunities for SME’s participation in knowledge transfer and in learning about best practices. The importance of skills and knowledge as well as building public-private and B2B partnerships for supporting eco-innovation in SME’s sector is evident.
- It is necessary to raise SME’s awareness about eco-innovations and green business as business with a high added value in relation to the corporate responsibility concept as well as to raise SME’s awareness about the necessity to implement stable and continual environmental business strategy.
- In cooperation with central government authorities and professional organizations, academia and non-governmental organizations, the more efficient system of formal and informal environmental education and training for sustainable development has to be implemented.

Eco-innovations call attention to the positive contribution that the SMEs can make to sustainable development and a competitive economy. Hence, eco-innovation is understood as the combined improvement of economic and environmental performance of society.

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## The Convergence Process of Slovakia as Member Country of the EU and the Eurozone

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**Abstract:** Economic convergence involves the convergence of macroeconomic variables that directly determine the exchange rate. This type of convergence is called nominal convergence. It is the convergence of macroeconomic indicators, which are defined in the Maastricht Treaty (Maastricht criteria). Slovakia met these criteria in 2008 and became a member of the EMU (Eurozone) on 1 January 2009, started using the euro as the new official currency. On the other side, real convergence means bringing the economic and social conditions of countries within the EU closer, in order to ensure that less developed economies will converge towards more developed. After joining the EU, a level of Slovakia's economic performance was slightly above 50 % of the EU average. Currently, it has been stagnating at around 77 % of the EU average for several years, despite faster growth than in the EU. The aim of the paper is to justify why there was a „break” in the convergence and the related „stuck” or slowdown in the convergence of Slovakia to the EU average.

**Keywords:** economic convergence, nominal convergence, real convergence

**JEL classification:** F15, F36, F45

**Grant affiliation:** Project VEGA No. 1/0246/16 Efficiency of fiscal and monetary policy during the economic cycle.

### 1. Introduction

Slovakia joined the European Union 15 years ago, on 1 May 2004, together with nine other countries. This created the conditions for increasing the performance of the Slovak economy and meeting the so-called convergence criteria known as the Maastricht nominal convergence criteria. GDP per capita increased by 142 % until 2017 and was the highest of all V4 countries.

When entering the EU, Slovakia's GDP was 57 % of the EU average, reaching 77 % of the EU average in 2017. In the Czech Republic it was 89 % of the EU average. The convergence process has been successful thanks to the high rates of economic growth in both countries.

**Table 1: Real GDP growth in % before Slovakia joins the Eurozone**

	2005	2006	2007	2008
<b>Slovakia</b>	6.8	8.5	10.8	5.6
<b>Czech Republic</b>	6.5	6.9	5.6	2.7
<b>EU15</b>	1.8	3.0	2.7	0.5

Source: Eurostat, 2019

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The average annual real GDP growth in Slovakia and the Czech Republic was about three times higher than in the EU15 as can be seen in Table 1. Such results were achieved thanks to favourable macroeconomic development in the EU as well as a significant inflow of foreign direct investment into the Slovak Republic and the Czech Republic.

## **2. Nominal convergence criteria as a prerequisite for joining the euro area**

Slovakia, after joining the EU, had the ambition to join the monetary union and use the common European currency - euro. The adoption of the EU Member State into the Eurozone assumes meeting the nominal convergence criteria, known as the Maastricht convergence criteria. These criteria included the conditions of fiscal discipline, price stability and the convergence of long-term interest rates to those prevailing in the euro area and the stabilization of exchange rates against the euro. Growth in the performance of the Slovak economy after joining the EU created the conditions for meeting the Maastricht criteria by the end of 2008. On 1 January 2009, Slovakia joined the European Monetary Union (EMU) and started using the euro currency.

The long-term goal of the EU is catching-up of the less developed economies towards the EU average. This is ensured by real convergence, which monitors several indicators of competitiveness and the economic performance growth. This includes, for example, GDP per capita in purchasing power parity, the development of employment and unemployment as well as the structure of unemployment and dynamics of the labour market, labour productivity growth, price level development (inflation rate), development of the state budget deficit and public debt.

An important prerequisite for real convergence is the investment rate, i.e. the share of gross fixed capital formation to GDP. This indicator shows what proportion of GDP is spent by the country on investment. A higher level of investment is an important prerequisite for catching up with more advanced economies. Since the accession of the Slovak Republic to the EU, the long-term investment rate in the Slovak Republic is higher than in the EU15.

## **3. Real convergence of the Slovak economy**

Real convergence is also influenced by the openness of the economy measured as the share of exports respectively or imports in GDP, the development of the balance of payments and the inflow of foreign direct investment, cyclical development and the possibility of its synchronization within the EU and the euro area.

Many authors point out that the real GDP indicator does not reflect the comprehensive performance of the economy and its competitiveness, as it does not take into account the impact of exchange relations on performance achieved. The real gross domestic income has better explanatory power. It captures the ratio of the export price index and the import price index and reflects the country's success in trading with foreign countries, allowing more objective measurement of convergence between more advanced and less developed countries.

Terms of trade are defined as the ratio between the index of export prices and the index of import prices and also reflect the success and effectiveness of the country's economy in trading with foreign countries. Short-term fluctuations in the import and export prices are related to external shocks, particularly to fluctuations in the prices of the most important raw materials and energy sources. Such price fluctuations represent an exogenous variable for countries dependent on their imports. In

this context, it was created a comprehensive indicator including the impact of terms of trade known as the real gross domestic income. The benefits or losses from changes in terms of trade in a certain period (year) are calculated when we deduct balance of foreign trade expressed in prices of previous year from the balance of foreign trade of goods and services. The obtained data shows how much smaller (greater) the foreign trade deficit (surplus) would be, if the import and export prices were the same. That is if the prices of imports and exports in the current year would not change compared to the previous year (Lisý et al., 2016).

The real gross domestic income indicator removes some of the shortcomings of the GDP indicator, which includes only the volume of final goods and services produced and not the efficiency or inefficiency of implementation in foreign markets. Real gross domestic income reflects the benefit and effectiveness of adoption and valuation of goods and services on foreign markets and the efficiency of goods and services exchanges through the import and export. Therefore, GDP does not express comprehensively the success and effectiveness of the functioning of the economy.

According to Burian, economic convergence between developed and less developed EU and euro area countries can also be compared using nominal gross national income (GNI), converted into purchasing power parity per capita (Burian, 2019).

The importance of this indicator is also pointed out in Council Regulation (EC, EURATOM) No. 1287/2003 of 15 July 2003 on the harmonization of gross national income at market prices (GNI Regulation) according to which gross national income data can be compared only if they comply with the relevant ESA95 definitions and accounting rules. The sources and methods used to compile gross national income (GNI) must be reliable.

GNI represents total primary income receivable by resident institutional units. GNI equals GDP minus primary income payable by resident units to non-resident units plus primary income receivable by resident units from the rest of the world. Primary income payable to abroad includes compensation (wages) of employees, property income and taxes on production and imports paid to EU institutions. On the other side, primary income receivable from abroad includes compensation of employees, property income and subsidies from EU institutions.

Economic convergence is often compared as GDP per capita to the EU average. For Slovakia, as a small open economy with a high level of foreign direct investment, it is important to use gross national income (GNI) for the evaluation of the convergence process. This is important because the large amount of income goes abroad. The gross national income can more accurately quantify the value of national income available and used in Slovakia for domestic economic activity.

After almost five years of membership in the EU, Slovakia became a member of the euro area on 1 January 2009. It was a year when the consequences of the economic and financial crisis began to manifest fully with the impact on real convergence.

The consequences of the crisis in 2009 were reflected in a sharp drop in GDP by -5.4 % as can be seen in Table 2. Convergence stopped this year. In 2009, GDP per capita declined, but continued to grow in the coming years. The Slovak Republic most closely approached the EU level in the area of labour productivity. In 2010, it reached 82.2 % of the EU27 average, driven by the GDP growth and falling

unemployment. The process of convergence of the Slovak economy also contributed to reducing the gap with the Czech economy.

**Table 2: Development of real GDP and unemployment in Slovakia in 2009-2018**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Real GDP (%)</b>	-5.4	5.0	2.8	1.7	1.5	2.8	4.2	3.1	3.2	4.1
<b>Unemployment rate (%)</b>	12.1	14.5	13.7	14.0	14.2	13.2	11.5	9.7	8.1	6.5

Source: Eurostat, 2019

In the period before the crisis, economic growth was achieved by very strong productivity growth, with relatively weaker employment growth. In the post-crisis period, especially after 2012, economic growth was associated with relatively high employment growth and a gradual decline in unemployment.

It can be concluded that Slovakia, even after joining the euro area and after the 2009 crisis, was converging to the EU average, although slower than it was before the crisis. Results after 2010 show, that relatively stable economic growth rates have been achieved in a situation of appropriate macroeconomic balance, declining public finance deficit (as can be seen in Table 3), positive development in foreign trade exchange as well as labour market development.

**Table 3: General public deficit (% of GDP)**

	2012	2013	2014	2015	2016	2017	2018
<b>Euro area (EA19)</b>	-3.7	-3.1	-2.5	-2.0	-1.6	-1.0	-0.5
<b>Slovakia</b>	-4.3	-2.7	-2.7	-2.6	-2.2	-0.8	-0.7

Source: Eurostat, 2019

The macroeconomic situation, together with the development of the inflation rate, as can be seen in Table 4, created conditions for the sustainable economic growth. The Slovak economy also converged to the EU average in the years 2010-2018, albeit at a slower pace than it was before 2009. After 2015 the gap between the growth rate of the Slovak economy and the growth rate of the EU economy significantly decreased.

**Table 4: Inflation rate (%)**

	2012	2013	2014	2015	2016	2017	2018
<b>Euro area (EA19)</b>	2.5	1.3	0.4	0.2	0.2	1.5	1.8
<b>Slovakia</b>	3.7	1.5	-0.1	-0.3	-0.5	1.4	2.5

Source: Eurostat, 2019

Slovakia's GDP per capita for the period 2014-2017 stagnates at 77 % of the EU average as can be seen in Table 5. Slovakia is approaching the EU, albeit at a slower pace.

**Table 5: Slovak GDP per capita convergence to the EU28 and euro area average (%)**

	2004	2007	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>GDP per capita</b> (as % EU28)	57	67	71	75	74	76	76	77	77	77	77
<b>GDP per capita</b> (as % EA19)	52	61	65	69	69	71	72	72	72	72	72

Source: Habrman, 2018; Eurostat, 2019

Some economists justify this situation by the fact that nominal incomes are growing in Slovakia at the same rate as in the EU, but inflation is lower. For the evaluation of the convergence success is important the gross national income indicator (GNI) expressed in purchasing power parity per capita. This is significant because, due to high foreign direct investment, national income is not generated in the domestic economy, but goes abroad in the form of profits and dividends of non-residents.

**Table 6: GNI per capita, PPP (current international \$)\***

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>SK</b>	26554	27554	29800	31483	32781	32108	33214	34721	35262	36434	37399	38398
<b>EU</b>	14580	16160	18300	20540	23250	22900	24400	24900	26140	27640	28560	28950

\*GNI per capita, PPP is gross national income converted to international dollars using purchasing power parity rates.

Source: World Bank, 2019.

These data show that GNI has almost doubled since the accession of Slovakia to the EU until 2015 as can be seen in Table 6. The GNI per capita indicator more accurately reflects the level of national income available for domestic economic activity as well as for comparison with EU countries. With regard to the macroeconomic results achieved, the Slovak economy is seen as an example of a successful convergence process resulting in the adoption of the euro and the entry into the Schengen area.

#### 4. Conclusion

Based on the previously achieved macroeconomic results, it can be concluded that there are prerequisites for a further successful continuation of the real convergence of the Slovak economy to the EU average (Morvay et al., 2017), although the convergence process stagnated after 2014, which was related to the slowdown in inflows of foreign direct investment, with the unprecedented labour market developments (a drop in the unemployment below 6 %), and the rapid rise in the labour costs. In Slovakia, the growth rate of investment has also decreased, which may slow down the pace of economic growth in the coming years.

The nature of real convergence is that an economy with a lower level of performance has greater opportunities to achieve higher rates of economic growth than more efficient economies. However, real convergence should not be a purposeless process. In the catch-up process, the aim is to achieve comparable parameters in the socio-economic outcomes that determine the standard of living of the population. A more objective and comprehensive indicator is the real gross national income (GNI), which takes into account the impact of terms of trade on the success of the country in foreign trade.

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## Changes in the Age Structure of the Czech Republic Population in years 2000 - 2017 and Their Influence on Major Economic Factors of the State

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**Abstract:** The article deals with development of changes in the age structure of the Czech Republic population within the time series 2001 – 2017, and possible impact of such changes on elementary economic factors, namely the gross domestic product and the unemployment rate. The time series of the age structure of the population were processed into three elementary age categories, whilst the target group to study the impacts on economic factors was the group of inhabitants in the age of 15 – 64 years. There were resolved linear regression and correlation analyses between the variables of the gross domestic product and the unemployment rate, and further a multiple correlation analysis showing the strong linear dependence of GDP on interaction of the variables of 'number of persons from 15 to 64' and 'unemployment' in this age category, based on the calculated correlation coefficient  $r = 0.798$ .

**Keywords:** age structure, gross domestic product, unemployment rate, linear regression and correlation analysis

**JEL classification:** C0, E0, J1

### 1. Introduction

One of the crucial problems of the contemporary economy is the development in production factors market. Especially the labour market shows considerable disproportion between the firms' demand and the real labour supply on the part of households. Current unemployment rate varies below 3%; in April 2019 it went even lower to 2.1% according to the Czech Statistical Bureau (ČSÚ 2019-3). By that it got deep below the natural unemployment rate, as defined by the macroeconomic theory (Fuchs 2001, Brožová 2003). Thus, the labour market faces a long-lasting insufficient supply which has become the limiting factor of an economic growth on the macroeconomic level. However, the deficient labour supply markedly limits the production potential of the firms on the microeconomic level as well. Extremely afflicted is the service sector, labour from which drains to the industrial sphere with higher wages on long-term basis. In the first quarter of 2019 an average wage in the manufacturing industry was CZK 31,796 whilst in the sphere of accommodation and boarding services it was only CZK 19,121 (ČSÚ 2019-4).

One of low accessible sources of the labour production factors become the older people by the edge of productive age (15 – 64 years). While by lower border of this strip there is a legislative restriction and the supply is influenced also by prolonged period of studies and delayed enter into the labour market, in the senior-aged class (65 plus) the situation is absolutely reversed. Proportion of this age group in a total number of inhabitants has been continually increasing during the last 30 years (ČSÚ

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2019-2). Economic activity of the age group is increasing accordingly. This article deals with evaluation of influence of the age structure changes on the gross domestic product and the unemployment rate in the Czech Republic in 2001 – 2017.

## 2. Methodology

In the article there were used the demographic data of the Czech Statistical Bureau from the time series 2001 – 2017 (ČSÚ 2019-2) and unemployment rate has been processed on the basis of ČSÚ data for the population age structure 15 – 64, purged from seasonal influences (ČSÚ 2019-1). There were also used the data from KurzyCz server (KurzyCz 2019). The data were processed by linear regression and correlation analyses, along with application of multiple linear regression and correlation methods, for which purpose the statistical software Statgraphics 4.0 was used. Evaluation of the correlation coefficients has been based on the scale by Hindls et al. (2006).

## 3. Results

The population age structure changed distinctively in the Czech Republic along the monitored period. The changes in the age structure of the workpeople has been caused by demographical factors as well as by prolonging time for preparation to exercise the future profession. The population age structure in the last 57 years is put down in the Figure 1.

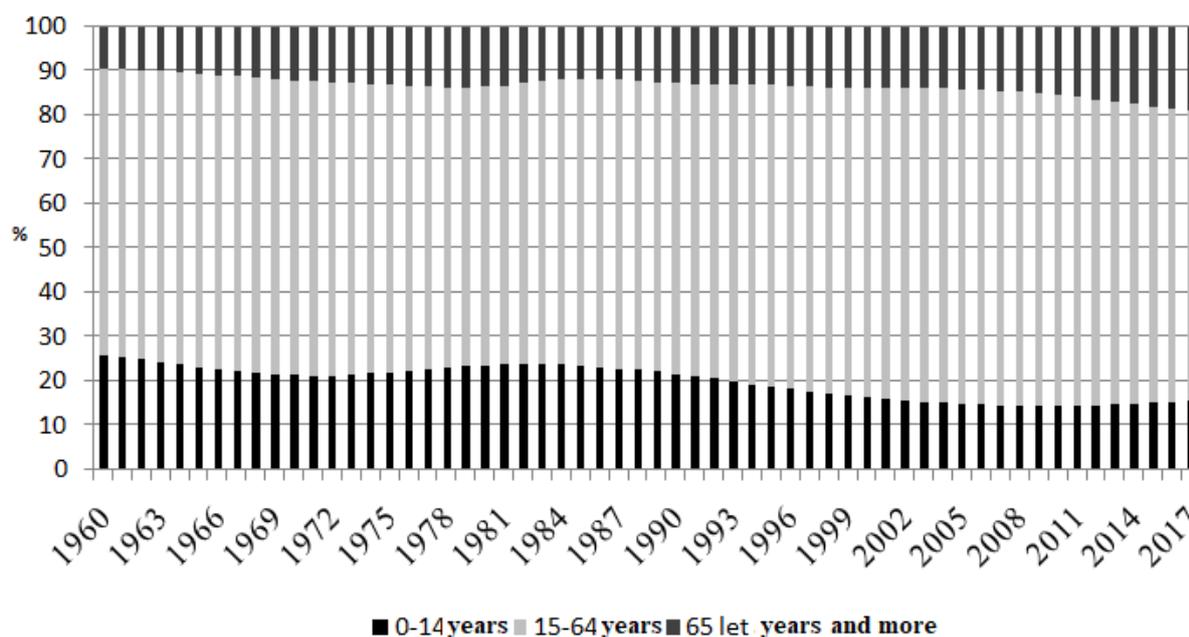


Figure 1: Population Age Structure Development in the Czech Republic in 1960 – 2017

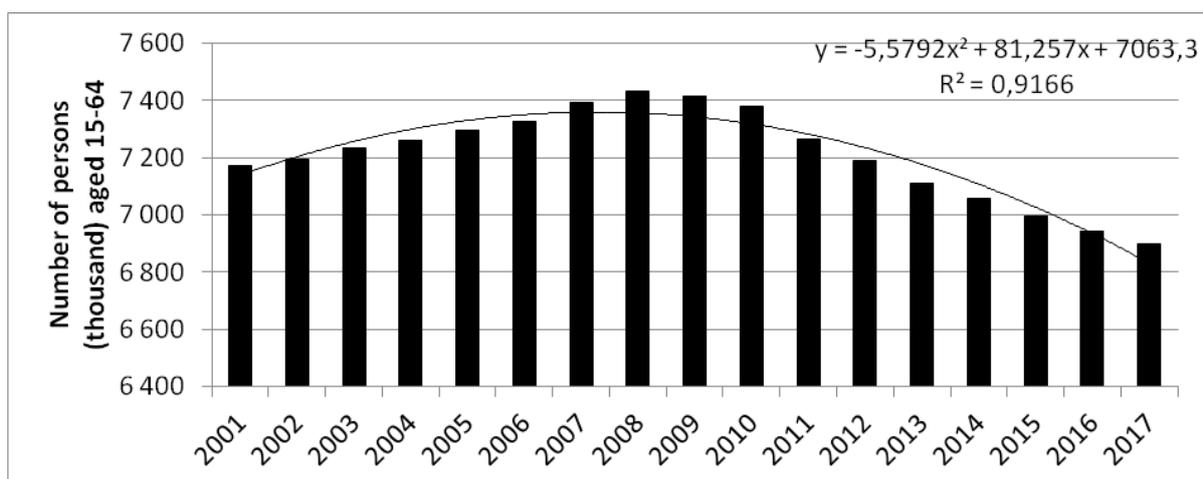
During the decrease in working population aged up to 40 years, the increase in development rate was shared especially by workpeople aged 40-54 years. Number of the employed over 60 has distinctively increased. Economical activity of the seniors was caused – besides demand growth – by increasing retirement age. Such factors are projected in increasing unemployment rate. Common unemployment rate (according to ILO definition) of the population aged 15-64 (proportion of the

unemployed to the labour power) was decreasing in dependence on decreasing number of the unemployed.

Proportion of the unemployed aged 15-64 years reached 3.2% by 31/12/2018, according to the Ministry of Labour and Social Affairs of the Czech Republic, which was less than 4.3% in the same period of 2017 (MPSV 2019).

At the end of 2017 the Czech Republic population reached 10.610 millions inhabitants, which was 403.6 thousands more, compared to 2001. According to the demographical statistic of the Czech Statistical Bureau (ČSÚ 2019-2) it will be the group of senior-aged individuals that will change the most as per the age. Proportion of the seniors in the population was 13.9% in 2001, and until 2017 it increased to 19.2%. People in productive age represented 70.2% of population in 2001; since 2009 proportion of them went continuously down, and in 2017 it made mere 65.0%. An average age of the Czech Republic population was 39.0 years in 2001; until 2017 it reached 42.2 years. In 2001 there were 87 seniors to a hundred children up to fifteen years of age; in 2017 this number increased to 122 seniors. The population aging trend is supposed to continue in following decades as well. From 2001 to 2017 the population aging was in progress. Number of inhabitants over 65 distinctively increased, as well as a proportion of the seniors in the entire population. Changes in the age structure of population projected themselves in a decrease in the number and proportion of the young job applicants, along with an increase in proportion of the older aged group. In 2017 there came to an increase in the average age of job applicants to 43.1 years.

Unemployment rate compared to economically active inhabitants of the Czech Republic showed considerably above-average value in younger age categories in respect of a low number of economically active young people. Regarding to a high economic activity of the job applicants from older age categories, the unemployment rate slightly decreased conversely (ČSÚ 2019-2). Actual trend in the population age structure of the inhabitants from 15 to 64 years of age for the last 17 years is graphically depicted in Figure 2.

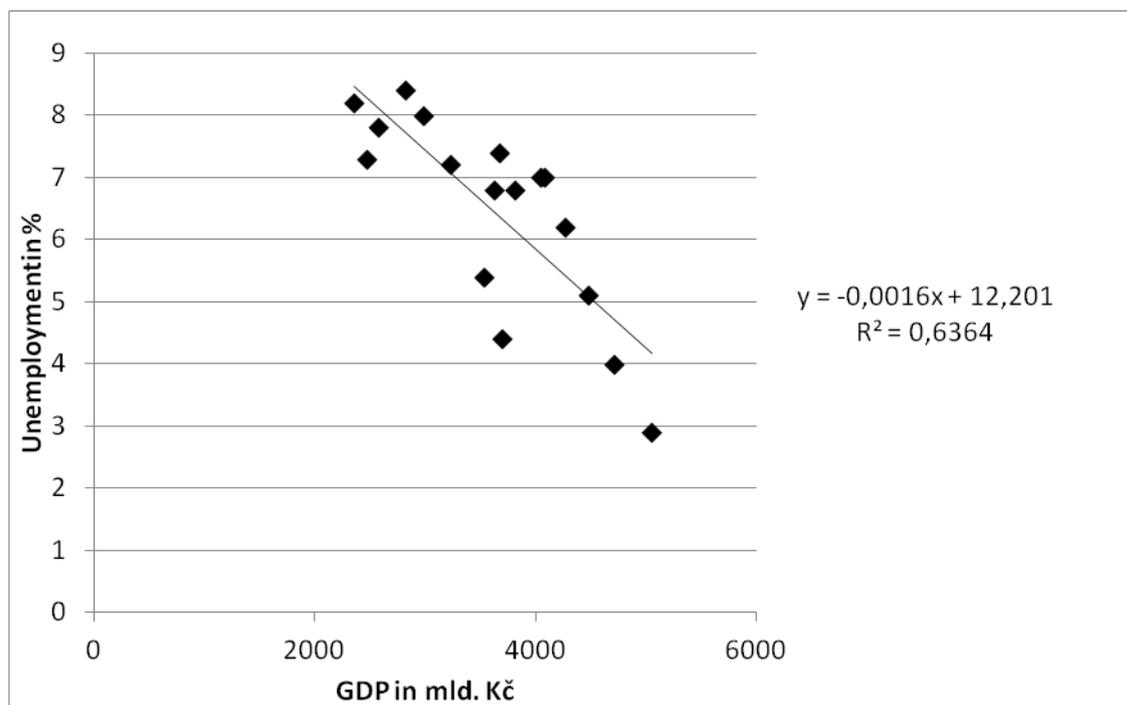


**Figure 2: Trend in Population Age Structure - Age Category 15 - 64**

This trend showing a high reliability ( $R^2 = 0,916$ ) is copied the best by parabola. From 2009 there is a gradual decrease in number of persons aged 15-64, compared to the maximum in 2008 and previous

growing tendency. The decreasing trend in productive part of population is an alarming fact, as the demographical data clearly show decrease in natality and general aging of the Czech Republic population (ČSÚ 2019-5).

Decreasing unemployment in the monitored period depends on GDP development (KurzyCz 2019), where there was found a strong linear dependence between both variables. Correlation coefficient is  $r = 0.797$ , which bears evidence of the very close indirect linear dependence. Figure 3 displays an explicit growth of GDP in the line with an unemployment decrease in the age category 15-64 over the last 17 years.



**Figure 3: GDP Trend along Unemployment Decrease - Age Category 15 – 64 Years**

Interestingly, the decrease in the age structure of the category 15 - 64 has a decreasing trend, similar to the unemployment rate, during the last 17 years (Figure 4), which witnesses a healthy economy. Despite decreasing population's most productive category, the unemployment rate in the same category has also decreasing tendency. Relation between both variables is explained by the high correlation coefficient  $r = 0.657$ .

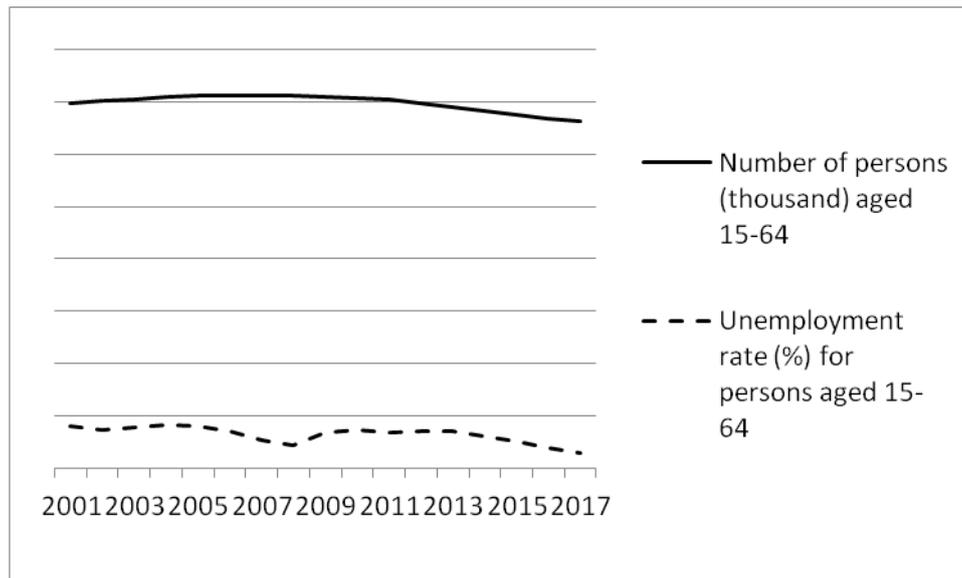


Figure 4: Trend in Number of Persons Aged 15-64 and Unemployment Rate Trend

Entire model of relation between variables is explained by multiple regression and correlation, where GDP strongly depends on interaction of the variables 'number of persons aged 15-64' and 'unemployment' in this age category. There was found very close linear dependence on the multiple correlation coefficient  $r=0.798$  (Figure 5).

Model fitting results for: OLOMOU19.hdp				
Independent variable	coefficient	std. error	t-value	sig.level
CONSTANT	14257.807013	5700.652403	2.5011	0.0254
OLOMOU19.pocetosob	-1.167374	0.822522	-1.4193	0.1777
OLOMOU19.nezamest	-345.40442	85.019148	-4.0627	0.0012
R-SQ. (ADJ.) = 0.6367 SE= 477.921751 MAE= 352.735023 DurWat= 0.396				
Previously: 0.0000 0.000000 0.000000 0.000				
17 observations fitted, forecast(s) computed for 0 missing val. of dep. var.				

Figure 5: Multiple Regression and Correlation Analysis

#### 4. Conclusion

The analysis results in the statement of fact that actual demographic situation does not bring distinct changes in number of inhabitants in the Czech Republic, but an outstanding change in population structure by the age. Proportion of the productive population is permanently decreasing and this trend will probably continue also in following years.

Positive trend of the economy in the monitored period distinctively extended the labour supply. The job market situation showed itself in a dynamic growth of wages. However, the entire employment trend in the next period will meet with its limits. Low employment rate will even slightly decrease, nevertheless, a strong demand for labour power will cause bigger engagement of the employees

from abroad. Decreasing trend in the productive population of the Czech Republic caused by the demographic development, would have even dropped in the following periods.

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## Innovative pedagogics and education for sustainable development in knowledge management of public and private educational

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**Abstract:** The current situation of the world economy, global change, environmental pollution constitutes a permanent pressure on the need for intergenerational thinking. The key players who can provide a change in thinking and attitudes from an early age, are educational institutions. An annual pedagogical experiment took place at selected elementary schools in the Czech Republic, attended by 352 children aged 9. It was not an official project of the Ministry of Education, but an individual decision by school heads to participate in the educational experiment: "Learning and teaching innovations for 21 century" with real application of learning and teaching innovations like Crossover Learning, Gamification, Learning by doing Science, Learning in Life, Changemaking, Incidental Learning, and Forest Pedagogics. The four spheres came out of the analysis of the collected data: Social competencies, Motivation and self esteem, Physical skills and Sustainable development insight. This paper suggest curriculum integration by means of School education Programs and near close cooperation with Environmental or Forest Centres.

**Keywords:** Forest Pedagogics, School Educational Program, Sustainable Development.

**JEL classification:)** A21, A30, I20, Q01, Q51, Q56

### 1. Introduction

The aim of this paper is to present and propose a real application of learning and teaching innovations in education for sustainable development by means of Forest Pedagogics. This paper summarizes the conclusions of the pedagogical experiment, proposes the possibility of inclusion of learning and teaching innovations into the school curriculum and provides a basis for knowledge management of educational institutions in the private and public sector. This goal will be achieved by means of working with knowledge. Knowledge is nowadays considered to be one of the factors of production. Educational institutions effectively connect those who know with those who need to know.

Climate change, economic crisis, poverty and for inadequate health care could be considered as key issues and challenges of our time. During the 21st century, the fertility of cultivable soils and the unavailability of energy resources are expected to be exhausted (Meadows, 1995). A 2013 study at the University of Melbourne concluded that sustainability should be defined by the lens of four interrelated areas: ecology, economy, politics and culture (Magree, 2013). In 2014, the United Nations partially reformulated sustainable development as "economic, ecological and social" or "ecology, economy and justice".

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Education should be considered an essential tool for achieving sustainability. Changing attitudes and systematic action from an early age should be provided by educational institutions public and private ones. The role of educational institutions is to encourage young people to think about real problems to develop and implement solutions. Humanity possesses scientific knowledge and technologies from different disciplines, so it is no longer possible to present all the yet known knowledge to children during the school education. It is crucial to teach them how to search, analyze, understand and evaluate information. And knowledge management is based on the information.

## 2. Results and discussion

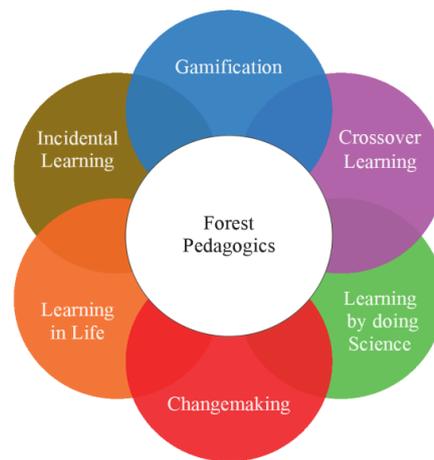
Pedagogical experiment "Learning and teaching innovations for 21 century" in which young people come into contact with the world in a new, profound and entertaining way was held for one school year, from 1.9. to 30.6. 2018. It was attended by 352 children aged 9. The impulse for this experiment were forest nursery schools with their style of teaching, especially the outcomes of children in the form of acquired competences. Thanks to the possibility to modify the school curriculum and to profile the school in a certain direction, this experiment was offered to elementary school headmasters. This experiment eventually participated 26 primary schools in the Czech Republic, of which twelve in Prague, four in Brno, two in Ostrava, one in Písek, two in Třebíč, two in Pilsen, one in Vlašim, one in Kutná Hora, one in Třeboň.

The aim of this experiment was to systematically lead children to the values of sustainable development while working with modern learning and teaching methods and approaches. Children were continually observed and interviewed for their own feelings of progress at the end of the school year, as well as their teacher and parents did.

The following methods and approaches based on the book by Sharples, M. et al. (2015) have been used:

- Changemaking
- Learning in Life
- Crossover learning
- Incidental learning
- Context-based learning
- Learning by doing science
- Gamification

Above mentioned learning and teaching innovations transfer "learning" back to its original roots: to discover, to try, to feel, to taste, to connect, to play, to dare to do something. Common platform, which includes all of the above methods and approaches (what can be seen in Figure 1) while also targeting education for sustainable development, is Forest Pedagogics.



**Figure 1: Forest Pedagogics incorporates and combines modern learning and teaching innovations for 21st century based on the book by Sharples (2015) (own processing, 2019).**

The term "Forest Pedagogics" was for the first time used in 1986 by Bolay & Reichle. Janu & Kvapil (2010) define Forest Pedagogics as one of the forestry methods and environmental education, dealing with giving true information about the forest and managing it in an entertaining way by means of forest educator. Brtnová Čepičková (2005) considers Forest Pedagogics to be a theory of teaching based on the active creation of the pupil's knowledge. Jirásek (2004) defines experiential pedagogy as an educational process that works with inducing, analyzing and reflecting experience events in order to gain experience transferable to the next life. Cornell (1991, 1998) qualifies Forest Pedagogics as a form of public relations and social phenomenon that includes environmental education, institutions, associations and forest schools. Slee (2001) regards forest a natural framework, essential for human existence and development.

Problem of many environmental education programs is that they show nature from an adult perspective, that is for child perception too abstract in the early years. Forest Pedagogics connects constructivism and experiential pedagogy. It is expected that these methods and practices will entertain, cultivate and develop children by pleasant and amusing way. The basic principle of Forest Pedagogics is the perception of nature by all your senses. Forest Pedagogics emphasizes intergenerational thinking and links aspects of ecology, economy and social issues. Forest Pedagogics is based on holistic teaching according to Pestalozzi's concept of "learning with head, heart and hand". Forest Pedagogics represents a modern trend in education-oriented nature and outdoor education.

Four spheres came out from the analysis of the collected data:

1. Social competencies
2. Motivation and self esteem
3. Physical skills
4. Sustainable development insight

Results of the pedagogics attempt at the experimental schools can be seen in Tables 1-4:

**Table 1: Social competencies summary**

- Children have become a member of a team, realized that working in a team can achieve more and make new friendships easier.
- They are more willing to lend teaching aids to one another.
- When they are given a higher degree of autonomy and responsibility, they better follow the rules.
- Their independence from teachers has been strengthened.
- They understand that every person has his own space.
- They have learned to take a healthy and safe risk.
- They have become more creative and have approached the solution of given tasks in a creative way.

**Table 2: Motivation and self esteem summary**

- Teaching was transferred from the classroom to other places (forest, museum, cathedral, nature) and took place in the context of the surrounding and situation, children had new experiences.
- They have a desire to discover and learn new things, sometimes even less pleasant.
- They initiated learning and other activities.
- They were able to concentrate and keep their attention up to 50% longer than in the classroom.
- They looked forward to school and shared their experiences and knowledge with parents and other children.

**Table 3: Physical skills summary**

- Children who stay in nature have improved immunity and overall physical resistance.
- There has been a significant improvement in motoric skills.
- Improved terrain orientation and spatial imagination.
- The physical exerciseability has increased.

**Table 4: Education for sustainable development summary**

- Children understand what is sustainability and intergenerational thinking.
- They developed the principles of sustainable behavior and changed the view of nature.
- They understand the interplay and dependence of man and nature.
- They enjoyed the nature and the outdoors.
- Pupils were observing the surroundings, asking questions and looking for answers.

If ecological perception, intergenerational thinking and co-responsibility are to be built in children, it is necessary to start this education from an early age of 2-3 years and to continue to form it systematically. A highly effective way to do this is by repeating visits to the forest with a pleasant experience. Occasional and incidental forest trips or short lectures have practically no educational effect. Fundamental conceptual solution should be implemented. School Education Program may represent a way how to fully integrate forest education in practice. In fact, the content of education can be arranged in the school curriculum in coherent parts of the curriculum, such as modules or blocks. Parallel support for curriculum education could be provided in cooperation with a local environmental center. An eco-center worker could regularly, once a week organize educational events for schools in nature and accompany the classroom to nature. Its activity should be financially covered by school funding and also by participation from pupils' parents - for example, 2 Euro for each child for a two-hour training block in nature. With this intention it is possible to ask for cooperation health insurance companies. They contribute to vaccination and swimming, it would be also appropriate to donate the educational and curative stay of children in nature. In the event of absence of an ecological center within the reach of the school, there is the possibility of Forest Centers establishment that provides accommodation facility in nature, which should be equipped with rooms, workshop and kitchen. The Forest Centre can take the form of a log cabin, cottage or even a mobile house with a capacity of 20-30 people. The centre should be designed for year-round operation with wide range of educational activities for children and their families.

Curriculum integration can be realized by *Educational Programs Frameworks*, which are basic educational documents in Czech Republic. They form framework for school educational programs at pre-school, primary, basic art, language and secondary education. The Educational Program Framework is a broad document that allows to schools to create its own educational programs and also allows to each individual teacher to enter the education process. Based on the above - individual schools can develop their implementation program documents so-called „*School Education Programs*“.

„*Class Education Program*“ has been used at nursery schools and it is open and can be modified during the school year. The main objective of this program is to develop children in all areas of education so that, at the end of pre-school education, they are unique and relatively independent personalities capable of meeting the demands of life that are commonly placed on them.

The „*School Education Program*“ is a compulsory document for primary and secondary schools on which a particular school works. It is created by a school headmaster and teaching staff. This makes it possible to profile their school in a particular direction and to distinguish it from other schools. The content of the lessons can be modified and organized by means of teaching modules. Its purpose is to define the concept and vision of the school, to describe the conditions of the educational environment, to characterize educational content and to define the rights and duties of individual teachers.

### 3. Conclusion

This paper gives an overview about annual pedagogical experiment at selected primary schools in Czech Republic. It was attended by 352 children aged 9. These children underwent a pedagogical attempt to find out how the behavior, motivation and social skills of these children will change with the current intention to awaken the principle of intergenerational thinking that is so necessary for sustainable development. Using methods of Forest Pedagogics there have been many improvements and aspects in the areas such as social competencies, motivation and self esteem, physical skills and sustainable development insight what can be seen in Figure 2. Independence, responsibility, teamwork, creativity, better orientation in nature, intergenerational thinking, interplay and dependence of man over nature have been strengthened in children.



**Figure 2: Aspects of Forest Pedagogics in educational process (own processing, 2019).**

Pedagogical experiment "Learning and teaching innovations for 21 century" supported one of the basic principles of knowledge management, namely that knowledge must be applied to bring something new and beneficial. The results of the experiment are clearly focused and concentrated, and provide a basis for planning knowledge exploitation strategies for the Knowledge Manager (educational institution, or ministry of education). This pedagogical experiment showed specific benefits of regular involvement of Forest Pedagogics methods in the school educational process.

Further longitudinal research is needed to evaluate the impacts on children. The essential idea is to inspire life long learning and education process for sustainable development in knowledge management of educational institutions.

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## THE INFLUENCE OF FISCAL POLICY ON THE ECONOMIC CYCLE

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**Abstract:** Main instruments, influencing the economic cycle and at the same time mitigating its negative consequences, are monetary and fiscal policies. For securing price stability of Slovakia in the long run, crucial will be a responsible fiscal policy and structural policies directed to enhancing labour market and goods and services markets functionality – especially enhancing markets' high rate of competitiveness, elasticity, intelligent way of regulation and low rate of information asymmetries. To assess the macroeconomic impact of government consolidation efforts, fiscal multipliers play a key role in expressing the effects of deliberate fiscal policy on the production of the economy. Knowledge of fiscal multipliers is therefore extremely important in predicting macroeconomic variables at the time of significant discretionary changes in fiscal policy. Fiscal multipliers that express the short-term effect of discrete fiscal policy at the output of the economy play a key role in predicting macroeconomic variables. During the period of pronounced discrete changes in fiscal policy, the effects of multipliers can then significantly affect the consolidation efforts of the government. Underestimating the magnitude and effect of fiscal multipliers may lead to an improper adjustment of the consolidation policy necessary to achieve the selected fiscal targets.

**Keywords:** economic cycle, fiscal policy, fiscal multipliers

**JEL classification:** E 52, E 62

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### 1. Introduction

The beginning of the global financial crisis at the end of 2008 and the resulting macroeconomic effects on many countries of the world, particularly the Eurozone countries, have shown that there is still a need to address the economic cycle, especially its downward phase - the recession. The impact of fiscal policy on economic activity and its effects on the transversal between euro area countries is often debated, this issue being particularly relevant in the current debate on a sound economic policy for the euro area. Given that the Slovak republic is a member of the euro area, it can influence the various phases of the economic cycle and use mainly fiscal policy instruments. The aim of this paper is to analyse Slovakia's possibilities of using the multiplier effects of fiscal policy instruments, especially in the period of recession.

### 2. Macroeconomics consequences of recession and expansion

The economic cycle brings along costs that are particularly manifested in times of recession. If the aggregate demand is declining in the economy, producers respond to this situation by reducing production, limiting investment in production capacities, redundancies or lowering their wages. This

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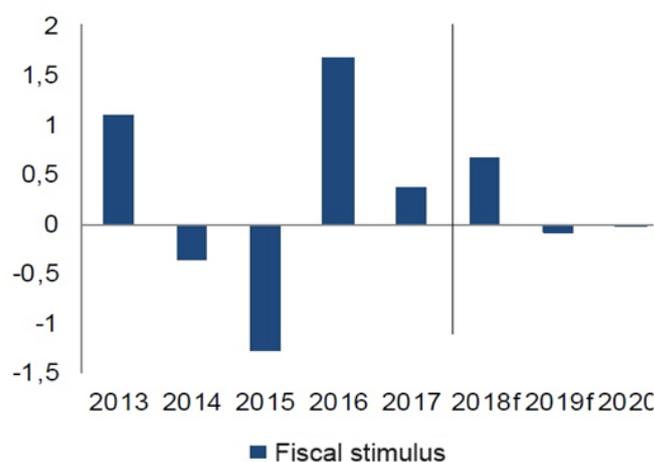
reduces consumption and creates savings. In such a situation, the state's role is to address the unfavorable social situation through transfers in the form of social benefits and unemployment benefits, which, on the other hand, drains resources from the state budget (Liška & al., 2004). At the time of the recession, the state budget is also burdened by increased spending in the form of subsidies and subsidies to strategic enterprises and banks, whose survival the government is interested in. On the other hand, the amount of money that enterprises and households pay to the state in the form of taxes and fees is decreasing. This is mainly due to the shortage of household resources and the failure of many companies in times of economic recession. This brings the state into a situation, where real revenues are much lower than planned, but there is also an increase in the expenditure side. This increases the deficit of the state budget, which can be accompanied by the balance of payments deficit, when we say that there is a double deficit in the economy. The passive balance of payments is mainly due to export restrictions, which are particularly evident in open economies (Frendáková, 2014). During the economic recession, changes in price level developments also occur. At this stage of the economic cycle, the price level may fall, often leading to a deflation in the economy. The recession also shows a deterioration in the level of other indicators, such as working time, wage rates, interest rates, volume of consumer goods sales, stock volume and much more. The recession also has its own benefits, but it is represented to a much lesser extent than the negative. One of them is that it acts as a filter on the market, which leads to the disappearance of the weaker companies that are forced to end their business as a result of the recession. This cleans the corporate sector and forces existing businesses to increase production efficiency (Frendáková, 2014).

It might seem that, unlike the contraction of economic activity, which is costly for society, cyclical expansion is always a definitely positive phenomenon. However, this is not the case, and even in the expansion phase there are some problems that are different from those that are present during the recession. If the economy gets into the upward phase, it is usually accompanied by rising employment, employee wages grow, consumption is growing, interest in consumer or investment loans is growing, which leads to GDP growth. However, as the economy gets into the boom, it is increasingly hard for businesses to find and recruit new workers, who may be in short supply in some types of profession. Companies are then forced to raise the wage offered to these potential employees, with this increase in wages being reflected in increased business costs and thus by the increase in the price level of company products. Costs related to the acquisition of production factors also increase. In other words, the more expansion spreads to its peak, so each additional unit of products and services in the economy is more expensive (Mandel & Tomšík, 2003). At the national economy level, the increasing pressure on the use of available production factors is often reflected in the growth of inflation (cost inflation). Raising the price level results in a devaluation of the money. Negative to the peak of expansion is therefore mainly the rise in price levels. In addition to cost inflation, this development is also due to the fact that inflation expectations are integrated into all the economy's calculations, which de facto generates inflation that would normally not have occurred or may have been mild (O'Sullivan & Sheffrin, 2003). The opposite trend, deflation, may also occur, especially if the growth of aggregate demand is slow and pessimistic expectations prevail. At the time of expansion, the planned amount of income is maintained in the state budget, especially in the form of taxes and fees, and the overall government deficit is low. Nevertheless, many economies will fail to maintain a balanced budget or its active balance. Similarly, economic growth may also result in increased exports, thus improving the balance of payments result (Frendáková, 2014). If inflation were at the target level and the euro area economy would operate at the maximum capacity level, fiscal expansion in countries such as Germany and the Netherlands would result in a tightening of monetary policy in the sense that interest rates

would rise. This would impel private demand and dampen a positive GDP response. The effects of GDP overruns on other euro area regions would be negligible, as the positive commercial effects of the outflow from fiscal expansion would be offset by lower domestic demand due to higher interest rates. However, in the current situation with zero or very low interest rates, fiscal multipliers and the effects of fiscal overruns are more extensive. In line with what is stated in the studies on infrastructure investment, in the case of high public investment efficiency, additional public investment of 1 % of GDP in Germany and the Netherlands over a period of 10 years could increase domestic GDP by 1.1 % in Germany and by 0.9 % in the Netherlands. In the case of the Netherlands, the positive effect on GDP is somewhat lower, because this country is characterized by more openness to trade, which means a greater loss of demand for imports. Over 10 years, real GDP in Germany and the Netherlands will have grown by more than 2 %. Long-term effects on GDP exceed the short-term impact as public investment increases private capital productivity and labor over a longer period of time (the positive supply effect) (European Commission, 2016).

### 3. Fiscal policy in the Slovak Republic and Economic cycle

Following the entry of the Slovak Republic into the euro area and the integration of monetary policy, fiscal policy has become, together with structural policies, the main instrument for balancing the impact of internal and external shocks causing cyclical fluctuations affecting the Slovak economy. The global economic crisis in 2008 - 2009 has led to a sharp deterioration in Slovakia's fiscal position, and therefore extensive fiscal consolidation has to be undertaken. The objective of Slovakia's fiscal policy is to achieve a budgetary position that will create the conditions for the long-term sustainability of public finances and the achievement of a zero deficit in 2020 (Figure 1). In addition to meeting the fiscal rules, it is also a priority to minimize the risks of the negative impact of the consolidation of the general government budget on economic growth. An important impetus for the economy is the use of EU funds. Tax policy, after the first successes recorded in 2013, continues to focus on increasing the success of tax collection and curbing tax evasion. In view of future demographic developments, in addition to improving fiscal discipline, it is necessary to further reform areas sensitive to the aging of the population, in particular the pension system and health care. For this reason, the pension reform was adopted in 2012 and the reform of the armed forces' pensions in 2013, which significantly improves the long-term sustainability of public finances (Ministry of Finance of the Slovak Republic, 2014).



**Figure 1: The contribution of fiscal policy to GDP growth in Slovakia (in %)**

Source: Eurostat, Tatra banka RESEARCH

#### **4. Fiscal multipliers and their effects on Economic cycle**

In the economic literature, we can find several definitions of fiscal multipliers. We can say that this is the ratio of production change ( $\Delta Y$ ) to change of government expenditures, or respectively of income ( $\Delta G$  and  $\Delta T$ ) (Frendáková, 2014). In other words, a fiscal multiplier expresses a change in GDP volume triggered by a change of taxes or public spending by 1 euro. There are several determinants for the number of fiscal multipliers. According to some economists, it is appropriate to break down into two groups of determinants (Batini, Eyrard, Forni & Weber, 2014; Čolláková, Machlica, Melioris, Pécsyová & Šrámková, 2014):

Structural determinants include:

1. Openness of the economy. The more closed the economy, the higher the theoretical value of the multiplier, as the level of government spending cannot be offset by changes in the level of import. The level of multipliers is therefore also related to the import trend.
2. Rigidity of the labor market. Level of union strength is closely related to wage rigidity and low flexibility - rigid wages tend to enhance output response to demand shocks, i.e., increase levels of fiscal multiplier.
3. Size of automatic stabilizers. The more automated stabilizers play a bigger role in the economy, the more they compensate for the size of the initial fiscal shock and thus reduce its effect on output - it reduces the level of the multiplier.
4. Exchange rate regime. By analogy, the more flexible the exchange rate, and thus the more it can compensate for the effects of fiscal shocks on the economy, the lower the impact on output and the lower the multiplier effect.
5. Public debt level, state administration efficiency in tax collection and expenditure management, financial sector development, and so on.

Conjunctural determinants that have a temporary character and indicate the state of the economy can be classified as:

1. State of the economic cycle. Fiscal multipliers tend to be higher in recession than in expansion, because at full capacity, the fiscal stimulus in the form of aggregate demand support by additional government demand pushes private demand and its impact on total output is therefore minimal. Fiscal multipliers are particularly high in financial crises that, among other things, prevent credit-limited households from smoothing consumption.
2. Level of monetary accommodation by fiscal shock. Monetary policy through the change in interest rates can act as a "pillow" and dampen the effects of fiscal shocks, thereby reducing their ultimate effect, and the fiscal multiplier is smaller. However, this monetary policy impact is very limited in the current zero-boundary environment.
3. Marginal propensity to consume, composition of fiscal measures, timeframe for responding to measures taken, etc.

In order to assess the macroeconomic impact of the government's consolidation efforts, fiscal multipliers that express the effects of deliberate fiscal policy on the economy's production play a

significant role. Knowledge of fiscal multipliers is so extremely important in predicting macroeconomic variables at a time of significant discretionary changes in fiscal policy. Blanchard and Leigh (2013) highlighted the markedly underestimated growth forecasts that have just emerged from underdevelopment of fiscal multipliers. Underestimating the macroeconomic effects of consolidation can then also lead to underestimation of the actual consolidation effort necessary to achieve the set budgetary targets. At the same time, the knowledge of the size of the multipliers of the various fiscal policy instruments and their right combination allows for the maximization of the effects on the recovery of public finances with minimal macroeconomic impacts. In the following table 1, we are listing the multipliers - Rule of thumbs for each group of countries. Slovak republic belongs to a group of small and open economies, i.e. the value of the income and income multiplier is relatively low.

**Table 1: Fiscal Multipliers: Rule of thumb**

Countries	spending multiplier	revenue multiplier
large countries	1 -1,5	0,5 – 0,75
medium-sized countries	0,5 - 1	0,25 – 0,5
small and open economy	< 0,5	< 0,25

Source: Ministry of Finance of the Slovak Republic (2012)

According to the IMF, the "rule of thumb" of the short-term fiscal policy effect for different types of countries is characterized by the fact that, for larger economies, the expenditure multiplier is larger than the income multiplier. According to the IMF, the OECD and the European Commission, the impact of income multipliers is greater in the long run. According to the European Commission (2012), although the theoretical models work with the symmetrical effect of the fiscal impulse of consolidation, its real impact may not be symmetrical.

## 5. Conclusion

Fiscal multipliers that express the short-term effect of discrete fiscal policy at the output of the economy play a key role in predicting macroeconomic variables at a time of pronounced discreet changes in fiscal policy. This can then be greatly affected by consolidation efforts themselves, as underestimating the magnitude of fiscal multipliers can lead to underestimation of real consolidation effort, required to achieve the chosen fiscal objectives. Therefore, it is not surprising that much of the economic literature deals with this issue. In my opinion, the size of the fiscal multipliers and their effect on macroeconomic variables is mainly dependent on the structural characteristics of the economy, the monetary regime and the economic cycle. Public finances as well as the entire public sector are also important. In the Slovak Republic, there is a dispute over the size of these fiscal multipliers. Using estimates for countries with given structural characteristics, Vaňko & Nevický (2017) concluded that the fiscal multiplier of Slovakia is currently around 0,7. In my opinion this number seems to be quite disputable. Taking into account the openness of the Slovak economy, low spending levels and public debt, this would indicate a low value for multipliers. At the same time, the tightness of the labour market and the common currency and the absence of own monetary policy would indicate higher levels of multipliers. On the other hand, the expected improvement in cyclical position of the Slovak economy in the future may lead to a gradual decrease in this value. On the basis of data from the Ministry of Finance of the Slovak Republic in 2014, the most significant impact on the Slovak economy

was due to changes in government investment and current government expenditure. In my analysis, it can be concluded what the theory suggest - that tax measures have somewhat less impact on GDP growth than changes in government spending. In terms of tax change structure, indirect taxes have had the smallest impact on GDP growth.

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## What should companies do to be really considered socially responsible?

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**Abstract:** This paper presents a part of conducted research, focused on the topic of corporate social responsibility (commonly abbreviated as CSR). The aim of this paper is to determine whether the level of agreement with selected statements (which were strongly related to the topic CSR) is influenced by gender and also by age. Necessary data for analysis was collected by means of a printed questionnaire. Totally 947 fully completed questionnaires were collected from October until December 2018. Data was analysed using Chi-square test of association and basic method of descriptive statistics (mean), subsequently semantic differential was used in order to show the results in the visual form. The results have shown that the level of agreement is in the majority of analysed statements dependent on respondents' gender, but not on the age. Based on the obtained results, there are proposed some suggestions what companies should do to be really considered socially responsible. The results suggest companies should predominantly (1.) behave fairly towards their employees, (2.) communicate truthfully with customers and last but not least they should (3.) behave ethically when doing business in general.

**Keywords:** CSR, corporate social responsibility, stakeholders, CSR practices

**JEL classification:** M14

### 1. Introduction

Corporate social responsibility (usually abbreviated as CSR) is considered to be a broadly discussed phenomenon these days – Siueia, Wang, & Deladem (2019) point out a growing interest in this topic both in academic and professional fields. According to Beal (2014), CSR is an indisputable part of the today's life and business in the 21<sup>st</sup> century. CSR can be found in the literature by other names, such as "corporate accountability", "corporate ethics" or "corporate stewardship" (Hohnen, 2007).

In general Kotler & Keller (2012) state that companies need to demonstrate their conscience in dealings with stakeholders. Socially responsible companies can be more attractive for stakeholders, i.e. potential customers, employees and investors (Kotler & Keller, 2012). For instance, Grover, Kar & Ilavarasan (2019) focus on the impact of corporate social responsibility on reputation; Tuan, Rajendran, Rowley & Khai (2019) found out the positive link between CSR and customer value co-creation and Arouri, Gomes & Pukthuanthong (2019) claim that CSR is an important determinant impacting mergers and acquisitions.

CSR is usually explained by means of three basic pillars: profit, people and planet. "Profit" must be seen as an obligatory requirement – any company cannot operate without making money for a long time. It is necessary to assess the way how profit is made and also how it is spent. "People" is a social dimension of CSR – it represents how companies develop relationships with stakeholders. "Planet" is a pillar which is connected with environmental issues. (Księżak & Fischbach, 2017) In this sense, the term "triple-bottom-line" is used (e.g. Picha, 2012).

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## 2. Aims and methods

The aim of this paper is to determine whether the level of agreement with selected statements is influenced by gender and also by age. Selected statements which were analysed in this paper are visible in subsequent Tables 1, 2 and 3. The level of agreement was found out through a five-point scale: 1 = a company must do it, 2 = a company should do it, 3 = undecided (neutral opinion), 4 = a company does not maybe have to do it, 5 = a company does not have to do it at all.

This paper presents a part of conducted research, focused on the topic of corporate social responsibility in the Czech Republic. Necessary data for analysis was collected by means of a printed questionnaire. Totally 947 fully completed questionnaires were collected from October until December 2018. The sample consisted of 457 men and 490 women from the Czech Republic and this sample was balanced (it was tested by means of Chi-square goodness of fit test: Chi-square = 1.081, degrees of freedom = 1, p-value = 0.2984). The youngest respondent was 18 years old and the oldest one was 89 years old. For purposes of the subsequent analysis, six age categories were created: up to 25, 26-35, 36-45, 46-55, 56-65 and over 66 years.

Data was analysed using Chi-square test of association and basic method of descriptive statistics (mean), subsequently semantic differential was used in order to show the results graphically.

## 3. Results and discussion

In this section, connections between the level of agreement with selected statements and respondents' gender and age are analysed. Subsequently, data is presented in the visual form, using semantic differential. However, it is useful to calculate means at first. As it is stated above, the level of agreement was found out through a five-point scale: 1 = a company must do it, 2 = a company should do it, 3 = undecided (neutral opinion), 4 = a company does not maybe have to do it, 5 = a company does not have to do it at all and then mean was calculated.

**Table 1: Selected statements**

#	Statement	Mean
1.	A company could behave fairly towards its employees.	1.35
2.	A company could protect the environment.	1.57
3.	A company could communicate truthfully with its customers.	1.51
4.	A company could support the local community (e.g. a city where it operates).	2.47
5.	A company could support projects for disadvantaged groups of people.	2.73
6.	A company could promote equal opportunities.	2.29
7.	A company could support education.	2.02
8.	A company could provide humanitarian aid (in cases of disasters).	2.17
9.	A company could behave ethically when doing business.	1.56
10.	A company could develop advanced modern technologies to help the society.	2.15

Source: Own processing.

As it can be seen from Table 1, respondents are convinced in general that companies must behave fairly towards their employees – in this case, the lowest mean (1.35) was found out. The second lowest mean (1.51) suggests companies should communicate truthfully with their customers. And the third lowest mean (1.56) indicates companies should behave ethically when doing business.

### 3.1. Connection between the level of agreement with selected statements and respondents' gender

In order to find out whether there are connections between the level of agreement with selected statements and respondents' gender, the Chi-square test of association was used. The null hypothesis (Ho) stated gender and level of agreement are not associated. The alternative hypothesis (Ha) stated gender and the level of agreement are associated, i.e. the level of agreement is dependent on respondents' gender.

The detailed results are summarized in Table 2 – it is obvious that the level of agreement is dependent on respondents' gender in the majority of analysed statements (however, there are two exceptions – see Table 2, rows #1 and #7).

**Table 2: Statistic results – (in)dependence between the level of agreement and respondents' gender**

#	Statement	Chi-square statistic	P-value	Interpretation (if level of significance = .05)
1.	A company could behave fairly towards its employees.	4.65	0.325	Ho – unambiguously
2.	A company could protect the environment.	17.44	0.001	Ha
3.	A company could communicate truthfully with its customers.	19.93	0.001	Ha
4.	A company could support the local community (e.g. a city where it operates).	13.69	0.008	Ha
5.	A company could support projects for disadvantaged groups of people.	28.98	0.000	Ha (the exact p-value = 0.00000790)
6.	A company could promote equal opportunities.	23.49	0.000	Ha (the exact p-value = 0.00010115)
7.	A company could support education.	2.48	0.648	Ho – unambiguously
8.	A company could provide humanitarian aid (in cases of disasters).	28.47	0.000	Ha (the exact p-value = 0.00001001)
9.	A company could behave ethically when doing business.	21.50	0.000	Ha (the exact p-value = 0.00025221)
10.	A company could develop advanced modern technologies to help the society.	12.74	0.013	Ha

Source: Own processing.

Note: df = 4; level of significance = .05 (than chi-square statistic has to be higher than 9.49 for supporting Ha); p-value is rounded to 3 decimal places.

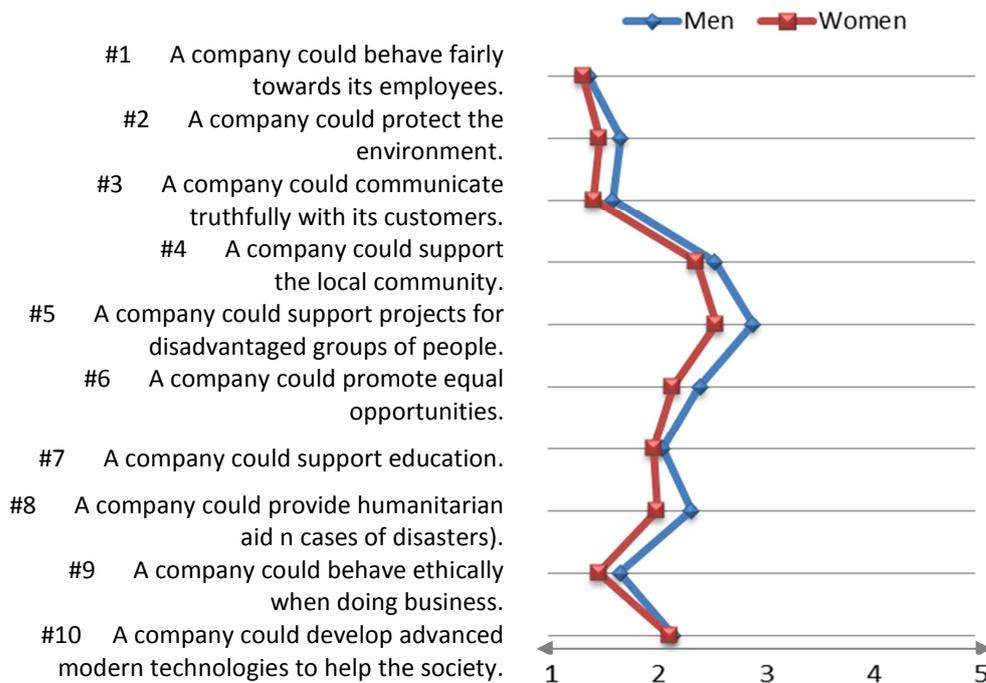
It can be seen from Table 2 that respondents' level of agreement with eight of ten analysed statements are dependent on their gender. The absolutely highest difference between men and

women is in the case of the statement “A company could support projects for disadvantaged groups of people”: women tend to think companies should do it (39.18% of women vs. 26.91% of men have this opinion – it means the difference is 12.27 of percentage points). This difference is also noticeable in the Figure 1 (see below).

The second highest difference is in the case of statement “A company could provide humanitarian aid (in cases of disasters).” – 42.45% of women think companies should do it (and 32.39% of men think the same – this is a difference 10.06 of percentage points).

And the third highest difference is found out in the case of statement “A company could behave ethically when doing business.” – in this case, 59.80% of women claim companies must do it (as for men, 51.20% of them have the same point of view – the difference is 8.60 percentage points).

On the other hand, statements “A company could behave fairly towards its employees.” and “A company could support education.” are independent on respondents’ gender at all. It means men and women do not have statistically significant different level of agreement in these cases.



**Figure 1: Semantic differential (means, with regard to respondents’ gender)**

Source: Own processing.

Note: 1 = a company must do it, 2 = a company should do it, 3 = undecided (neutral opinion), 4 = a company does not maybe have to do it, 5 = a company does not have to do it at all.

### 3.2. Connection between the level of agreement with selected statements and respondents’ age

In order to find out whether there are connections between the level of agreement with selected statements and respondents’ age, the Chi-square test of association was used again. The null hypothesis (Ho) stated age and level of agreement are not associated. The alternative hypothesis

(Ha) stated age and the level of agreement are associated, i.e. the level of agreement is dependent on respondents' age.

The detailed results are summarized in Table 3 – it is obvious that the level of agreement is independent on respondents' age in the majority of analysed statements (however, there are two exceptions when hypothesis Ha was supported – see Table 3, rows #1 and #4).

**Table 3: Statistic results – (in)dependence between the level of agreement and respondents' age**

#	Statement	Chi-square statistic	P-value	Interpretation (if level of significance = .05)
1.	A company could behave fairly towards its employees.	36.36	0.014	Ha
2.	A company could protect the environment.	25.71	0.176	Ho
3.	A company could communicate truthfully with its customers.	14.83	0.780	Ho – unambiguously
4.	A company could support the local community (e.g. a city where it operates).	32.57	0.038	Ha
5.	A company could support projects for disadvantaged groups of people.	26.25	0.158	Ho
6.	A company could promote equal opportunities.	21.76	0.354	Ho – unambiguously
7.	A company could promote education.	15.73	0.733	Ho – unambiguously
8.	A company could provide humanitarian aid (in cases of disasters).	26.03	0.165	Ho
9.	A company could behave ethically when doing business.	15.33	0.757	Ho – unambiguously
10.	A company could develop advanced modern technologies to help the society.	20.38	0.434	Ho – unambiguously

Source: Own processing.

Note: df = 20; level of significance = .05 (than chi-square statistic has to be higher than 31.41 for supporting Ha); p-value is rounded to 3 decimal places.

It can be seen from Table 3 that respondents' level of agreement with eight of ten analysed statements are independent on their age. It means respondents from defined age categories do not have statistically significant different level of agreement.

There are only two exceptions where the dependence was found out: "A company could behave fairly towards its employees." is the first one when respondents at the age 66+ are strongly convinced that a company must do it and "A company could support the local community (e.g. a city where it operates)." is the second statement when respondents at the age under 25 years old do not think companies should do it.

### **3.3. Suggestions what companies should do to be considered socially responsible**

The results suggest companies should predominantly (1.) behave fairly towards their employees, (2.) communicate truthfully with customers and last but not least they should (3.) behave ethically when doing business in general. It indicates people in general do not expect “big” things/acts – they only want to be treated fairly regardless they are employees or customers.

According to study created by IPSOS s. r. o. (2017) which focuses on CSR perception of Czech people (at the age of 18-65), fair behaviour towards employees is traditionally the most important item – that is the same result as it is presented in this paper. However, the second most important item is different: according to IPSOS s. r. o. (2017), it is environment protection – in this paper, it is statement #2 which was the fourth item when comparing means (see Table 1).

The idea of fair behaviour towards employees is important both for men and women, especially for people from the age category 66+. Warrick (2008) mentions fair behaviour towards employees in a list what companies should and should not do – it is the second item. This useful list of suggestions what not to do contains following pieces of advice: (i.) owners should not want to get rich quickly, (ii.) employees should not be treated poorly, (iii.) management should not think there are unlimited resources, (iv.) CSR should not be viewed only as philanthropy, (v.) CSR should not be used as a public relations strategy (Warwick, 2008).

The second most important item is truthful communication with customers which should be open and transparent. Customers must not be misled by means of incomplete communication; this is emphasised by Pajtinkova Bartakova & Gubiniova (2015). Companies should not forget that communication means also listening (So, 2017). From the marketing point of view, communication is an indisputable part of marketing mix because every business entity needs to communicate with general public, including customers as a kind of stakeholders. Marketing communication should be designed and managed as integrated in order to ensure that individual messages do not contradict each other (e.g. Kotler & Keller, 2012)

Ethical behaviour as the third most important aspect was mentioned in connection with doing business. In the literature, the term “business ethics” is sometimes described as oxymoron which tries to suggest business can be never ethical in business reality. However, business ethics management can be applied (formally or informally) in order to manage ethical issues by adopting specific programmes and policies. (Crane & Matten, 2010) Logically, these specific programmes/policies should also deal with behaviour towards employees and customers.

### **4. Conclusion**

This paper presents a part of conducted research, focused on the topic of corporate social responsibility (commonly abbreviated as CSR). The aim of this paper is to determine whether the level of agreement with selected statements (which were strongly related to the topic CSR) is influenced by gender and also by age. Necessary data for analysis was collected by means of a printed questionnaire. Totally 947 fully completed questionnaires were collected from October until December 2018. Data was analysed using Chi-square test of association and basic method of descriptive statistics (mean), subsequently semantic differential was used in order to show the results in the visual form. The results have shown that the level of agreement is in the majority of analysed statements dependent on respondents’ gender, but not on the age. Based on the obtained

results, there are proposed some suggestions what companies should do to be really considered socially responsible. The results suggest companies should predominantly (1.) behave fairly towards their employees, (2.) communicate truthfully with customers and last but not least they should (3.) behave ethically when doing business in general.

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## Trends in control(-ling) in the light of new challenges

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**Abstract:** Control, a word that many people get a freeze because. It has been with us all our lives and rarely can be avoided. Each of us in our lives encounters many controls that examine a certain aspect of condition or progress. Although it often causes bad feelings deep in us, many of us know that control helps us grow, learn from our own mistakes, or give us a safety net to avoid real losses. Many theorists and practitioners argue that because the nature of organizations has changed, the nature of control must also change. New forms of organization as self-organizing organizations, self-governing teams, and networking organizations enable businesses to respond better and be more adaptable in today's rapidly changing world. These forms also encourage empowerment among employees, much more than hierarchical organizational structures in the past. The aim of this conceptual paper is to point out, describe and compare the views of the authors of the previously published book literature by Ellen Benowitz, David Boddy, Stephen Robinson and Mary Coulter. The findings indicate that some experts even require management not to perform any form of control and instead merely support employees' efforts to be fully productive members of organizations and communities.

**Keywords:** Control, control(-ling), management function, new trends

**JEL classification:** M10, M19

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### 1. Introduction

At the Department of Management of the Faculty of Business Management of University of Economics in Bratislava, a research project called "Trends of internal control in business entities in the light of new challenges" was launched in 2017. Also, the submitted paper is one of its outputs. Therefore, in the paper we pay attention to the above-mentioned trends in control. When compiling it, we found the theoretical basis in the available literature from renowned foreign authors. From the book literature we have studied so far, we present opinions from Ellen Benowitz, David Boddy, Stephen Robinson and Mary Coulter, which are a great asset not only for social but also for entrepreneurial practice in controlling.

Book sources and selected authors were chosen on purpose. Control(-ling) represents a certain metatheory that combines knowledge of management, sociology, management accounting, cybernetics, decision-making theory, etc. and this theory is relatively stable. That is why it usually appears in book publications and especially as a separate chapter in management books. Scientific papers on the issue are either older or only devoted to a very small partial area. Since at the meta-

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level, not every author devotes to new trends, those authors who have contributed to the issue at least to some extent have been selected.

The peculiar term control(-ling) is used on purpose to draw attention to the fact that this is not a paper on German controlling. Indeed, in the Central and Eastern European region, the German and English terms are assumed to be identical, although one describes the management system subsystem and the second one of the manager's core function. It is not surprising that these terms are considered to be similar, since "its managerial role has often been mistakenly considered to be synonymous with financial control." (Gigliani and Bedeian, 1974, p. 292)

Systems of control have been defined in many ways:

formal and informal routines and procedures of the firm, processes by which the firm coordinates activities, cultural norms and practices within the firm. (Turner and Makhija, 2006)

## **2. Aim and methods**

As mentioned above, the aim of the paper is to point out, describe and compare the trends of controlling in new challenges and to highlight their use not only in the present but also in the future. The paper is based primarily on foreign literature. Control trends touch upon the control function, which is an important function of management and is closely linked to the history of humanity itself and its evolution. Using the method of comparison (comparison of the authors' opinions) in the given area, we point out the theory of controlling their use in practice.

Comparing or comparison is the basic method used in controlling. In particular, we can meet it in the third step of a (four-phase) control process when we compare the set standard with the measured performance. The essence of the method is to compare and detect differences between certain phenomena, objects, their states, data sets and the like. Without the comparative and formal comparability of the data, the comparison method cannot be performed. The comparison criterion can be determined based on time, space or factual.

## **3. Trends in controlling**

### **3.1. Views on new trends according to Ellen Benowitz**

Many theorists and practitioners argue that because the nature of organizations has changed, the nature of controlling must also change. New forms of organizations as self-organizing organizations, self-governing teams, and networking organizations enable companies to respond better and be more adaptable in today's rapidly changing world. These forms also encourage empowerment among employees, much more than hierarchical organizational structures in the past.

Some experts even require management not to perform any form of controlling and instead merely support employees' efforts to be fully productive members of organizations and communities. The use of the term "coordination" instead of "controlling" is more appropriate in view of avoiding the perception of coercion. Despite the above mentioned, certain forms of control simply need to be used in organizations to survive at all. The existence of any organization requires a certain goal or purpose. Otherwise, there is no organization at all. Individual behavior, group behavior and all organizational performance must be consistent with the organization's strategic focus. (Benowitz, 2001)

### 3.2. Views on new trends according to David Boddy

David Boddy (2008) summarizes in the literature a number of trends in controlling that he has seen in recent times, which mainly relate to performance, responsibility and internalisation (adoption).

The author's views are largely based on Richard Walton's (1985) research in Harvard Business Review. According to Walton, managers have to decide between two different strategies. One is based on implementation of control in the organizational, the other on engagement. The second option sees employees as one of the stakeholders of the organization and should lead to higher performance, especially in situations of uncertain business environments when imagination and creativity are expected from employees. Walton concludes that organizations need to create a culture of engagement if they want to meet customers' expectations of quality, reliability of delivery or market change. Walton's two different strategies are presented in Table 1.

**Table 1: Elements of strategy of controlling and engagement**

Strategy	Controlling	Engagement
Design of jobs	mechanized, fragmented, solid	emphasis on the overall role, flexible, use of teams
Expectations on performance	minimal standards defined	emphasis on stretched goals (to outperform oneself)
Management structure	many levels with rules and procedures	flat structures with common goals and values
Remuneration	individual remuneration linked to job valuation	profit sharing group incentives linked to skills
Employee participation	small, with "I need to know" information sharing	encouraged, with very widely shared business information

Source: Walton, 1985

Control systems are designed to influence people in a way that supports organizational goals. They are based on motivation theories that have developed measurement and reward systems to encourage employees to act in a way that meets their needs while contributing to organizational performance. Managers can use goal setting or motivation theories to develop practices that shape the direction and intensity of individual effort.

This raises the question of responsibility for the overall health and well-being of employees, and specifically whether managers use theories in a way that can harm their employees. For example, the goal-setting theory places emphasis on goals that are difficult, but achievable: it can tempt managers to set such high targets that employees experience considerable stress in achieving them. This leads to different degrees of morbidity. Some corporate scandals were related to organizational policies that encouraged members of the organization to meet challenging goals, no matter what rules or codes of ethics they violate.

The development of information technology makes it possible from a technical point of view to set standards and measure their fulfillment regardless of the geographic range of the organization. This should allow the smooth and controllable performance of international businesses. Other factors need to be taken into account in such decisions, including: (Boddy, 2008)

- central or local control – it's a strategic question of how much control from the headquarter is needed and how much local autonomy can be supported and the ability to respond to own

- problems. If the success of a local branch is hidden in the ability to act entrepreneurially, the introduction of a control system supporting central control would be counterproductive;
- relying on technology – there are a number of ways to control, each of which can be part of a comprehensive control system. Because of the remoteness of branches, the headquarters have relatively few options to use direct control and supervision, which are often very effective means. Instead, it must rely more on rules and procedures and on a number of formal financial and output controls. An alternative is to create strong cultural controls that affect people to act in a way that is consistent with organizational goals, regardless of their location;
  - national and cultural differences – many countries have progressively developed very different management systems as well as differences in national cultures. These factors will significantly influence people's responses to control systems, as well as increase the demand for comparability of performance across countries and their interpretation.

### **3.3. Views on new trends by Stephen Robbins and Mary Coulter**

Stephen Robbins and Mary Coulter point out four control issues that managers are currently experiencing. These are cultural differences, workplace issues, customer interactions and corporate governance (Robbins, Coulter, 2012)

Conventional control concepts are appropriate for an organization whose subordinate units are not geographically dispersed and possibly culturally different. However, control techniques can be quite different for different countries. Differences appear primarily in the steps of measuring actual performance and corrective actions of the control process. In a global corporation, foreign branch managers tend to be less controlled by headquarters. Just because of the distance, the work of managers cannot be directly monitored because the greater distance tends to formalize controls. Such corporations often rely on extensive formal reports for control purposes. Most of these messages are communicated electronically.

The impact of technology on control is also reflected in the comparison of technologically advanced countries with less technologically advanced countries. Managers in countries where technology is more advanced often use indirect control tools, such as computer-generated reports and analysis, in addition to mandatory standardized rules and direct supervision to ensure that work activities run as planned. However, in less technologically advanced countries, managers tend to use direct supervision and highly centralized control decisions.

Managers abroad also need to be aware about the constraints to corrective actions they can take. Laws in some countries prohibit the closure of branches, layoffs, the transfer of money away from the country, or the establishment of new management outside the country.

Finally, another challenge for global managers to collect data to measure and compare performance is their comparability. For example, a clothing company in Cambodia can produce the same products like a branch in Scotland. However, the Cambodian branch could be more dependent on the workforce than its Scottish partner organization to take advantage of the lower labor costs in Cambodia. This difference makes it difficult to compare, for example, labor costs per unit of sewn clothing.

Current workplaces present significant challenges for managers in controlling. From monitoring the use of computers by employees at work to protecting the workplace from dissatisfied employees who

intend to harm, managers need controls to ensure that work can be done efficiently and effectively. Exactly as set out in the plans.

According to several experts, the dangerously dysfunctional working environment is characterized by the following primary contributors: (Robbins, Coulter, 2012)

- employees' work revolves around time, numbers and crises;
- rapid and unpredictable changes in which employees are plagued by instability and uncertainty;
- a destructive communication style in which managers communicate in overly aggressive, haughty, explosive or passive-aggressive styles; excessive blaming and seeking the culprit in the workplace;
- authoritatively leading of people with rigid, militaristic thinking of managers towards employees; employees cannot have their own ideas, participate in decision-making or engage in efforts to build a team;
- a defensive stance where little or no performance feedback is provided; what really counts are only numbers; shouting, intimidation or avoidance is the preferred way of resolving conflict;
- double standards in terms of policies, procedures and training opportunities for managers and employees;
- unresolved objections because the organization does not provide any mechanisms or only very hostile to address them; dysfunctional individuals can be protected or ignored because of long-term rules, trade union provisions or unwillingness to deal with problems;
- employees with emotional problems and no managers' attempts to help such people in the organization;
- repetitive, boring work with no chance of doing something else or for new people coming;
- error, or even dangerous equipment or lack of training that allows employees to work efficiently or effectively;
- dangerous working environment in terms of temperature, air quality, repetitive movements, overcrowded areas, noise levels, excessive overtime, etc. To minimize costs, no additional employees are recruited to increase workload, which can lead to dangerous working expectations and conditions;
- a culture of violence that is rooted in individual violence or abuse; violent or explosive designs; or tolerance of use of alcohol or addictive substances in the workplace.

The truth, however is, that a competitive environment requiring constant success in the global economy creates enormous pressure on both organizations and employees in many ways.

There is perhaps no better area where a close link between planning and control can be seen as customer service. If an enterprise declares customer service as one of its main goals, it will quickly and clearly verify whether that goal is met. This is how satisfied the customers with the services provided are satisfied.

Managers who want to control customer interactions should work to create long-term, mutually beneficial relationships between organization, employees and customers. The result is the creation of a working environment that allows employees to provide a high level of quality service and gives them the feeling that they are able to deliver the highest quality services. In such a service environment, employees are motivated to provide quality services. Employee efforts to satisfy customers, along with the value of the service provided by the organization, increase customer satisfaction. And when customers get high value services, they are faithful and will be happy to come back. This ultimately increases business growth and profitability.

An illustrative example (Robbins, Coulter, 2012) of a service chain of profitability in practice, as Southwest Airlines, which is the most successful airline in the United States for the long term, according to sustainability (2016 was the forty-fourth year in which the company has made a profit). Its customers are highly loyal because the company's operational strategy (recruiting, training, rewarding and valuing, teamwork, etc.) is built on customer service. Employees consistently provide customers with excellent service value. Customers reward Southwest by re-using its services. Through efficient and effective management of these customer relationships, companies like Southwest are doing well.

### **3.4. Corporate Governance**

Although Andrew Fastow (formerly Chief Financial Officer of Enron, who was found guilty of participating in a securities fraud), has a charismatic and persuasive personality, this does not explain why the board of directors of Enron has failed to raise at least a small objection to this manager's accounting practices. The board has even made it possible to create off balance sheet partnerships that have allowed it to profit at the expense of shareholders.

Business management is a system used to manage a company in such a way as to protect the interests of its owners, it has failed terribly at Enron. Many other companies got scandalized by financial scandals. As a result of these scandals, corporate governance has been reformed. The two reform areas were the roles of the boards and financial reporting. Such reforms are not limited to American corporations. Business management issues are global in nature.

The board's original intention was to have a management-independent group dedicated to shareholders' interests and not participating in the day-to-day management of the organization. However, it has not always worked in such an ideal way. Board members often enjoyed close relationships with managers, where everyone took care of the other.

This type of "quid pro quo" commitment has changed. The new legislation places greater demands on members of the board of directors of publicly traded companies in the US to do what they are empowered to do and what is expected of them.

In the case of financial reporting, the new Sarbanes-Oxley Act also required the disclosure and transparency of corporate financial data. For example, it is now necessary for executives to remove their companies' financial results. These changes have led to better information – that is, information that is more accurate and reflects the company's actual financial situation.

## **4. Conclusion**

In conclusion, control activities are used by managers at all levels of management in the management triangle as feedback. Through control processes, they gain an objective picture of the reality in a

business entity. Many times, it is also a critical assessment of reality. This fact was also pointed out by the views of three foreign authors presenting current issues and trends in control in light of new challenges. Based on such assessments, appropriate audit conclusions are taken not only in business but also in business.

The management control function is in motion. It has remained unshaken in its history, despite the new practices that its main source of information – accounting – has brought with it. It continues to be one of the most important tasks a manager has to do if he does not want his managed object to end up in a loss or even anarchy. Controlling currently has two main approaches from a global perspective - Western and Eastern. While the Western approach recognizes the individual's ability to have a high degree of responsibility and often leaves control to him, the Eastern approach still places great emphasis on discipline, bureaucracy or strict compliance.

To synthesize the knowledge brought by the current literature review, the trends in controlling are: responding to new business organization, new organizational structures, increased employee responsibility, or even the use of coordination instead of control; increasing employee involvement rather than controlling them; use of goal-setting theory or motivation; better use of information technology to control, including international affiliates; adapting control to cultural differences between international and multinational companies; the need for increased employee monitoring to prevent loss of productivity or financial and other losses; increasing workplace aggression; controlling customer interactions; adapted corporate governance.

In conclusion, current trends give the impression that controlling is in decline and will be almost completely replaced by trust or cooperation. However, we would like to point out that the world economy is in a phase of stability to growth. We assume that the recession, or even the next economic crisis, will put controlling to the forefront back again.

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## How the New Generation of University Students See Themselves

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**Abstract:** Contemporary university students are the first generation that grew up in a digitalized and globalized world with limitless opportunities. Compared to previous generations, they miss the experience of what the world and life looked like before globalisation and ICT development and took the new environment for granted. We think that the specifics of this new generation are an interesting problem that requires proper research attention. This paper covers the results of part of our research on the specifics of our students. The fact that old generations are often critical on younger ones led us to an idea to ask our students how they see themselves and differences of their generation to previous generations. The paper discusses our findings concerning personal characteristics, lifestyle, education, knowledge, learning, adaptability, relation to changes and other aspects of the life of this generation.

**Keywords:** the new generation, knowledge, preferences, values, personal characteristics.

**JEL classification:** A2

### 1. Introduction

Contemporary university students are the first generation that grew up in a digitalized and globalized world with limitless opportunities. Compared to previous generations, they miss the experience of what the world and life looked like before globalisation and ICT development and took the new environment for granted. We think that the specifics of this new generation are an interesting problem that requires proper research attention. We decided to research the specifics of a new generation for a few reasons. Firstly, we experienced in many situations that this the new generation of students behave differently than previous generations. Secondly, our students today will be important influencers shortly. Due to their education, they are supposed to relate their professions with business and influence economic and social life in years to come. Thirdly, students of this new generation attend our university now; we have an exceptional opportunity to research this group of people. This paper covers the results of part of our research on the specifics of our students. The fact that old generations are often critical on younger ones led us to an idea to ask our students how they see themselves and differences of their generation to previous generations. The paper discusses our findings concerning personal characteristics, lifestyle, education, knowledge, learning, adaptability, relation to changes and other aspects of the life of this generation.

### 2. Theoretical Background

There are many articles on so-called generation Z or Y or Millennials ((Jaleniauskieneand & Juceviciene, 2015; Williams 2015) in the literature (Geck, 2007; Igel & Urquhart, 2012; Gross, 2008; Rowlands, Nicholas Williams, Huntington & Fieldhouse,2008). Some of them even focus on you on young people and tertiary education (Zorn, 2017; Shatto & Erwin, 2017; Rickes, 2016; Shatto & Erwin, 2016; Beloit College, 2015; Smith, 2016) but proper research in the topic is still scarce. We found few

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pieces of research close to our topic; for example, Kleinert et al. (2017) conducted an internet-based survey among medical students to deeper understand the underlying arguments and students' expectations towards surgical training to counteract a future shortage of specialised surgeons. Blyznyuk (2017) published research on general values of generation Y of Ukraine senior schools and pupils. Grobelna and Skrzyszewska (2016) researched determinants of a career path choice by maritime university students. Sarkis et al. (2016) researched the impact of a medicine summer programme at the University of Toronto on student career plans and motivation. Northeastern University Survey (2014) researched study and other preferences of university students. Even though some preferences of digital generation were examined we did not find any paper on research similar to our research.

### **3. Methodology and the sample**

The core of our methodology is inductive reasoning. We collected data via questionnaires with open questions and then searched for repeating patterns in this data. Our respondents were students from one Faculty of our University.

The site of this study is a Faculty focused on business and management that belongs to a major economics university in the region. The Faculty is EQUIS EFMD accredited and is regularly mentioned in various business school rankings. It is also highly evaluated by employers in its region.

Data collection was undertaken in May and June 2017. Questionnaires with open-ended questions were chosen because we wanted respondents to answer individual questions as freely as possible. Our major concern was the elimination of influence of the personality of the researcher on the answers of respondents and the anonymity of respondents. We also wanted respondents to think and work on their time preferences and to codify their knowledge at a pace they preferred.

The disadvantage of open-ended questions is the potential loss of context. We tried to eliminate this disadvantage by clearly explaining to our respondents that we needed their ideas to improve our mutual communication and pedagogical processes.

Questions were intentionally formulated broadly to allow respondents to express what they think from different perspectives.

We asked 45 master degree students of an advanced management course to participate in our study. Students downloaded questionnaires from the university information system, and when finished they sent them to one of 10 student colleagues who collected them and then e-mailed all the collected questionnaires to the researcher who assigned codes to the questionnaires. This ensured anonymity. Thirty-nine student respondents returned questionnaires with answers. Four questionnaires were not valid (students did not state their age or gender; two students were too old to participate in the study). The response rate was 78%. Twenty-one respondents (60%) were females, 14 (40%) of the respondents were males. The age of respondents was 20-25 years.

Data collected from the questionnaires were analysed by grounded theory (Glaser and Strauss, 1967). Coding was done sentence-by-sentence not line-by-line so as not to lose the context. Some data could be coded in multiple ways, e.g. they were relevant to more than one code. To keep the coding procedure effective, we decided to classify it to one code depending on the context of the

sentence. We used in-vivo open coding (using exact respondents' words in the first round of coding) to capture all differences and possibilities students mentioned. Open coding resulted in 140 issues.

#### 4. Findings

Issues collected after open coding emerged in 5 categories, one of which required additional coding.

**Table 1 Summary of emerged categories – Specifics of the current generation of students**

Category	Code	total	%
Personal characteristics	PC	52	37
Positive or neutral	PCC	24	46 (from 52)
Negative	PCN	28	54 (from 52)
Different lifestyle	L	34	24
Adaptability, trying new things	A	22	16
Good knowledge and skills	K	21	15
Live in a specific world	W	11	8

'Personal characteristics' is the leading category (37%). This category required additional coding. Additional coding created two leading subcategories, a positive or neutral category and a negative category. The distribution of positive/neutral and negative characteristics in student data is nearly the same (46% x 54%). Two leading issues out of all issues were negative – 'we tend to give up' and 'we are lazy'. Three positive issues 'we change from material to non-material values', 'we are creative' and 'we are self-assertive and purposeful' followed. Other positive personal characteristics were 'we like freedom', 'we trust more than previous generations', 'we like recognition and self-actualise' and negative were 'we lack loyalty', 'we are indecisive' and we 'we want to get everything faster with less work'.

The category 'different lifestyle' is the second category in student data (24%). The leading issue was 'dependency on mobiles, computers, internet, social networks' and 'we are globetrotters'. Students also highlighted that they 'live in a virtual world', 'live in a globalised world', 'live hectic life', 'are interested in work-life balance' and are not 'bitten by the burden of previous times'.

'Adaptability' turned out to be a third category (16%). Students see adaptability as very important, and stress the necessity to 'learn and develop', 'try new things' and 'initiate changes'.

The fourth category that emerged is 'knowledge and skills' (15%). Students see their knowledge and skills as exclusively positive. They mentioned good 'technical skills', 'a better range of knowledge due to the internet', 'good language skills'.

The last category is 'live in a specific world', e.g. the world different from the environment of previous generations (8%). Students mentioned that they have 'more opportunities than previous generations' and 'were brought up in the illusion that they can have everything, but the reality is different'.

When looking at the issues after open coding, the following categories achieved the highest score:

**Table 2 Issues with the highest score**

Issue	Score
Technical skills	9
Better range of knowledge due to internet	8
Dependence on mobiles, computers, internet, soc. netw.	6
Globetrotters	6
More opportunities	5
Life in the virtual world	5
Life in the globalised world	5

Results listed in table 2 show that students see themselves as competent inhabitants of the virtualised and globalised world but also understand their dependence on ICT technologies and social networks.

## 5. Conclusion

When asked how they see themselves, our student respondents mentioned first of all personal characteristics that, in their opinion, differ from previous generations and is influenced by digitalisation and globalisation. Positive/neutral and negative characteristics were mentioned equally. Students mentioned that they 'tend to give up' and 'are lazy' as typical negative characteristics and saw their potential in 'being creative' and self-assertive and purposeful'. The second group of ideas concerned different lifestyle; students mentioned especially dependency on ICT technology and life in a virtual globalised world. Students also see themselves as adaptable people who try new things. They highly evaluated their knowledge skills, especially skills concerning work with ICT technologies and language skills. The research also indicates that students think that they live in a different environment than previous generations. The research was executed as qualitative research, and the number of respondents was limited. It is necessary to take into account that even though it provides us with interesting knowledge on the current generation of university students and their ideas, its results apply only to the sample of interviewed students and cannot be extrapolated to the whole population of the of our University students or university students as such. Still, it shows us a certain direction for future more representative researches.

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## What are Existential Disruptions in Managerial Practice? Overcoming Disruptions as Prevention of Burnout

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**Abstract:** Under the influence of dynamic changes in society and the need to face global challenges, more and more approaches point to the fact that profit is not the sole goal of business and that management should overcome the positivist picture of reality that often persists in managerial textbooks. This article follows current efforts to map out lived managerial practice, which is often associated with moments that are called existential disruptions. The aim of the paper is to characterize these existential disruptions and argue that the ability to deal with these conditions, which means deconstructing uncertainty and old patterns of work, and employing positive aspects of questioning, can be important for burnout prevention.

**Keywords:** burnout, existential disruptions, managerial practice, self-development

**JEL classification:** M12

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### 1. Introduction

The current work of managers is associated with the constant need to deal with changing conditions, dynamic changes in society, pressure on efficiency and many other facts. The impact of these events often leads to situations where managers, despite their experience, are unable to carry out their work in the traditional way. A crisis influences their performance and doubts about the meaning of the work often emerge. Already in 1972, Larry Greiner mentions in his article “Evolution and Revolution as Organizations Grow” that the next revolution in organizational development will be based on an effort to overcome a crisis that might involve the psychological overwork of employees who are mentally and physically exhausted because of constant pressure to come up with new innovative solutions to problems (Greiner, 1972, p. 44). This prediction is increasingly becoming a reality, which raises a demand for new approaches to business or management. Many companies are aware of these problems and have begun to form their business, for example, in the spirit of a “conscious business” approach that combines several important principles, among which we can emphasize the higher purpose of the organization, the integration of all stakeholders, conscious leadership, and corporate culture (see Kubátová, 2017). Some of today’s companies are pushing for higher goals, and high profits are a result of these goals, not the main motive for doing business. This observation is well expressed, for example, in the context of the history of so-called visionary companies (Collins & Porras, 2011). Similar trends do not only concern, however, the owners of companies, but all levels of management

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and often also a wide range of employees. Increasingly important factors for work satisfaction are meaningful work, moving towards self-realization, and sharing a higher level of intent.

This essential need is not always achieved, however, without problems, and the constant changes and dynamics of the processes result in managers being paralysed by situations in which the traditional ways of working are ineffective (see Rolfe and Segal, 2016). Increasing pressure on efficiency with managers and employees and constant societal changes have resulted in a number of difficulties in both work and private life. The burnout syndrome, which the professional public was introduced to in the article "Staff Burn-Out" by Herbert Freudenberger (1974), has been widely discussed. In the context of existential-phenomenological attempts to solve managerial crises, researchers have focused on qualitative research discussions of so-called existential disruptions. These situations are characterized by the disruption of the functionality of earlier methods of work, and by other motives traditionally analysed across existentially oriented directions of continental philosophy (see Rolfe, Segal & Cicmil, 2017).

The aim of this paper is to characterize existential disruptions and argue that the ability to deal with this condition, which means making use of its positive dimension, can be important for burnout prevention. The second part of the article summarizes the basic characteristics of existential disruptions. Part three offers an extended framework for the burnout/work engagement model. Part four outlines the positive effects of deconstructed uncertainty that emerges in disrupted practice and its relation to burnout prevention strategies. The article concludes that more empirical research is needed to accurately determine the relationship between existential disruptions and burnout.

## 2. Existential Disruptions

In the context of fundamental changes in the workplace and the demanding work environment, several approaches that examine the lived experience of managerial work have emerged. Many of these approaches are based on qualitative research and describe crucial states in managerial practice that influence future personal and business success or failure. An example of this qualitative research would be the analysis of burnout in business (Belaid & Dakoumi Hamrouni, 2016) or entrepreneurial failure (Mantere et al., 2013) and its relation to learning (Cope, 2011).

This paper is concerned with existential disruptions. Rolfe, Segal and Cicmil (2016, p. 48) defines existential disruptions as conditions "in which a practitioner's habits or conventional ways of doing things are threatened and can no longer be taken for granted". It is critical moment of lived experience. Existential disruptions in this paper will be understood within context of this definition which highlights essential characteristic of this state. Moreover, this characteristic is important for managerial practice, as it relates necessity to discover new ways of work. Segal (2014), Rolfe, Segal and Cicmil (2016, 2017) explore the condition of existential disruptions within the framework of existential hermeneutic phenomenology. Their research based on interview with managers (method of interpretative phenomenological analysis) employs (beside the others) philosophy of Martin Heidegger (1985), especially Daseinanalysis related to *Being and Time*. Within this framework, existential disruptions emerges in the cycle that starts with being in convection (inauthenticity – doing the work within average everydayness) – existential disruption (related to existential anxiety, feelings of failure, lack of meaning, etc.) – articulating the disruption (description of the problem, the ability to name threats) – liberation through transformation (redescription of situation, deconstruction of uncertainty by this redescription, seeing new opportunities, understanding that disruption is not failure, etc.). All these

topics emerge in interviews with managers and thanks to this reflective practice managers recall whole their situation which the first step for learning and self-development. This dialogic learning in the context of management is also supported by other authors (Cunliffe, 2002; Corlett, 2012). Learning within this process helps managers to overcome existential disruption, or rather to understand that these disruptions are part of managerial work and have its positive aspects, especially the opening of new possibilities – new ways of work. This paper suggests, that analysis of lived experience – especially the lived experience of existential disruptions within dialogical process of learning can be important for burnout prevention. This statement is based on similarity of burnout prevention strategies and outputs of dialogic learning processes, as will be shown in next sections. Existential disruptions can be explained also within other existentially oriented concepts. For example, it is possible to mention concept by Odiorne (1966) who search for alternatives to insufficient vision of management which is based on positivist approach. One of the key existential characteristics of management is situationality. A manager is situated in an endless cycle – in dynamic case studies that always require new solutions. Manager, as well as mythical Sisyphus, comes to situations when she or he fails – the place on the top is replaced by crisis – disruption (Odiorne, 1966, p. 112). It is not possible to use habitual ways of doing things in the new case study. For manager it is important to find ways how to take advantage of these situations and use them for self-understanding (Segal, 2014, p. 44).

### 3. Existential Disruptions in the Context of Burnout

Burnout is a highly debated problem emerging across many professions. Despite extensive discussion and frequency of cases Heinemann L. and Heinemann T. (2017, p. 1) mention that “burnout is still not completely accepted as a mental disorder in its own right in the academic field, especially in clinical psychology and psychiatry”. However, we can characterize burnout as a form of disease or health problem, which is confirmed by its inclusion in ICD-11 (2019) list for Mortality and Morbidity Statistics by WHO. However, even this list (part QD85) does not explicitly refer to burnout as a disease, but it is classified under “Problems associated with employment or unemployment” in the category “Factors influencing health status or contact with health services”. Some examples of burnout characteristics are mentioned in table 1.

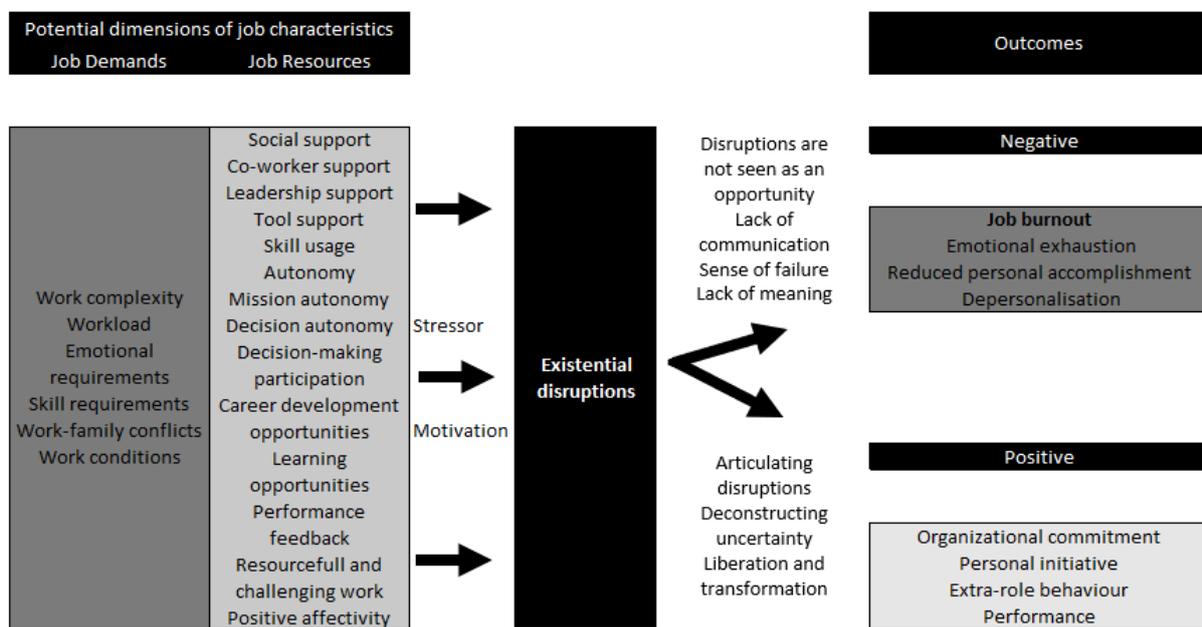
**Table 1: Examples of burnout characteristics**

Study	Characteristics
Freudenberger (1974)	“becoming exhausted by making excessive demands on energy, strength, or resources” (p. 159) Symptoms such as fatigue, exhaustion, headaches, sleeplessness, shortness of breath, gastrointestinal disorders
Maslach, Jackson (1981)	“a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind”, connected with “dehumanized perception of others” and “tendency to evaluate oneself negatively” (p. 99)
Maslach, Schaufeli, Leiter (2001)	“a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by the three dimensions of exhaustion, cynicism, and inefficacy” (p. 397)

Source: Freudenberger (1974), Maslach & Jackson (1981), Maslach, Schaufeli & Leiter (2001)

It is possible to point out that similar terms as in these old definitions are used in more recent definition provided by WHO ICD-11 (2019), where burnout is characterized as result of workplace stress in three

dimensions: feelings of exhaustion, mental distance from job and cynicism, reduced efficacy. As it results from the above-mentioned characteristics, burnout is a negative consequence of several different factors. In contrast, the existential disruptions can be also understood in the positive way, as a chance for opening up new possibilities (see next section). Even existential disruptions may involve, however, extremely mentally demanding situations that, if not resolved, can lead to conditions whose characteristics correspond more to burnout syndrome descriptions. Due to the fact that the symptoms associated with burnout are a consequence of a longer development and due to various factors that operate as a stressor or motivation, it may be important for the burnout prevention to find a marginal phase that will be crucial for the further development of the mental state. This article proposes discussing how this middle and very crucial phase may be situations that could be described as existential disruptions. Figure 1 introduces existential disruptions in the burnout and engagement model.



**Figure 1: Putting existential disruptions into a simplified burnout model**

Source: Based on Schaufeli & Bakker (2010), Rolfe, Segal & Cicmil (2017), Yang, Lu & Ye (2018)

Indication of the condition associated with existential disruptions as a pre-phase of burnout is supported by the emergence of the first symptoms of this syndrome during confrontation with disruptions. Rolfe, Segal and Cicmil (2017, p. 745) mentions several statements of managers reflecting their existential crisis. One of them describes disruptions beside others in a following way: *“I remember being gutted, completely gutted, you know it was like I had a hole in the middle of me somewhere.”* The second one mentions that *“it was telling me something, like it wasn't the decisions themselves, because they were rational, it was the model leading us to them — because the model was old and tired, a bit like me!”* Another manager reflects her situation by these words: *“It was the stomach churning that made me realise how bad things were. They were talking to us like outsiders, because we had acted like outsiders.”* Similarly, the participant in the study by Müller and Jedličková (2019, in preparation) describes his situation in following way: *“I am really mentally, but I think also physically dragged down.”* But on the other hand: *“The vision is here... And, at the moment when I move at least a bit, optimism will appear... Maybe even the organism already says that it needs the positivity, so it*

*just creates it.*” We can see similarities between existential disruptions phase and several symptoms of burnout – exhaustion, gastrointestinal problems, etc. This state is not so serious, but intervention or preventive strategies seems to be relevant for this phase.

#### 4. Overcoming Disruptions as Prevention of Burnout

Within the framework suggested in this article (figure 1), the phase of existential disruptions (phase of crisis, phase of a new case study in which old solutions fail, in Odiorne’s words) can be considered a pre-phase of burnout. This phase relates to stress, feelings of failure, uncertainty, potential amplification of job demands and resources incompatibility, etc. In this phase situations that are considered as burnout causes emerge. Table 2 describes qualitative differences between state of existential disruptions (pre-phase) and burnout. These disruptions are related to the main problem characterised in section 2 – the traditional ways of work do not lead to desired outcomes.

**Table 2: Qualitative differences between existential disruptions and burnout**

Existential disruptions	Burnout
Seeing the vision and positive aspects of work despite problems and impossibility to fulfil this vision	Cynicism, a dehumanised perception of others
Seeing oneself positively, awareness of previous success, but confrontation with the first failure	Negative self-evaluation
Awareness of the absurdity of job demands and resources incompatibility	Paralysation by the absurd condition

Source: Own processing based on case study by Müller & Jedličková (2019, in preparation)

Considerable similarities can be seen when analysing insights resulting from qualitative research of existential disruptions and strategies for burnout prevention (see table 3).

**Table 3: The relationship between existential insights and burnout prevention strategies**

Insights from existential disruptions research	Burnout prevention strategies
Re-description of habits, questioning assumptions, deconstructing traditions →	Change in work patterns
Importance of conversation, communication as a way for re-description →	Utilization of social support
Deliberation and understanding that disruptions are not failure →	Relaxed lifestyle
Overcoming uncertainty and anxiety, seeing its positive aspects →	Improvements in health
New ways of thinking and being →	Developing coping skills
Moving from a scientific to philosophical understanding of management →	Self-analysis, self-understanding

Source: Based on Maslach & Goldberg (1998), Segal (2014), Rolfe, Segal & Cicmil (2016, 2017)

As it was mentioned, overcoming disruptions is connected with the ability to take advantage of these disruptions through the learning process. This learning process (especially its initial part – the initial reflection and description of the problem) takes place within the research itself – in dialogue with the researcher. In this dialogue, several topics that not only address the problem (impossibility to apply the habitual ways of work), but also the ways of dealing with this problem and themes related to

preventive strategies, are opened. Participants are becoming aware of significant connections – the situation is redescribed (the uncertainty is deconstructed – old conventions are questioned which opens new perspectives) and the positive aspect of existential disruptions is understood. Managers understand that these difficult situations do not necessarily mean failure. As Segal (2017) shows, the process of becoming a manager is important. It is about learning to exist in the Sisyphean cycle of new case studies. Dialogic learning enables managers to understand the basic facts that are important for the prevention of more serious states, among which we can include burnout. The study by Müller and Jedličková (2019, in preparation) shows that the participant in the research realized the importance of interpersonal relationships, both in the working environment and in personal life, during the dialogic process. Utilization of social support is referred to one of the burnout prevention strategies (Maslach, Goldberg, 1998). Other examples of the positive influence of dialogical learning, existential hermeneutic phenomenology, can be found in research by Rolfe, Segal, Cicmil (2017). It should be noted, however, that qualitative research concerns only a small sample of participants and it is difficult to generalize these conclusions. For this reason, further research will be necessary.

## 5. Conclusion

This article characterises existential disruptions and situates the qualitative research of these states into the context of burnout. It argues that there are qualitative differences between existential disruptions and burnout. In addition, the ability to utilize positive aspects of existential disruptions has been shown to be one of the possible preventions of burnout. Due to the limitations of qualitative research, such as a small number of studies, further research is needed to confirm these preliminary results.

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## Weather-proofing electricity networks - high costs, what else? The Finnish case

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**Abstract:** After some severe winter storms and the ensuing power-outages in 2011 the Finnish Energy Market Act governing also electricity transmission networks was amended. The goal of the changes was to ensure the reliable availability of electricity everywhere in Finland by forcing the distribution system operators to invest in weather-proofing. This seemingly positive-to-customers legislation has led to fast-increasing costs of electricity transfer that are directly born by the customers. We present some analysis of the status quo and observe that, the distribution system operators have an incentive to maximize the costs of the weather-proofing investments. Based on the actual weather-proofing investment-plans, submitted by the distribution system operators, we show that there is some preliminary evidence to support the expectation that profit maximizing behaviour is taking place. We highlight the conflict between profit maximizing and good-enough weather-proofing investments with a numerical example and derive and present estimates about how large the cost difference between different strategies of utilizing the provided legal exceptions to making weather-proofing investments in difficult locations may be.

This paper is among the first to report on and to discuss the Finnish weather-proofing investments from the point-of-view of the customer and thus contributes to the very scarce literature on the topic.

**Keywords:** Electricity networks; weather-proofing; profitability; Finland

**JEL classification:** D04, D42, D47

### 1. Introduction

The goal of this paper is to present the Finnish legislation with regards to weather-proofing investments made to secure the transfer of electricity in Finland and to illustrate and discuss the differences in cost that different strategies to execute these high-cost investments have with two real-world cases.

In 2013, after two severe winter storms that took place in 2011, a weather-proofing requirement was included in the Finnish Electricity Markets Act (Electricity Market Act, 2013). The idea of this requirement was to protect the consumer from excessively long power-outages during faults in the electricity network. Acceptable thresholds that would be effective from 2029 onwards were set at 6 hours for urban zones and at 36 hours in other areas. These new requirements mean that especially DSOs operating in sparsely populated rural areas are forced to invest heavily in order to achieve the requirements set by the law. A report commissioned by the Finnish Ministry of Economic Affairs and Employment (Partanen, 2018) estimates the cost of weather-proofing investments at 2,9B€. The financing of these investments will happen via collecting (increased) fees from the customers – this has caused a rather *dramatic increase* in the price of transmission and the total price of electricity during the last five years, see Figure 1.

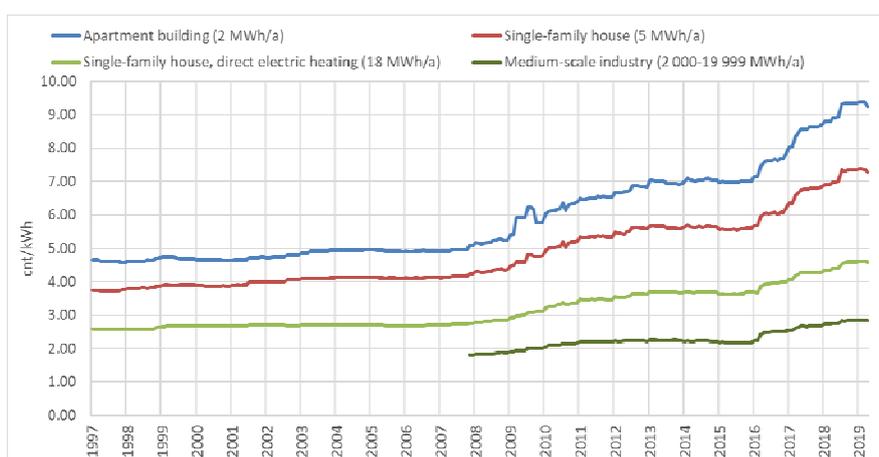
Finnish electricity networks are highly regulated natural monopolies operated by 77 distribution system operators (DSO), many of which are owned by municipalities, while some are private

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companies. The Finnish Energy Authority (FEA, Energiavirasto) is responsible for supervising the energy industry and developing the regulation, a part of which is to regulate the industry profit-level. The over 3.5 million customers to the DOSs in 2016 (Energiavirasto, 2018b) have substantially no negotiation power and act purely as price-takers. Because of this monopoly situation the return of the DSOs is regulated in terms of a *return-cap* that is determined by the FEA and that is based on the *balance sheet of the DSOs* - there is no cap on the absolute return. The regulation model governing the DSO return-cap, the incentives (carrot) connected to weather-proofing investments, and the repercussions (stick) if the targets are not reached, are presented in detail in a report commissioned by the FEA (Karttunen, 2014).

The law itself states that the *pricing* of the transmission services should be reasonable as a whole – what is “reasonable” has not been specified, nor does the law take a stance on the DSO return level. The above set-up creates a moral hazard problem that is caused by the way the return for the DSOs is regulated – by maximizing the costs of the weather proofing investments DSOs maximize their absolute returns, this in turn makes the end-customer prices higher. In essence the customer whose availability of electricity is protected by the law ends up fully paying for the protection, without having a say on how the protection is done.



**Figure 1: Electricity transmission fees in Finland in 1997-2019 (Energiavirasto, 2019).**

The law allows for exceptions to the weather-proofing requirements (requirements of 6h / 36h must not be complied with), when the metered supply point (MSP) is on an island with no bridge or other fixed connection, or a regular ferry connection, or when the annual electricity usage is low (<2500kWh/last three years) and the weather proofing investment cost would be irregularly high due to a remote location. The DSO has the power to define the MSPs that constitute an exception. Self-reporting from the DSOs reveals that the level of defining MSPs as exceptions varies greatly between DSOs, this is partially due to the different circumstances, while there is a clear difference in these decisions also under similar circumstances.

**Table 1: Costs associated with the different cabling alternatives (Partanen, 2018)**

Aerial cabling (through forests)	Aerial cabling (following roads)	Aerial cabling (following roads, wide corridor)	Underground cabling
30850 €/km	33360 €/km	37850 €/km	62500 €/km

There are alternative ways to construct the cabling for electricity transfer networks. The typically used way in Finland has been to construct aerial cabling that has been routed to go through forests –

this method is sensitive to faults, as falling trees and accumulating snow easily cause problems. More weather-proof ways to construct aerial cabling are to route the aerial cables to follow roads, to use wide corridor road-following aerial cabling (forest is cut so that trees cannot fall on the cable), and underground cabling. Each of these alternatives has an associated cost (see Table 1) and underground cabling is the most expensive way to weather-proof transfer networks. It must be observed that areal cabling with a wide corridor and even area cabling routed to follow roads are good choices from the point of view of weather-proofing, while underground cabling is the most weather-proof form of transfer network. This means that the migration is away from aerial cabling that is routed through forests towards the more secure networks. The DSO has the (sole) power to decide which type of cabling it wants to use. Self-reporting of investment strategies by the DSOs to the FEA indicates that the DSOs often choose to use underground cabling, while some DSOs do it categorically. There are also a number of other possible weather-proofing investments, they are however, left outside the scope of this presentation.

The literature on the topic is scarce, there are only few documents and reports that describe the situation. The most important documents are reports produced and commissioned by the FEA (Energiavirasto, 2015, 2018a, 2018b, 2019; Karttunen, 2014) and the report on the price and reliability of electricity transmission, commissioned by the Finnish Ministry of Economic Affairs and Employment (Partanen, 2018). The only work so far that considers this issue from the point-of-view of the customers is the already published part of this research (Muukkonen, 2019).

On this background this work studies with two numerical case illustrations the costs associated with weather-proofing investments. The cases focus i) on the possible cost-reductions that could be reached by harmonizing the definition and the consequent making of the MSP exceptions across the DSOs and ii) on cost-reductions that could be reached by a non-categorical use of underground cabling. Investment cost reductions, while providing satisficing weather-proofing are in the best interest of the customers. This paper continues with a short description of the methods used and a presentation of the data sources and data used. This is followed by the two presented cases. The paper is closed with some conclusions.

## **2. Methods and Data**

The research approach used is that of exploratory research into the domain of Finnish electricity transfer networks – exploratory, because the existing academic literature on the topic is non-existent and there is no comparable literature that would shed light to the focus area available from abroad. This is why we have adopted the use of two simple cases that illustrate the accrual of costs in Finnish weather proofing investments by way of using nominal cost figures available from the industry and regulator reports, and by performing simple calculations to derive a range of the size of the “cost phenomenon” for the weather-proofing investments. The data used is the best available and is produced by the Finnish Energy Authority, the local regulator that has either produced it or commissioned the production to consultants. The original sources are in Finnish.

## **3. Case 1: possible cost-reductions from harmonizing MSP exceptions**

In the first case our interest is focused on the definition and use of MSP exceptions by the DSOs. For this purpose we have obtained from the FEA the by the DSOs self-reported investment strategy documents – the documents are made available to us for research use. From these documents we

look at seven large DSOs that represent approximately 943K MSPs in non-urban areas (we expect no exceptions to occur in urban areas). Of these 581K MSP are not weather-proofed, 228K fulfil the criteria for an exception, and DSOs have planned to make 46K (24%) of the criteria-fulfilling exceptions (only). For the purposes of this research, we use a calculated average cost of 2627€ as the weather-proofing cost for a single MSP (Muukkonen, 2019).

**Table 2: Scenarios about defining and making MSP exceptions and the savings potential**

Scenario	Scenario contents	Added # of exceptions	Savings potential 2020-2028
1	The average % of defined exceptions of possible exp. by two largest DSOs used for all	16000	42 M€
2	Double the present % of exceptions (to 48%)	46000	121 M€
3	Exception made for all MSP that have been defined to meet the criteria	182000	478 M€
4	Harmonize to 33% and make all exceptions	264000	693 M€
5	Make all exceptions and “buy” preparedness from 30% of the MSP in the exception branches	345000	906 M€

Table 2 shows five possible scenarios with regards to defining and making MSP exceptions and the cost reductions of these scenarios. The first scenario is based on the idea that the two largest MSPs are more reliable in their ability to define exceptions. The first scenario cost reduction is calculated by using the average percentage of exceptions (33%) of all MSP defined by the two largest MSPs, and applying that to the whole population, while the exception-making level remains the same. The second scenario simply expects that the amount of exceptions made, of the defined exceptions, is doubled. The third scenario is based on the simple idea that exceptions are made for all MSP that meet the standards of being exceptions. The fourth scenario is based on the logic used in scenario 1 and applying that with the logic of scenario three.

The fifth scenario is different from the four others, because it includes a separate element that is based on contacting MSP owners and contracting with them the weather-proofing issue – the idea is that the MSP owners are compensated for taking care of their electricity supply security by themselves. The idea in this scenario is that 30% of the non-exception MSPs in network branches with exceptions would agree to be compensated for self-preparation instead of having the cables re-drawn. The compensation means that the investment cost reduction is not all “away” from the cost, while the compensation has to be added – this is not taken into consideration in the fifth scenario.

As Table 2 shows, there is a lot of cost reduction potential in making more exceptions, than the DSOs have reported they will make and the affected number of MSPs is large – the investment cost reduction figures range from tens to hundreds of millions euro and the number of MSPs affected is in the tens to hundreds of thousands. The numbers are not insignificant, when they are contrasted with the overall cost estimate for the weather-proofing investments, in fact the savings from scenarios 1-4 range between 1.4 and 23.8 percent of the estimated 2,9B€ cost.

#### **4. Case 2: possible cost-reductions from non-categorical use of underground cabling**

In this second case we again look at the by the DSOs self-reported investment strategy documents and study the choice of cabling they have made for the non-urban areas. We focus on high-voltage

lines only (high voltage lines service a large number of customers, and hence faults in them cause more MSPs to experience outages). There were 51100km of high-voltage cables in Finnish forests in 2018 (Partanen, 2018). The investment strategy documents reveal that there are two main strategies for high-voltage cables – one that is based on categorically using only underground cabling and another that is based on (mostly) using the aerial cabling following roads alternative.

First we look at the difference between these two alternatives in the hypothetical case, where the whole 51100km of high-voltage lines are either drawn by underground cabling, or by using aerial cabling that follows existing roads with wide corridors. Both strategies provide satisficing weather-proofing for the network. This “playing with absolutes” is obviously not realistic, but the idea is to get a grip on the maximum size of the difference between these two satisficing alternatives.

Then we look at the real case of the largest DSO in Finland (counted by the number of MSPs) that has self-reported that their strategy is to only predominantly use underground cabling for the high-voltage transfer network in their domain that spun 8540km in 2018 – they further report that for the low voltage network they only use underground cabling. Table 3 shows the differences in cost of these two strategies for the “whole Finland case” and for the case of the largest DSO in Finland.

Of the six largest DSOs the others use a mix of underground cabling and moving aerial cabling to follow roads. Only one of the six largest DSOs indicates that they would use the wide corridors, which means that the cost of cabling is typically lower than in the wide corridor case used in the calculations in Table 3.

**Table 3: Cost difference between different cabling strategies – potential size and largest DSO**

Cabling choice	Whole country	Largest DSO
High-voltage line in forests	51100km	8540km
Underground cabling	3194M€	534M€
Aerial cabling following roads w. wide corridors	1934M€	323M€
Difference in cost between strategies in €	1260M€	211M€

The difference between the strategies is remarkable in absolute numbers in both cases, when looking at the theoretical “Finland as a whole” situation and also for the largest DSO alone. As the estimated cost of the weather proofing investments is 2900M€ the observed cost differences are not insignificant, especially because the compared alternatives are both satisfying the weather-proofing requirements. This puts the categorical decision of the largest DSO to only invest in underground cabling under a critical light.

The DSOs have the sole right to determine which type of cabling they choose to proceed with in making the weather proofing investments and the profit maximizing strategy for the DSOs is to maximize the investment cost – this situation creates an obvious moral hazard situation, which most likely was not the intention of the law.

One must observe the fact that some of the weather proofing-work will fall under the typical refurbishing of the electricity transfer networks – how much of the work would have to be done anyway (even without the new law) is not clear. Because of the lack of reliable information, here we rely only on the available expert estimates made previously.

## 5. Conclusions

An electricity transmission network companies are utilities providing service to the whole society and they usually operate as a natural monopoly, a single customer has no negotiation power. Here we have concentrated on the Finnish case, where a new law, enacted to secure the electricity-availability of consumers by putting an onus of weather-proofing the network on the DSOs has led to a situation, where the cost of electricity has sharply risen. At this time the Finnish law gives the DSOs sole power to decide a number of issues with regards to the weather-proofing investments, such as defining and making exceptions to the weather-proofing and the choice of how the weather-proofing investments are made. The system that is used to regulate the DSO return-level creates an incentive for the DSOs to maximize the weather-proofing investment costs, because the costs can be fully rolled to the customers and the return in absolute terms increases if the costs increase. This clearly a potential case of moral hazard, because it is in the best interest of the customers that the cost of weather-proofing investments are minimized, while a satisficing level of electricity availability is secured and simultaneously maximizing investment costs is in the best interest of the DSOs.

We have shown with two simple exploratory cases that the decision-making power the DSOs have over the weather-proofing investments potentially translate to large differences in weather-proofing investment costs. The observed cost difference is potentially transferred to the customers in higher costs.

The exploratory observations made here are only a tip of the iceberg and there are many other issues that merit further study, such as the construct of the regulation concerning the DSOs and the law governing the weather-proofing investments. Also alternative, for example, insurance-based mechanisms to solve the need to make weather-proofing investments should be explored. It would also be interesting to uncover whether the DSOs that are owned by their customers invest (report in their investment strategies) differently from DSOs that are owned by (profit maximizing) outsiders, and the many different directions that can be studied with regards to additional potential cost-reductions from weather-proofing investments.

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## Stability in the banking sector in European Union

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**Abstract:** The Stress tests generally serve to determine the stability of the banking sector at a time, when the economy should be in a state of recession. The European Banking Authority (EBA), together with the European Central Bank (ECB) and the European Systemic Risk Board (ESRB), simulates various adverse scenarios and tests, the resilience of the banking sector in various situations. The latest stress testing was conducted in 2018 and was more rigorous. The aim of paper is to compare the results of stress testing of the banking sector in 2016 with stress test in 2018, as well as across EU countries. The stress test results suggest a change in International Financial Reporting Standards (IFRS) 9, as well as a change in determining the optimal level of bank capital resources (TIER1) that banks should hold in the event of adverse economic development scenarios. European banks that do not even achieve optimal equity adequacy levels in stress tests, must take measures to increase their capital equity over period. The 2018 stress test results suggest that all tested banks have sufficient equity.

**Keywords:** banking union, stress test, capital requirements

**JEL classification:** E58, F33, G21,

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### 1. Introduction

After the financial crisis, the leaders of the European Union have recognized that Banking union is needed. Everybody knows that crisis began in US in 2008. In Europe, the crisis was manifested by the fact, that Greece had billions of debts and the first € 110 billion rescue loan did not help them (ECB, 2014). However, at that time, Greece was not the only one country with few problems, other countries, such as Spain, Italy, Portugal and Ireland, are experiencing difficult times. National central banks, together with the European Central Bank, are introducing austerity regimes and lowering interest rates in order to alleviate the stressful situation for borrowers. Banks liquidity was at risk level. Several banks have gone bankrupt or, have had to conduct a restructuring program. Several bankers argue, that the reason for that was inside the banks (major parent companies) did not hold enough adequate own funds in the bank's asset structure. On the other hand, they asked money for people or companies that were unable to return them, and the crisis came to its full extent. In order to avoid such a situation in the future, the EU has started to form a Banking union. The Banking Union Plan was approved by the European Commission in 2012. The banking union is trying to build a lost confidence in the banking system. It is supported by the three basic pillars that make up the union. According to their names, we know that they are built on unitary system. Main task is to supervise the banks in order to prevent their failure. If the bank is at risk, pillars talk about how to proceed in this situation. While the first two

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of the three pillars have been operating since 2014, respectively since 2015, the last pillar is still as a proposal - Germany and other smaller countries disagree in several points (ECB, 2014). In order to prevent crisis, many measures have been taken in the European Union to observe and maintain the appropriate capital equity of individual banks. With that context, we try to examine the stress tests in the European Union. In the paper we will compare the results of stress tests in 2016 and 2018. We focused on information that comes into testing, such as number of banks, capital requirements, different scenarios. We also assessed the different results for banks, but also for countries such as whole European Union. As International financial standards have changed from IAS39 to IFRS 9, the final sub-objective is to explain changes in financial standards bit closer, as well as we assessed how changes in IFRS 9 affected stress testing.

## **2. Comparison of stress testing in 2016 and 2018**

EU-level stress test, covered by the EBA, included in 2018 - 48 major institutions, which in total account for around 70% of European assets under banking supervision. The results were published on November 2, 2018. As part of the Supervisory review and evaluation process (SREP), all major institutions not participating in the EBA EU-wide stress test were included in the SREP stress test conducted by the ECB's banking supervision. The test was aimed at 54 other major institutions in the euro area. 2018 banking stress test orientation (EBA, 2018):

- Analysis of the development of banks' capital position under the assumption of a static balance sheet by 2020, both in the baseline and in the adverse scenario.
- Negative scenario considers - at EU level:
  - 3% cumulative decline in GDP by 2.7%;
  - Unemployment at 2020 reaches 9.7%;
  - 3-year cumulative inflation will be 1.7%;
  - Cumulative decline in residential property prices by 19.1% and commercial real estate by 20% in 3 years.

The first difference between tests is major risks classification in different tested scenarios. The second is the number of banks being tested. In 2016, there were 51 banks (EBA, 2016), while in 2018 they were 48 (EBA, 2018). The number of banks tested is going down because the ECB really wants to test only those banks that make up a large capital base. In the event of their failure, the unfavourable scenario could come true. In 2018 we will no longer find the Italian bank called Monte dei Paschi di Siena (Comfrot, 2018). In the stress test 2016, this bank did not pass, and its own capital values showed negative values. The bank is currently undergoing restructuring and it is seeking to increase its capital. However, the Italian bank is not the only one not participating in the test in 2018. 8 banks did not take part in new testing in 2018 to compare with test in 2016 and five new banks were added. The changes are made because banks are changing their capital values over a period of two years. Banks expert thus review the importance of bank participation in stress testing. Austria's Raiffeisen Bank appeared again in 2018. It is a large parent company that has subsidiaries throughout Europe. The transformation program has taken the capital increase and the ECB considers it as important bank (Elliot, 2016). The capital coefficients are also different. While it was 7% in 2016, it fell to 5.5% in 2018. The lowering of this indicator was mainly due to a change in IFRS 9 accounting and financial standards. If the banks are dissatisfied, they can comply with the SREP regulations and their situation should be improved. In the table 1, you can see difference in the major risks' classification in the tests (IFRS, 2014).

**Table 1: Major risk classification in the stress tests**

Year/risks	1	2	3	4
2016	Sudden change in global risk premium, boosted by low liquidity in the secondary market	Weak prospects for the profitability of banks and insurance companies in a low nominal growth environment	Raising concerns about debt sustainability in the public non-financial private sector with low nominal growth	Stress in the rapidly growing shadow banking sector, the risk of spilling and liquidity
2018	Sudden change in global risk premium in the global markets	Adverse feedback between weak bank profitability and low nominal growth	Problems with sustainability of public and private debt in relation to potential revaluation of risk premium	Liquidity risk in the non-banking financial sector with potential expansion into the financial system

*Source: authors' own processing based on information from EBA 2016 and EBA 2018.*

Experts from the EBA and the ESRB estimate the adverse situation, in the presence of the above-mentioned risks. They assume, that shocks will result from bond yields and equity prices. This reflects on the market participants' expectations in large economies outside the EU, which are beginning to reassess risk premiums. Stock prices would fall everywhere, but most in the US. In the EU, stock prices would also fall as a result of asset sales to non-bank institutions. Experts estimate that stock prices would fall by 30% in the EU in 2018 while up to 41% in the US. At the same time, the exogenous shock caused by risk premiums would affect the bond market and the expected increase in their yields. The shock would be that the prices of European financial instruments would have a solid yield. The EU sovereign debt spread would be particularly widespread among countries where there is greater concern about debt sustainability. Interest rates would grow more in the US than in the EU, because experts in this estimated situation expect the shock to be triggered by changes in market participants' expectations outside the EU. In the EU, monetary policy will be expected to try to limit the penetration of long-term interest rates. Based on this information, we would assume that the euro would fall by between 7% and 15%. However, it would then return to its original level. They also assume that if the adverse scenario is met, GDP will fall by 2.5% to 7.4% in non-EU countries by 2020 (ESRB, 2018). EU GDP deviates by 8.3% from its baseline. Foreign trade would also be affected, and commodity prices would be linked to a slowdown in global economy. Oil prices are expected to fall. However, global shocks will negatively affect EU countries, leading to a reduction in private consumption and investment. A significant decline in domestic demand would also affect the real estate market, where prices could also fall by 27.7%. An overall economic downturn would lead to an increase in unemployment of about 3.3%. However, it should be remembered that every country has a different shock. Countries with great openness experience greater shocks.

Stress testing in 2018 was very successful. Next table 2, compares the results of stress tests of two periods by country. The results of the banks are like an averaged to make our countries easier to compare. When we look at the column that predicts the adverse scenario in 2018 and the column that shows the actual values at the end of 2017, we can say that there is no indication that it will be fulfilled. The actual amount of capital in December 2017 is in all cases higher than in the estimated adverse situation a year ago. It is also important to point out that banks maintain and, in many cases, increase equity (impact of IFRS 9).

**Table 2: Comparison of stress tests results by countries**

Country	Actual values Dec. 2015	Adverse scenario Dec. 2018	Actual values Dec. 2017	Adverse scenario Dec. 2020
Netherland	13,8	9	15,84	11,85
Austria	11,6	7,3	13,18	9,04
Belgium	15,4	11,3	16,32	13,47
Denmark	16,9	14,1	18,24	13,39
Finland	19,5	14,9	20,10	15,28
France	12,6	9,7	13,75	9,71
Germany	14,8	9,5	16,00	10,23
Hungary	13,4	9,2	15,21	13,03
Ireland	14,6	7,5	18,49	13,10
Italy	11,7	7,7	13,24	9,57
Norway	14,3	14,3	16,21	15,03
Poland	13,3	11,4	16,47	15,76
Spain	12,5	8,6	12,22	9,41
Sweden	18,9	16,5	20,81	17,94
United Kingdom	12,5	8,5	14,36	8,87
EU	13,2	11,4	14,51	10,32

Source: authors' own processing based on information from EBA stress test results (ESRB, 2016, 2018).

According to the table 2, the Swedish banks are the best. The same banks participated in both tests. There were 4 of them, and all of the banks tested were the largest in the stress test. Sweden has one of the largest banking sectors in the EU. The fact that banks are doing well in Sweden can also be attributed to the long-term low inflation or denial of the euro. Leaving the Swedish crown as a means of exchange, the currency of the domestic currency has strengthened.

Banks in Austria accounted for the smallest equity in 2016. The amount of capital was on average 7.3%, which is only slightly above the recommended capital coefficient. During the testing period, Austria recovered from the banking crisis and realized that they needed equity. The banks found help from the government - Erste Bank, Raiffeisen Bank. In 2018, Austrian banks have already shown more equity. The results of stress tests in 2018 showed, that problems might occurred in U.K banking system. Bank equity of some UK banks, in the stress test is about 8.87%. Compared to the actual situation, it is a drop of almost 6%. We attribute it to the fact of expected Brexit situation, which still does not arrive and lead various assumptions about scenarios. If the UK left the EU without agreement, it could cause a recession (rising inflation, unemployment). All these facts have an impact on how much equity the banks make up (EBA, 2018).

In 2018 stress test, all banks confirmed their strength. No bank achieved negative equity values and stayed above the recommended capital coefficient. However, we can mention banks whose capital stocks were the lowest, but that does not mean that they failed in testing. Norddeutsche Landesbank - Girozentrale, the German bank, has the lowest capital equity. It would be 7.07%. According to the official NORD / LB website, their equity in 2018 increased by three percent compared to 2017. The less successful banks in testing are also the British bank Barclays Plc. In an unfavourable scenario, the Bank of England would have had its own capital of 7.28%. The French bank Societe Generale joins the three banks that did not exceed 8% of their own capital (ESRB, 2018). The most banks were controlled in Germany. Up to 8 banks were subject to the test. The European average of equity holders during the

unfavourable situation is 10.32%. Compared to December 2017, the average dropped by around 4%. Four Swedish banks were the best in the European average. Their common average was almost 18%. The best in Poland was Poland. Although the banks do not make up the largest share of equity capital, in an adverse situation, equity has fallen by less than 1% compared to the actual state. The big scarecrow were the Italian banks, which had a lot of attention in testing. It was caused by the bad economic situation and the fact that the Italian debt is the second highest after Greece. Neither did the new government, whose leadership was to make the deficit even higher, helped. So, the results surprised everyone. Italian banks have passed the test successfully. Compared to the actual situation to testing, equity decreased by 3.67% on average (Harrison, 2018).

### 3. International financial reporting standards – IFRS 9

IFRS 9 were published by the International Accounting Standards Board (IASB) in July 2014. In the EU, they were approved in November 2016. Effective from the financial year 1 January 2018. This version replaces the existing guidance in IAS 39, it's an improvement (IFRS, 2014 and EBA, 2018).

The main change is the new expected credit losses model (ECL). Changes in credit loss regulations should address the problems of recognizing credit losses as well as improve the recognition of recognized reserves for loan losses. For banks, the implementation of IFRS 9 represents significant changes in terms of model change and the use of new processes to estimate loan creation. There is also a big change in terms of internal controls and reporting. The quality of data provided by banks is expected to increase in the future. IFRS 9 is a comprehensive standard that is best assessed when implemented by all banks. The role of regulators and supervisors is to ensure high standard compliance as the ECL result will have a direct impact on the amount of own resources. EBA observes quantitative changes in the application of IFRS 9 through various indicators. It assesses the impact of new standards on institutions. Information is most often obtained from ordinary or financial reporting (IFRS, 2014).

#### 3.1. Comparison of financial standards IAS 39 and IFRS 9

The difference between standards is already seen in the classification itself, which determines how financial assets are accounted for in the financial statements and how they are valued. IAS 39 contained many categories of classification and different models of impairment. It was based on rules and more demanding. IFRS 9 arose from weaknesses in IAS 39 and many issues related to the classification and measurement of financial assets. IFRS 9 applies only one classification approach and therefore financial assets are assessed as a whole. In the table 3 we classify basic differences between financial standards.

**Table 2: Basic differences between financial standards IAS 39 and IFRS 9**

<b>Classification IAS 39</b>	<b>Classification IFRS 9</b>
Based on rules	Based on principles
Complex and demanding in practice	Based on the business model and the nature of the cash flows
Multiple depreciation models	One devaluation model
Own credit gains and losses recognized in profit or losses for revaluation liabilities with fair value	Own gains and losses on loans reported in other total income for fair value liabilities
Complicated retraining rules	Retraining based on business model

*Source: authors' own processing based on information from IFRS.*

The business model used in IFRS 9 refers to how an entity manages its financial assets. We can observe it through the actions that the enterprise undertakes to achieve its business objective. The model is more fact-based. Therefore, business plan information, ways to compensate business managers and the frequency of business activities should be assessed objectively. In determining whether this business model is usable, an entity shall consider information about past sales and expected future business activities. Compared to a model designed to hold financial assets to collect contractual cash flows, this business model includes a larger frequency and volume of sales. The business model provides information about loss / gain on amortization and fair value. Other models that speak of other assets that are measured at fair value through profit or loss are also included in the business model. Fair value is a residual category, which includes financial assets held for trading. If a financial asset is of a long-term nature and is held to collect contractual cash flows, it will be measured at amortized cost. On the other hand, if the asset is held to collect cash flows and also sell financial assets, then the financial asset is measured at fair value in the balance sheet, and information about amortized cost is provided through profit and loss. The new ECL model is an important change in the stress test methodology. Financial assets are divided into three levels by credit quality. The first and second stages concern separate loans. The third stage concerns loans with reduced credit value / outstanding loans. 48 banks, that participated in the 2018 stress test, more than half did not opt for transitional measures. 15 banks used both static and dynamic components. The only bank, Intesa Sanpaolo, chose a static component. When comparing, it is important to consider whether or not the bank applies the transitional provisions. Some common assumptions have been made in the stress test to ensure consistency and a level playing field. A three-fold increase in the probability of failure is considered as a second grade. Loans that are not executed under the EBA Technical Implementation Standard on the Ineffective Loan Adjustment are classified as a third grade (EBA, 2018).

#### **4. Conclusion**

2018 stress testing was the most rigorous of all tests. This was due to changes in International Financial Standards 9. There is no success threshold for banks during testing. The European Banking Authority will only determine the optimal capital coefficient that banks should not exceed. In this test, all banks ended up very well. None exceeded the recommended value of 5.5%. We found the work that the differences between the old and the new standards are mainly in based different principles. IAS 39 is based on rules, while IFRS 9 is based on principle. This is a pattern of impairment of expected losses, which requires banks to report on a regular basis the amount of impairment of expected losses not only when there is evidence of loss. The paper gained knowledge about stress tests and how they are influenced. An example of an Italian bank is to see why testing is important. If the shortcomings were not found in time, the bank's clients, the bank itself and later the country would be at risk. This could trigger another crisis. When the equity capital is found to be inadequate, the competent authorities prepare individual measures to increase the capital in a particular bank. The results of the stress tests in 2018 were very successful. No bank achieved negative values in an adverse scenario and managed to maintain equity even though in some cases with less losses.

Ten years have passed since the last crisis started. We know that the economy has a cyclical character. It is only a matter of time when a recession arrives again, unemployment increases, inflation increases, and economic growth slows down. Banks will no longer provide this amount of credit because of poverty. Will there be another bank crisis?

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## Using Web-scraping techniques to build a consumer price index

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**Abstract:** The undergoing effort to modernize the data collection and processing methods, in order to obtain more timely and accurate statistical indicators involves using new data sources and innovative techniques. Internet is widely used as a main source for building new data sets that are fed into new procedures designed to compute or enhance the traditional set of statistical indicators describing the current status of an economy. The consumer price statistics is one of the areas that can benefit most from this new type of data source. In this paper we describe our experience regarding automated consumer prices collection from e-commerce sites using a set of software tools and compiling a consumer price index. The purpose of our research was to investigate whether the Web-scraping method is feasible to produce a regular consumer price index in the future. We investigated the methodological challenges and developed a set of tools that automates the process of data collection, transformation from semi-structured to structured data, and computation of a consumer price index.

**Keywords:** Consumer Prices Index, Web Scraping

**JEL classification:** C81, C88

### 1. Introduction

The undergoing effort to modernize the data collection and processing methods to obtain more timely and accurate statistical indicators that describe economic phenomena involves using new data sources and new techniques (Griffioen, 2016). Today Internet is used as an important source for building new data sets that are fed into new procedures designed to compute or enhance the traditional set of statistical indicators describing the current status of an economy (European Commission, 2012). A mainstream trend in consumer behaviour research is to increasingly use online e-commerce sites, which result in larger shares of the online expenditures in the overall household's consumption. As a result of this trend, consumer price statistics is one of the areas that can take advantage from this new type of data source. Several projects explored the potential of the Web-scraping techniques to enhance the production of the classical consumer price index (Swier, 2017).

In this paper we describe our experience regarding automated consumer prices collection from e-commerce sites in Romania using a set of open source software tools and compiling a consumer price index (Oancea, 2018). The main goal of our research was to investigate whether the Web-scraping method is feasible to produce a regular consumer price index or not (Auer and Boettcher, 2017). We investigated the methodological challenges raised by such approach and developed a set of tools that automates the process of data collection, data transformation from semi-structured to structured data, data validation and computation of a consumer price index (Bhardwaj et. all, 2017). We tried to

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follow as much as possible the traditional methodology used for the consumer prices index and added some new features such to take advantage of the specificity of the Web-scraping collection method (ILO/IMF/OECD/UNECE/Eurostat/The World Bank, 2004). The rest of the paper is organized as follows: in section 2 we give some details about the methodological challenges, in section 3 we present our first preliminary results and section 4 is dedicated to presenting the main conclusions and further steps in our research.

## **2. The methodological approach**

We started our project by collecting prices on a monthly basis, using the list of goods and services included in the national classification used to build the consumer prices index. We piloted our approach using only the data for the group of food and the items covering clothing and footwear, these goods having the biggest share in households' consumption.

The observation unit was the Web site of the e-commerce companies and we assumed that these companies cover the entire national territory through their Web site. The selection procedure of the sites was based on a sales-turnover relationship, sorting by decreasing order the sales figures reported by the firms that own the Web sites. At the moment when we started this project, there were certain barriers, for example the most important player in terms of turnover on the hypermarket segment in Romania did not have a channel dedicated to online commerce. We selected 4 sites for food, 5 sites for clothing and 5 sites for footwear products. However, the trends at European level suggest that market forces will require online migration from the most important players in retail.

The main variable collected from these Web sites was the price with VAT. The automatic collection method allows us to also record the prices for the goods affected by discounts, promotions, or other forms of attracting customers through prices. We recorded the old price and the discount shown as a percentage alongside with the displayed price. This allows us to identify the seasonality factors that could affect the price variation for certain categories of goods. Prices are recorded in simple text files that contain the following variables: product name, current retail price, old retail price and/or retail discounted price, if displayed, composition for clothes/footwear, a short description of the product if provided, collection date and Web site address. The selection of the products, whose prices are kept under observation, is based on the national standard classification used in CPI methodology. We collected around 70,000 observation for each month, starting from August 2017 until March 2018 and is an ongoing process

For data collection we tried several open source software solutions, and, after assessing the pros and cons of each solution, we decided to use the Robot Framework software (CBS, 2018). Robot Framework is highly flexible and scalable. The automatic collection of prices observed on web sites included in the sample was carried during the same period of the months for the traditional consumer prices index survey used in official statistical system. After data collection, the first processing step was the transformation of semi-structured data to structured data suitable for further processing (INS, 2017).

The Web scraped data cannot be directly used in the process of classifying products and estimating price indices. To address this issue, we have developed a series of R scripts that transform the data in a way that allows flexible handling. The consumer price index computation steps are sequentially deployed, the data input for each stage depending on the output of the previous stage, except for the first step.

Using web scraped data as input several basic operations were performed: check for missing data, aberrant values and other validation operations. In this step we identified some possible error sources: sites were unavailable or have undergone changes, the Web-scraping application encountered Web content elements that requires additional pre-processing, the Web server identified the Web-scraping application as a malicious software and imposed an access restriction to the site at the IP address level, etc.

After data cleaning, all the files collected for a certain month are joined automatically. The resulting file is read by another R script and transformed into a data structure suitable for an automatic processing. Some basic transformations are performed before linking and classifying the products match the consumer price index classification. The procedure requires manual product linking and classification according to the standard classification, i.e. identifying the observations containing a description similar to the one provided in the standard classification. This activity can generate errors whose propagation can significantly influence the quality of the results. The manual linking and classification rule was to assume that consumers will choose a product or products substitutable to the one present in the standard classification within a reasonable price limit, i.e. the actual price is less than or equal to an arbitrary value of 150% from the price of an article included in the standard classification. Thus, we chose to select several articles for one assortment within the same observation point. The join operation between two or more tables was based on the "name" variable containing the product description by matching strings in a 1 to 1 ratio.

We also developed an automatic encoding procedure with encouraging results. We tried several machine learning and distance-based algorithms for this procedure and the best results were obtained using the Levenshtein distance. However, there were deviations from the established methodological standard, manifested in the form of intermittent presence of articles in the sample, which is highly positively correlated with the collection instances frequency.

In the final step the elementary price indices at product level, assortment, and expenditure group is computed. In the first part we computed the arithmetic averages for the articles for each month and observation point. This average was used to compute the elementary price indices at the product level, by clustering the prices through a geometric mean in order to obtain a generic product specific to that observation point, according to the formula:

$$i_{vg} = \sqrt[n]{\prod_1^n i_{vn}} \quad (1)$$

where  $i_{vg}$  is the elementary index of the generic product at the observation point level,  $n$  is the number of products within the same assortment and  $i_{vn}$  is the elementary price index at the product level. The subsequent computation steps follow roughly the steps from the standard methodology (UNECE/ILO/IMF/OECD/EUROSTAT/The World Bank/ONS, 2012). However, there is a slight deviation from the standard methodology: in order to obtain the price index at the expenditure group level, we assigned to each assortment a weight equal to  $1/n$ , where  $n$  is the number of assortments identified as belonging to that group and we applied a weighting recalibration procedure to aggregate price indices at expenditure group level using the following formula:

$$coef_{rp} = \frac{\sum_1^{pn} pg_{pn}}{\sum_1^p pg_p} \quad (2)$$

where  $coef_{rp}$  is the recalibration coefficient,  $pg$  is the weight of the expenditure group in the total of initial weights,  $pn$  the number of expenditure groups identified after the classification and data cleaning and  $p$  the initial number of expenditure groups from the classical methodology.

The recalibration coefficient was applied to each weight from the classical consumer prices index expenditure groups according to the formula:

$$pr = pg * coef_{rp} \quad (3)$$

This intermediate stage is necessary due to the absence of certain articles from the offer present on retailers' Web sites, subsequently transferred to assortments and/or expenditure groups.

### 3. Results and discussions

We used August 2017 as a base and obtained the aggregated indices at the groups of food, clothing and footwear presented in Figures 1, 2, and 3.



Figure 1: The comparative evolution of the price indices for food



Figure 2: The comparative evolution of the price indices for clothes



**Figure 3: The comparative evolution of the price indices for footwear**

From the evolution of the two price indices, traditional and online, it can be noticed that the online collection method implies a different trajectory due to the different samples used and from the applications of a uniform weighted scheme at assortment and expenditure group level. Another possible explanation can be found in the non-probabilistic sampling process through which online stores are selected, thus ignoring the representativeness at national level due to the lack of specific information. Selected food, clothing and footwear stores can serve large cities and neighbouring areas, having complex pricing policies, which may be different from small shops serving small city areas and rural communities.

#### **4. Conclusions**

This project experimented Web-scraping techniques for data collection in order to build a consumer price index similar to the one provided by the official statistics. While we gained experience with the software tools involved in such a project, we also identified some limitations for our specific study of online price collection. Firstly, one can note that the number of households purchasing an online product is relatively small, and generally depends on several factors such as the geographical position, income level, education level, etc. Secondly, not all businesses with a significant volume of transactions included in the list of observation units for traditional consumer price index has a Web site. Moreover, the IT technology can have a significant impact on price variation, e.g price discrimination based on geographic region. Thirdly, the components of the classical consumer basket and the weights used at the level of the expenditure groups do not entirely reflect the consumption habits and the budget restrictions of the segment of the population addressed by the online stores.

Nevertheless, the results obtained, and the potential of the Web-scraping collection method are encouraging and we intend to continue to develop a specific online price index (Willenborg, 2017a, 2017b), by extending the current collection procedures to the entire products and services nomenclature, by developing a new methodology for computing CPI based on online prices, along with a new nomenclature designed for online price collection.

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## Economic and Motivational Aspects of Retirement Requirements as a Part of Public Finance

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**Abstract:** Retirement requirements represent a significant part of military expenditures. Military expenditures are involved in the state budget expenditure chapter, specifically in chapter 307 - Ministry of Defence, and thus forms an indispensable part of public expenditures. Retirement requirements are one of the essential instruments of the Czech Army soldiers' motivation and stabilization. For this reason, the aim of this contribution is to find out the motivational potential of retirement requirements, respectively retirement allowance, depending on individual service's characteristics. Service characteristics included rank corps, age, length of service, service classification and gender.

**Keywords:** Chi-square Test, Motivation, Public Finance, Retirement Requirements, Service Allowance

**JEL classification:** A100, C120, E60, H55

### 1. Introduction

Retirement requirements provide to professional soldiers the social security especially after the termination of their service. They take into account the physical and mental demands of the military profession, as well as the duty of the soldier to meet the needs of the Czech Republic. A number of limitations and obligations that are not commonly found in the civilian sector also must be taken into account. For example, a soldier may not be a member of a political movement, political party, or trade union. Furthermore, with some exceptions, they may not engage in gainful employment or business.

Retirement requirements are based on Act No. 221/1999 Coll., On Professional Soldiers, and are an integral part of the social security system of professional soldiers of the Army of the Czech Republic. They fall into the state budget under chapter 307 - Ministry of Defence, specifically the chapter 1.6.1.6. - Other social benefits.

According to data from the Final Account of the Czech Republic, chapter 307 - Ministry of Defence of the Czech Republic, total expenditures in 2018 amounted to CZK were 59,011,930,000. Retirement requirements of CZK 2,508,312,000 accounted for 4.25 percent of the total expenditure of the Ministry of Defence. The service allowance of CZK 2 371 536 000 represents 94.55 percent of the expenditure allocated to the retirement area.

This amount could be a reflection of the motivational character of the service allowance. Soldiers have above-standard salaries and specific lifestyle. When they finish the active service, the service allowance provides them with a stable minimum income.

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The goal of the article is to find out the dependencies of respondents' attitudes to the motivational effect of the retirement allowance in view of their rank, gender, age, length of service and service classification.

## 2. Methodology

Methods of induction, deduction, synthesis and analysis as methods of scientific work were used during the preparation of this paper. In the case of the analysis, specifically analytical-synthetic, positive-normative analysis and descriptive-comparative analysis were used. (Krč, M. & kol. 2005)

Quantitative and qualitative research methods were used to obtain the necessary data base, especially the questionnaire and controlled interview. In the course of data collection through controlled interviews, the method of observation, which is a typical method of data collection in qualitative research, has also been involved. In the analytical part mathematical-statistical methods representing special scientific methods were used. Statistical significance tests were used to determine the relations between the phenomena studied.

Methods of verification and falsification served to prove or reject the set hypotheses. Hypotheses were based on the division of hypotheses according to Reichel (2009). Reichel uses the division of hypotheses into input, work and statistical hypotheses. The working hypothesis H1 was determined as: "The respondent's attitude to the motivational effect of the retirement allowance is independent of the respondents' service characteristics." The working hypothesis is further refined by statistical hypotheses. Statistical hypotheses then represent specific statements that are proved or disproved on the basis of data analysis and statistical tests.

## 3. Results and discussion

Individual dependences of respondents' attitudes to the motivational effect of the retirement allowance in view of their rank, gender, age, length of service and service classification were tested using the Chi-square test of independence in the Pivot Table.

Testing was performed using a p-value with a significance level of 0.05 and calculations were performed using STATISTICA 12 CZ.

The following null statistical hypotheses were determined:

- H1-1: Respondents' attitude to the motivational effect of the retirement allowance is not dependent on their membership of the rank corps.
- H1-2: Respondents' attitude to the motivational effect of the retirement allowance is not dependent on their age.
- H1-3: Respondents' attitude to the motivational effect of the retirement allowance is not dependent on the length of their service.
- H1-4: Respondents' attitude to the motivational effect of the retirement allowance is not dependent on the service classification.

- H1-5: Respondents' attitude to the motivational effect of the retirement allowance is not dependent on the gender of the respondents.

In the course of testing of individual statistical hypotheses only two dependencies were found. The following text displays the evaluation of these two statistical hypotheses.

**H1-2:** Respondents' attitude to the motivational effect of the retirement allowance is not dependent on the respondent's age. The age of the respondents was categorized into three categories to be approximately the same. The first category consisted of respondents up to and including 25 years of age, the second from 26 to 35 years old, and the third 36 years and older. The frequencies of these categories, depending on the answer concerning the opinion on the retirement benefit, are listed in the following Pivot Table 1.

**Table 1: Pivot Table for H1-2 Testing**

Chi-square test p-value: 0,00005		Do you perceive the service allowance as motivational?				
		Certainly yes	Rather yes	Rather not	Definitely not	Total
Age (in years)	Under 25	42	22	0	0	64
	26-35	44	20	10	4	78
	over 36	69	14	2	0	85
	Total	155	56	12	4	227

Table 1 shows differences between age groups. Definitely disagreeing response was found only in the middle age category. The youngest age category did not give a disagreeing answer not even once and the oldest only in two cases. Furthermore, the oldest age category has a much higher proportion of "certainly yes" answers than the other two. For the oldest age group, this percentage was 81 percent (69 out of 85), 56 percent for the 26-35 age group (44 out of 78) and 66 percent for the age group under 25 (42 out of 64). It can be said that despite the fact that the majority of respondents perceive the service allowance as motivational, for younger age group it is not as strong motivator as for older people.

This finding was confirmed by the chi-square test with a p-value of 0.00005, which was less than 0.05, and thus the null hypothesis was rejected.

**H1-3:** Respondents' attitude to the motivational effect of the retirement allowance is not dependent on the length of their service.

The length of the respondent's service was categorized into three categories so that they were approximately equally represented. The first category consisted of respondents with a length of service up to and including 5 years, the second from 6 to 15 years and the third 16 years and more. The frequencies of these categories, depending on the answer concerning the opinion on the retirement benefit, are displayed in the following Pivot Table 2.

**Table 2: Pivot Table for H1-3 Testing**

Chi-square test p-value: 0,03		Do you perceive the service allowance as motivational?				
		Certainly yes	Rather yes	Rather not	Definitely not	Total
Length of the service (in years)	Under 5	44	23	2	2	71
	6-15	49	20	8	2	79
	over 16	62	13	2	0	77
	Total	155	56	12	4	227

In the Table 2, with the increasing length of service, we can observe a gradual increase of certainly yes answers at the expense of rather yes answers. While the ratio of these two responses is 44:23 for the youngest group, which is less than 2:1, for the 6-15 year group it is 49:20, i.e. approximately 2.5:1, and for the last group it is already 62:13, i.e. almost 5:1. The lowest number of disagreements was also recorded for the oldest group. Thus, it can be stated that with the increasing length of the service, the motivational effect of the service allowance is also increasing. This was confirmed by the chi-square test, where the zero hypothesis was rejected, based on the p-value of 0.03.

#### 4. Conclusion

The retirement requirements are part of the Chapter 307 - Ministry of Defence, which belongs to the state budget expenditures. The most significant part of the retirement requirements is the retirement allowance, representing 94.55 percent of the all expenditure allocated to this area.

The Army of the Czech Republic has been undergoing turbulent changes in recent years. The service is no longer perceived as a lifelong service to the homeland. Thus soldiers lose the certainty of lifelong employment and source of income. Retirement requirements, due to ongoing changes, could play a key role in motivation and stabilization and guarantee the social security of professional soldiers in the future.

Therefore the goal of the article was to find out the dependencies of respondents' attitudes to the motivational effect of the retirement allowance in view of their rank, gender, age, length of service and service classification.

Individual dependencies were tested using the chi-square test of independence in the Pivot Tables. Two dependencies - dependence on respondents' age and length of service - were proved during the testing of individual hypotheses. Dependencies on respondents' membership of the rank corps, service classification and gender were not found.

In the final consequence, the motivational character of the retirement allowance was demonstrated in relation to the age and length of the respondents' service. The issue of retirement requirements is complicated and the author's analysis could be one of the bases for further decision-making in this area.

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## Monetary policy regime and inflation targeting of the Czech National Bank

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**Abstract:** The monetary policy of central banks and their main objectives is currently highly discussed. Achieving a high degree of price stability is the primary target of the Czech National Bank and central banks in the euro area and beyond. There are a number of monetary policy regimes, and inflation targeting is the current regime, behind money supply targeting and targeting of exchange rate. Currently, the inflation rate is above the central bank's inflation target, which must maintain inflation in the selected band by an appropriate mix of monetary policy instruments. The article summarizes the process and results of inflation targeting in the Czech Republic over the last twenty years with an impact on economic development, prices and real GDP growth.

**Keywords:** Monetary policy, Inflation, Inflation targeting, Czech National Bank, Central bank

**JEL classification:** E 52, E 58

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### 1. Introduction

According to the Constitution of the Czech Republic and the Act on the Czech National Bank (CNB), the CNB's main objective is to maintain price stability. CNB has been pursuing price stability under the inflation targeting regime since 1998. Its core features are the publicly announced inflation target, focus on forecasting future inflation and open communication with the public. Since 2010, bank has set the inflation target as a year-on-year consumer price growth of 2 %. Bank strives to ensure that the real value of inflation does not differ from the inflation target by more than one percentage point on both sides. Most advanced economies have a similarly set inflation target (Roger, 2010). In the price stability regime, the central bank's independence in relation to its responsibility and influence on the whole economy is also important (Bažantová, 2005).

There are several reasons why price stability is defined as moderate price growth and not zero inflation. Inflation measurements tend to be distorted upwards due to imperfect adjustment of the effects of changes in the quality of goods and services, where quality growth is sometimes statistically captured as price increases. This distortion is also due to the assumption of unchanged weights in the consumer basket, while in fact people tend to shift from faster-price goods and services to goods whose prices are rising at an below-average rate or even falling. Last but not least, when targeting too low or even zero inflation, deflation often threatens to start with very bad consequences for society as a whole (Taylor, 1995). Moreover, in such situations, the central bank would repeatedly hit the zero interest rate and would often have to use other, less standard instruments (Nelson, 2005).

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Changes in monetary policy settings in the economy are reflected in time (Thornton, 2012). Therefore, the future development of the Czech economy is important for the CNB Board's decision-making, not just its current status. The most relevant for the decision-making is the inflation forecast on the so-called monetary policy horizon (12–18 months in the future). This is compiled by experts from the monetary section using the structural macroeconomic model labeled "g3". The model represents the relationship between the nominal interest rate and expected inflation. The inflation is determined in a model-consistent manner and depends on both the endogenous and exogenous variables of the model. So the core model captures the basic characteristics of the Czech economy described by the development of key variables such as prices, wages, components of GDP in nominal and real terms, the koruna's exchange rate and nominal interest rates.

In terms of economic theory, this is a kind of dynamic stochastic general equilibrium model (DSGE model). An important feature of the model is forward-looking expectations and their interaction with monetary policy, which reacts by changing interest rates to economic shocks to stabilize inflation at the monetary policy horizon close to 2%. The basic inputs for forecasting are the assessment of the current state of the economy (the so-called initial conditions), the expected development abroad, the outlook for administratively set prices and domestic fiscal policy.

The main monetary policy instrument of the CNB is the two-week repo rate. Together with it, CNB also sets the discount and Lombard rates. By changing these monetary policy interest rates, CNB is affecting financial market interest rates from which commercial banks derive interest rates on loans and deposits for their clients. The increase in rates through the so-called transmission mechanism leads to slower growth in demand in the economy, which results in a slowdown in price growth. Reducing the repo rate has the opposite effect on inflation. If the forecast shows rising inflationary pressures that could lead to an increase in inflation above the 2% target, it is a signal that the monetary policy should be more restrictive, i.e. that interest rates should be increased. Of course, this is the opposite of the downturn in inflationary tendencies, as monetary policy is symmetrical on both sides in the (future) inflation targeting regime.

In addition to the monetary policy interest rates described above, CNB has a large number of other tools available. These can be used in situations where the use of interest rates is not sufficient to reach the inflation target. An example of such a situation was the acceptance of the exchange rate commitment in autumn 2013, which we approached after the monetary policy interest rates were reduced to the so-called "technical zero" in November 2012 and the situation required further easing of monetary conditions. This instrument was used until 6 April 2017, when the CNB Board decided to terminate the exchange rate commitment.

## **2. Objectives of the paper**

In the area of monetary policy and monetary policy regimes, there are a number of functional procedures for central banks to meet their statutory objectives. The main objective of the Czech National Bank is to maintain price stability. To this end, the Bank has opted for an inflation targeting regime that is in force and binding since the 1998 decision. Outside the inflation targeting regime, other monetary policy regimes are exempted, allowing the central bank to meet its price stability target. The main objective of the article is to analyze the current monetary policy regime and inflation targeting in the context of price stability and its development.

## **3. Material and methods**

The initial method of work is to evaluate available current literature and recent findings in monetary policy. Subsequently, the results of the inflation targeting regime are summarised using data mentioned in this section. The concurrent objectives includes proposals aiming for a better results of the monetary policy objective, including proposals for adjustments. Data are obtained from the

sources of the Czech National Bank (CNB, 2019), the Czech Statistical Office (CSO, 2019) and available applications of the money and financial market institutions.

## **4. Results**

### **The monetary policy regime**

The central bank's monetary policy is implemented in most countries under a monetary policy regime. The monetary policy of the CNB regime gives monetary policy decision-making a structure that facilitates decision-making, but above all, the interpretation of this decision-making by the public. The basic monetary policy regimes are

- the mode with default nominal anchor
- targeting the money supply
- exchange rate targeting
- inflation targeting

### **The mode with default nominal anchor**

An implicit nominal anchor scheme involves targeting a certain quantity received internally within the central bank without explicitly declaring it. A prerequisite for the successful operation of this regime is the high credibility of the central bank, which will allow for the desired changes in inflation and its expectations even without explicit targets.

### **Targeting the money supply**

For monetary targeting, the focus is on the growth rate of the selected monetary aggregate. It is based on the observation that price growth is influenced in the long run by monetary supply developments. The question is, however, the choice of a monetary aggregate suitable for targeting. At a time of financial innovation, electronization and the globalization of markets, the link between monetary aggregates and price levels is widening. Furthermore, the central bank may not be able to manage the selected monetary aggregate with sufficient accuracy.

### **Exchange rate targeting**

In the exchange rate targeting regime, the central bank seeks, through changes in interest rates and direct foreign exchange interventions, to ensure the stability of the nominal exchange rate against the currency of the anchor country, thus "importing" price stability from that country. economic policies ensuring a low inflation differential vis-à-vis the anchor country, sufficient foreign exchange reserves, maintaining the country's competitiveness and overall credibility, including its institutional and legal framework and political stability.

### **The current inflation targeting**

Inflation targeting is a monetary policy strategy that encompasses five main elements:

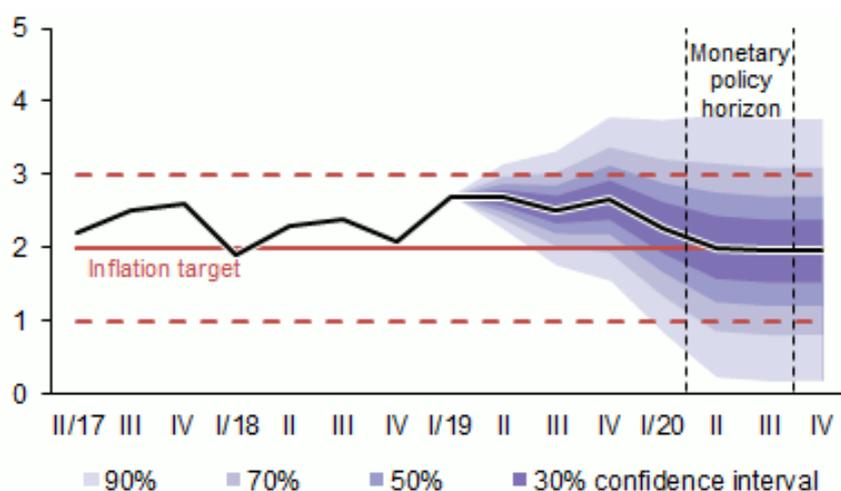
- 1) the public announcement of medium-term numerical targets for inflation;
- 2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated;
- 3) an information inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments;

- 4) increased transparency of the monetary policy strategy through communication with the public and the markets about the plans, objectives, and decisions of the monetary authorities; and
- 5) increased accountability of the central bank for attaining its inflation objectives. The list should clarify one crucial point about inflation targeting: it entails *much more* than a public announcement of numerical targets for inflation for the year ahead. This is important in the context of emerging markets' countries because many of them routinely reported numerical inflation targets or objectives as part of the government's economic plan for the coming year, and yet their monetary policy strategy should not be characterized as inflation targeting, which requires the other four elements for it to be sustainable over the medium term (Mishkin, 1998).

For the purpose of successful inflation targeting and communication with the public, CNB announces its inflation target 12 to 18 months ago. (Bernanke et al., 2018). It is an active and direct formation of inflation expectations. This regime includes considerably more information in its decision-making scheme than just the exchange rate or monetary aggregates, such as the labour market, import prices, producer prices, output gap, nominal and real interest rates, nominal and real exchange rates, public budgets, etc. Below is an overview of the CNB's inflation target, including its validity:

- a) inflation target in net inflation (from XII/1998 to XII/2001): 6,5 % to 2,0 %
- b) inflation target in total inflation (from I/2002 to XII/2005): 4,0 % to 3 %
- c) inflation target in total inflation (from I/2006 to XII/2009): 3 %
- d) inflation target in total inflation (from I/2010 – current): 2 %

Inflation returns to a 2% target following a temporary increase at the beginning of 2019, at close proximity to the monetary policy horizon. Inflation slowed slightly in 2018, owing to the unwinding of food price inflation and a decline in fuel prices. By contrast, core inflation continued to rise slightly and regulated price inflation remained broadly stable. Overall inflationary pressures remained strong, mainly due to strong wage dynamics and continued growth in the domestic economy. By contrast, the inflationary effect of import prices weakened. Inflation increases temporarily at the beginning of this year. However, over the next period, overall inflationary pressures moderates. First of all, there is a stronger fall in import prices, reflecting a renewed appreciation of the koruna and a decline in foreign inflation. Also, domestic inflationary pressures gradually fades, as a result of gradually falling wage dynamics. Next figure shows current inflation and current inflation target together with its forecast till 2020.



Source: CNB

**Figure 1: Inflation in the Czech Republic and inflation target of the Czech National Bank**

*(Note: The confidence intervals of the headline inflation forecast reflect the predictive ability of past forecasts. They are symmetrical and extend only for the first five quarters, then remain constant. This corresponds to both past predictive power and the stabilizing role of monetary policy).*

Approximate stability of interest rates is consistent with the forecast. The pressure on higher rates is mainly due to the currently weakened koruna, which is dampening the anti-inflationary effect of import prices. The strong domestic inflationary pressures and the gradual pass-through of increased regulated price dynamics to other components of inflation also act in the same direction. In turn, the renewed appreciation of the koruna at the persisting negative rates in the euro area until the end of 2020 will have the opposite effect on rates.

Monetary policy of CNB and its inflation targeting is closely related to monetary policy of ECB in euro area. Consumer price inflation in the euro area fell to 1.6 % in December. This is mainly due to a fall in energy prices. At the same time, core inflation remains at relatively low levels of around 1 %. Thus, fundamental inflationary pressures remain subdued, even when looking at nominal wage growth, which is only increasing slowly. The euro area consumer inflation indicator will be below 2 % at the forecast horizon. In the coming quarters, this indicator will slow further as the decline in oil and other energy prices is reflected in its development. Inflation will then stabilize at around 1.7 % since mid-2009. The effective indicator of consumer price inflation will be above the standard inflation indicator for the euro area, as higher inflation is expected for our most important trading partners than in the rest of the euro area.

Subsequently, the inflation observed was not much different from the summer 2017 forecast, which is relevant to assessing the current inflation target. In retrospect, the CNB's monetary policy can be described as reasonable in the past. In 2018, inflation fell to 2.1% on average. The growing domestic economy was supposed to contribute to rising costs and, consequently, consumer prices, mainly through accelerating wage dynamics. By contrast, import prices were expected to have an anti-inflationary effect as a result of subdued foreign producer price inflation combined with the expected appreciation of the exchange rate.

Domestic economic activity and wages acted towards higher inflation compared to the forecast. Higher GDP growth in the second half of 2017 and in 2018 was mainly due to strong growth in private investment and a recovery in the positive contribution of net exports due to higher external demand. Stronger growth in household consumption also contributed to stronger domestic economic activity. Conversely, in 2018, domestic economic growth slowed sharply due to one-off falls in inventories and net exports. Increasing labour shortages have led to an over-expected acceleration in wage dynamics. Over time, the composition of the monetary conditions deviated from the forecast. At first, the exchange rate strengthened more slowly than forecasted, and since spring 2018 it has unexpectedly weakened due to global factors. Monetary policy responded to this by raising interest rates earlier and more significantly than forecasted. The monetary conditions were thus more relaxed in the exchange rate component than expected at the end of the period under review, while the interest rate component was shifted faster towards the neutral position than forecasted. Next table shows selected monetary variables in the Czech Republic considered in inflation targeting and monetary decisions of CNB.

**Table 1: Selected monetary variables in the Czech Republic in 2017 and 2018**

	II.Q/2018	IV.Q/2017	I.Q/2018	II.Q/2018	III.Q/2018	IV.Q/2018
<b>CPI (%)</b>	2,6	2,6	1,9	2,3	2,4	2,1
<b>3M PRIBOR (%)</b>	0,4	0,7	0,9	0,9	1,4	1,9

<b>CZK/EUR</b>	26,10	25,70	25,40	25,60	25,70	25,90
<b>real GDP growth (%)</b>	5,2	5,0	4,1	2,4	2,4	-
<b>nominal wage growth (%)</b>	6,0	6,8	7,9	8,1	7,8	-

Source: CNB

Consumer price dynamics fell to 2% in Q4 of 2018. At the same time, core inflation was still the largest contributor, while previous food price increases were virtually disappearing. Strong consumer demand and rapid wage growth have acted to boost core inflation, whose contribution to headline inflation during Q4 of 2018. The development of food prices was reflected in the previous decline in the price of agricultural commodities and the development of volatile prices of some food items in the consumer basket. The fuel price dynamics decreased markedly in response to the fall in oil prices. By contrast, regulated prices increased gradually. Monetary-policy relevant inflation was around 0.1 percentage point below headline inflation.

Monetary aggregate M3 growth accelerated to 6.8 % in Q4 of 2018. M3 dynamics thus returned to close to the average level observed since 2009 after correcting the high levels observed around the end of the exchange rate commitment. The highly liquid overnight deposits included in M1 continue to contribute most to M3 growth. However, the dynamics of deposits with an agreed maturity of up to two years have increased significantly in the recent years, under the conditions of rising interest rates in this segment. In terms of sectoral structure, the most significant contribution was recorded by household deposits, whose growth rate rose again after a previous slowdown and reached 8.9 % in November. Annual growth in deposits of non-financial corporations also accelerated, reaching 3.5 % in November.

## 5. Conclusion

Inflation targeting is currently the prevailing monetary policy regime of central banks. It is more modern and efficient than targeting through money size or exchange rate stability. This makes the monetary policy regime in our country fully aligned with the ECB's monetary policy regime. Inflation targeting has shown that this regime yields the best results in the actual inflation rate achieved compared to other schemes. Other regimes may be more suitable for transitive economies that have to respond to external and internal shocks and other imbalances stemming from economic reforms.

To successfully meet the objective of price stability, the central bank has to choose adequate starting points and instruments, which it now sees in setting interest rates after the end of foreign exchange interventions. Inflation rate reached 3 % at the end of Q3 of 2019 and is one percentage point higher than the bank's current inflation target. In 2018, CNB increased its key repo rate by a total of 5 times, with a further increase in rates due to the relatively high inflation rate. However, the CNB's monetary policy effectiveness limits are due to the fact that we are a small and open economy with strong dependence on export markets, energy prices and other macroeconomic aspects, such as wage pressure. Nevertheless, it is likely that the currently used monetary policy regime will keep the CNB in the future and will choose and correct the interest rates as its main monetary instrument. The CNB's core pillars and monetary instruments will need to be reconciled with the ECB's monetary policy, as currency regimes are still diverging, especially in the area of interest rates.

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## Leader in the 21<sup>st</sup> century

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**Abstract:** This article focuses on leadership in the 21<sup>st</sup> century. Firstly, the context of the 21<sup>st</sup> century is described, specifically the changes in people's view of today's problems. Secondly, the leadership itself will be elaborated. The personality of a leader will be analysed as well as leadership styles. Additionally, the surrounding of a leader will be focused on and the biggest challenges leaders have to face will be mentioned. Specifically, it is the situation on the labour market which should be focused on. On one hand, leaders have to face shortage of talents, on the other, there are new generations, specifically Generation Y and Z, entering the labour market and having specific preferences. Moreover, new forms of work have been emerging as a result of previously mentioned factors. Specifically, we talk about co-working centres which should be in compliance with Generation's Y and Z preferences and the situation on the labour market.

**Keywords:** Leadership; Consciousness; Generation Y; Generation Z; coworking

**JEL classification:** M5

### 1. Introduction

According to Wheatley (2017), the world needs leaders. However, the competences leaders should have today or in the near future have changed compared to their antecedents ten or twenty years ago. Not only technological development has affected the way people work today. It is also the situation on the labour market with new people entering offices and having different approaches to work than generations before. Additionally, people's opinion on companies and specifically their effect on wellbeing have changed. Today, it is not only financial reward what interests new workers. It is also the goodness companies do to help its environment. Those, and many more, are important factors each leader should be aware of when leading their teams.

In this article, we will explore two areas connected to leadership. Firstly, it is the personality of the leader. Secondly, we will elaborate on the context surrounding the leadership today as leaders in the 21<sup>st</sup> century must face several challenges, among others the technologies, which become inevitable for work today, and new generations entering the labour market and having different preferences than the generations before. This article aims to give area for further research considering mainly the evolvement of new forms of work.

### 2. Context

According to Glubb (1976), there is a pattern in which powerful empires rise and fall followed by another strong empire to exchange them. This process usually takes ten generations within each era having better socioeconomic conditions than the preceding one. Each generation matures into more materialistic with higher standards than the preceding one. However, each generation insists on more material improvements, which along with erosion of morality, leads into decadence.

What appears in every civilization and marks its demise, is the progress trap (Wright, 2004). Put into the present context, it means that people have come into thinking that the civilization will never fall

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as the progress is being made in many areas from medicine to space travels. On the other hand, there are already some signs of decline like poverty, violence, refugee crisis, religious problems, etc. According to Wheatley (2017), what leaders today should do, is to stop being disillusioned by flourishing technological development, which may be destroying, and concentrate more on people and their actions. According to Sisodia et al. (2014) around 1990 the world of business has started to experience changes in people's understanding of its basic purposes. He suggests that we are undergoing a social transformation of capitalism. The core of the transformation lies in the motivation of companies to not only focus on economics but also on humanistic performance. Values created by such company are naturally economical, but also social, cultural, ecological, intellectual, etc. More and more subjective perspectives are being emphasized, which means putting stress on how people feel. (Sisodia et al., 2014)

The 21<sup>st</sup> century is seen as a rapidly changing environment where the leadership itself has totally different conditions than ever before. Some leaders are unable to keep the pace of the quickly changing environment and they fail (Brown, 2013). Pullan (2016) mentions two areas a successful leader should explore in the quickly changing world. It is the leaders themselves and their surroundings. The former is considered mainly with knowing oneself. A successful leader ought to know their motivation, values, attitude. The latter describes what surrounds the leader. These are mainly challenges leaders today have to face.

### **3. Leader as a person**

Leaders may be seen as important contributors in making people's lives better. To be a good leader, one needs some kind of motivation. According to the type of motivation, we may distinguish several leadership styles, e.g. command-and-control leadership or leading by numbers. Those styles either does not support creativity or do not take into account stakeholders needs. Mackey & Sisodia (2014) emphasizes motivation by the actual purpose of the business and its stakeholders, conscious leadership. Consciousness defines awareness of what the company is surrounded by, which are mainly its stakeholders. The leader uses values and purpose to inspire employees and helps the business to sustainably rise. As Wheatley (2017) emphasized, conscious leaders are aware of themselves and know their motivation and purpose (Mackey & Sisodia, 2014). In other words, when leading others, they start with themselves. Labarre (1999) puts the idea even further as he sees leadership as something that is inside the leaders. Basically, it is who the leaders are, not just what they do. Consequently, to effectively lead others, leaders should effectively lead themselves. Mackey & Sisodia (2014) views integrity as the most important trait of such leaders. It covers all characteristics from authenticity, trustworthiness to moral courage. Conscious leaders want to achieve a difference in the world through their organization (Mackey & Sisodia, 2014). Sisodia et al. (2014) calls such led companies humanistic as their aim is to maximize their value to society, specifically to their stakeholders. Loehr (2014) talks about leading with values as the way to be a good leader. To become a good leader, one should be aware of their purpose and values, which leads to making the good decisions in life and, naturally, in leadership. Nevertheless, personality of the leader is only one part of the leadership as a whole. Additionally, we ought to focus on what the leader is surrounded by.

### **4. Surroundings of the Leader**

Abbatiello et al. (2017) highlight the fact that for the first time in history the leadership is more about the challenges leaders must face than about the "art" of leadership. Probably the biggest challenge

connected to leadership today are the technologies. The exponential development of new technologies affected also companies and put the burden of new competencies on leaders, therefore, in literature the term digital leader has emerged (Brennen & Kreiss, 2014).

As Wheatley (2017) highlighted, human capital and its development within a company, is much more important than technologies. However, many CEO`s are against this thinking, as seen in a global study of CEO perceptions and values by Korn Ferry Global Study (2016), 67% of questioned CEOs say that technology creates biggest value than human capital and 63% say that in 5 years, technology will be the companies` source of competitive advantage. Laouchez, Global Managing Director of Korn Ferry, calls this phenomenon a tangibility bias. Leaders tend to focus on the tangible, in this case on technologies, whereas putting their effort on people is more difficult and unfeasible. On the other hand, it is people who directly influence how technologies work, therefore the human capital should be always on the first place (Korn Ferry Global Study: Majority of CEOs See More Value in Technology Than Their Workforce, 2016).

Another challenge and change in the work environment that leaders nowadays must face is the talent shortage. Since 2014 the labour market has changed from the company-driven into candidate-driven as the unemployment rate has been dropping (Roesch & Czech, 2018). The Bureau of Labor Statistics` predictions shows that the decline will go on from 4,3% unemployment rate in the USA to 4,2% in 2018 (Abourahma, 2017). According to ManpowerGroup, 40% of employers are reporting problems in filling in free jobs (Skilled Talent: It`s at Your Fingertips, 2016). According to Sundararajan (2017), the traditional employee-employer relationship has been affected by the digital economy. It gave birth to new forms of work represented by on-demand workers and outsourcing of tasks as opposed to traditional full-time office workers. This change may have taken place mainly because of new platforms where the exchange between both sides takes place. This phenomenon was described by John J. Horton (2010) as online labour markers. They are characterized by three aspects: 1) work is exchanged for money, 2) work is delivered online, 3) it consists of two participants, workers who sell their services to buyers, mainly companies.

Additionally, new generations of workforce are entering the labour market with different work preferences than before. By a generation, we mean a group of people sharing the same period of birth and some characteristics, in our case work preferences (Kupperschmidt, 2000). For the use of this article we are going to focus on Generation Y and Z as these have come into the labour market as the latest. To successfully lead representatives of these generations, it is inevitable to know what is special about their work preferences. Generation Y, or Millenials, are already at work having different approaches than their predecessors. Generation Z is classified as a newcomer to the work process. It characterizes people born after 2000 who are also called mobile generation as mobile technologies are part of their lives since their early years. According to the research conducted by Dan Schawbel under Millennial Branding, there are some similarities in work preferences, specifically using of technologies, of both Generation Y and Z, as seen in Table 1 (Schawbel, 2014).

**Table 1: Work preferences of generations Y and Z**

	Generation Y	Generation Z
Use of technology at work	81%	77%
Communication F2F	52%	51%
E-mails	18%	16%

Instant messaging	11%	11%
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Those results proved that technologies have become an inevitable part of work today. 81% of Generation Y and 77% of Generation Z reported that they would use technology to help to achieve their work goals. Surprisingly enough, majority of both Generation Y and Z representatives preferred face-to-face contact to purely virtual via e-mails or instant messaging. Therefore, there is a question whether the growing trend of purely virtual teams is efficient enough for the companies and their leaders and how can the imbalance between using of technologies at work and face-to-face contact be solved. This trend was described by Johns & Gratton (2013) who divided the virtual work evolution into three stages. The first was connected to the rise of the Internet. For people to work online as freelancers, was something new and welcomed. Also, employers were happy as it became possible to outsource part of the work. However, there were some disadvantages of this form of work as workers were not part of companies, they worked alone with no personal contact. Additionally, some people lacked the feeling of a stable work within a group of colleagues. As a result, the second wave of virtual work evolved in a form of virtual working colleagues in companies as the leaders in enterprises started to need people work for their company with more loyalty. Therefore, from freelancers became employees working in virtual teams from all over the world. This form of work brought its benefits in the form of rising number of skilled and talented people using cloud computing technologies in their work as opposed to traditional office infrastructure. Also, workers were able to improve their work-life balance. Nevertheless, leaders of such teams faced downfalls with not enough collaboration among workers and they feared that the tacit knowledge sharing among them would be impossible. Purely virtual work seemed to be only a compromise to the traditional work as it lacked its benefits in a form of unofficial conversations and encounters between colleagues. Also, workers showed some concerns and as represented in the Schawbel's research (2014), they still preferred the face-to-face contact. As a result, the third wave of virtual work has emerged which should connect the benefits of both virtual and face-to-face contact. The answer is urban hubs also known as co-working centres. Their aim is to gather professionals and enable them to work on their projects with their virtual teams and meet with other professionals at the same time (Johns & Gratton, 2013). In Schawbel's research (2014) the question of the work location is solved as well as seen in Table 2.

**Table 2: Work location preferred by generations Y and Z**

	Generation Y	Generation Z
Corporate Office	45%	28%
Co-working center	26%	27%
Home-office	13%	19%

As for Generations Y and Z preferences of work location, the Schawbel's research (2014) showed a great difference considering the preference of corporate office. 28% of Generation Z respondents preferred this location compared to 45% of Generation Y respondents. Additionally, 27% of Gen Z respondents chose co-working centre as an option. Generation Y showed similar preference with 26%. Furthermore, Generation Z showed slight preference of working from home (19%) compared to 13% of Generation Y. From these results, we may deduce the growing trend of co-working centres among the youngest working generation. Also, we may expect that this trend will rise as the majority of Generation Z have not entered the labour market yet and therefore they have no personal experience with co-working centres or other work locations respectively. According to 2018 Coworking Survey (2018), by the end of 2018, 1,7 million people will use coworking centres for their work. Among the

biggest trends coming in 2018, corporations are expected to start using co-working centres and cooperating with them. As mentioned above, companies suffer from talent shortage and thus they decide to offer part of their premises to use for freelancers. This way, the companies stay at the heart of the live community and talents (2018 Coworking Survey, 2018).

As for another trend the generations have brought, an iOpener Institute Generation Y Report (2012) analysing Generation Y professionals came to a result that Millennials prefer job fulfilment over money. The analysis provided information that Millennials' motivation to stay in their position is driven by a strong economic or social purpose of the job, not by the financial reward. Millennials, growing up with the Internet, are more likely to be aware of social problems (Seager, 2014). On the other hand, Schawbel's research (2014) reported that 42% of Generation Y said that the motivation to stay with the current employer and work harder is money. Considering the Generation Z, only 28% of young workers reported that money would make them work harder. Consequently, generation Z is a step further as community consciousness is one of their characteristics. Born after 2000, the majority of them has not started professional career yet, however, they address social issues since teenage years. According to Cassandra report, 49% of Generation Z teenagers volunteer at least once a month. To fulfil their holistic aims they use social media (Fromm, 2018). Those findings predict that generation Z compared to generation Y will also put importance on consciousness in their work. Those results are in compliance with the growing trend of conscious enterprises mentioned earlier in this article. Leaders, in order to retain talents, ought to be aware of generations' work motivation mentioned above. Again, Generation Z is from its bigger part not employed yet so we may expect this trend to grow in the future.

According to Johns and Gratton (2013), the successful leader must support collaboration between their employees in the first place. Therefore, future leaders should deal with new generations of employees and their work preferences. On one side, it is necessary to use technologies in their work and work in virtual teams. In times of talent shortage, the leader should take every talented employee no matter time and space. On the other, the leader should create such work environment to satisfy the worker's needs. According to researches above, it is mainly combination of virtual work and face-to-face contact, which the new generations of workers prefer. Secondly, consciousness of companies starts to be on the top places of the new generations job preferences.

## **5. Conclusion**

Having analysed literature considering leadership in terms of leader's personality and new trends at work in the 21<sup>st</sup> century, we have come to following results. Leadership styles have changed throughout the past years. Nowadays the best strategy for the leader seems to be focus on their personality. To be a good leader one needs to start with themselves. It is who the leaders really are what affects other people. This way leaders are aware of their values and their integrity is present. Leader is considered more as a guide to his team members on their way of achieving success The 21<sup>st</sup> century so far is marked by big changes, not only technological, but also generational. Those are challenges leaders today must cope up with in order to be successful. Firstly, technologies and digitalization have affected the way people work, however, technologies should be used only as a means of achieving objectives. Leaders should concentrate more on finding and retaining talent workers as it is human capital which is a top priority for companies. New leaders must face the challenge of talent shortage, which may be solved by online labour markets and virtual work, which

enables workers from all over the world to collaborate. Secondly, new generations of workers are entering the labour market and are perceiving their leaders in different light than before. The biggest surprise in the research of those generations is probably their preference of face-to-face contact. Connected to the emerging of virtual work, new trend of co-working centres began to arise. Moreover, it has been found that consciousness of companies has high priority for the new generations. Therefore, humanistic companies with conscious leaders may be successful among young talents and their desire to work there. This article aimed to analyse literature considering leadership and new trends at work today. Those new trends are mainly reflected in new generations starting their careers. Being born after 2000, the majority of them have not started their career yet so we may only predict what will their preferences be in upcoming years. Therefore, the area for further research lies in concentration on this generation as their work preferences may develop throughout following years.

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## The need to rebuild the food supply chain

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**Abstract:** The aim of this study is to answer the question whether short supply chains in the carp market can be an alternative to existing supply chains, especially in the context of implementing the principles of the sustainable development paradigm. The research based on the international literature and expert interviews, conducted among carp producers in Poland.

**Keywords:** short supply chains, carp market, sustainable development

**JEL classification:** Q5, Q13,

### 1. Introduction

In the modern world there are socio-economic changes that force the redefinitions of the currently applicable model of the food market functioning based on extended supply chains and products addresses to mass consumers. This situation is particularly evident in the case of the carp market. In order to survive in the competitive environment, taking into account the changing institutional, ecological, economic, socio-cultural and technological conditions, carp producers have to change their orientation from supply (mass production) to the demand, oriented to satisfy the needs of customers. Competitive advantages should be sought in the development of processing, the production of high quality food and in the implementation of short supply chains.

The main goal of this paper is to answer the question whether short supply chains in the carp market can be an alternative way to existing supply chains, especially in the context of implementing the principles of the sustainable development paradigm. The research based on the international literature and expert interviews, conducted among carp producers in Poland.

### 2. The concept of short supply chains

The current priority of the European Union in the field of rural development is to shorten the supply chain in the agri-food economy (KOM, 2011). Unfortunately, the complexity of the problem means that there is still no one universal definition of short chains of agri-food products. It results, among others from the diversity of European regions and business models that were originated in these regions.

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Research conducted by Martinez et al. (2010) show that short supply chains usually involve small farmers who produce heterogeneous products. In this model, the producers also deal with marketing and public relations, storage and transport functions.

According to the definition by Kneafsey et al. (2013), short chains occur when the number of intermediaries is minimized, and the ideal model is based on direct contact between the producer and the consumer. However, it should be emphasized that this definition does not specify how many entities can belong to the chain to still call it "short".

In the opinion of the French Environment and Energy Management Agency ADEME, most often we can consider short supply chains in two cases: when dealing with direct sales, or when we dealing with a maximum of one intermediary, provided that the sale takes place up to 150 km.

In Italy, however, short supply chains are defined only as "direct sales" and these issues are carefully regulated (Kapała 2017).

On the other hand, the European Commission (2012) takes the position that local food systems and short supply chains can (on the basis of existing research) be easily divided into three types of systems: direct sales by natural persons, collective direct sales and partnership.

However, none of the above definitions fully reflects the essence of shortening supply chains. The point is to emphasize in the short supply chains environmental and social elements, not only economic ones. Therefore, the attempt to define short supply chains requires a holistic approach. A comprehensive and multifaceted examination of the problem leads to the conclusion that the idea of short supply chains can be identified with the process of providing agri-food products with respect for the principles of sustainable development (Raftowicz-Filipkiewicz, 2017). However, this requires defining *sine qua non* conditions for such an exchange. A properly constructed short supply chain should take into account the following factors:

- distance - the maximum distance from the place of sale to the place of production cannot exceed 100 km (because of the food miles values)
- number of links - a maximum of one link, but excluding sales through commercial networks that operate in many geographically dispersed locations,
- communication - communication between the producer and the consumer,
- knowledge about the producer and the origin of the product - the consumer can see and appreciate the history associated with the product, which increases the value of goods purchased by consumers and favours their long-term loyalty to products.

There are many business, social and environmental benefits resulting from shortening the distance between the producer and the consumer. The short supply chain, above all, positively influences the improvement of product quality by, for example, eliminating the preservation, pasteurisation or freezing process, which in turn contributes to lowering the price of the product. Research shows that in Poland, the farmer receives only 21% of the price paid by the supermarket customer (Euractiv, 2018).

On the other hand, thanks to short supply chains, trust and loyalty between the buyer and the seller can be strengthened, thereby strengthen social capital and social responsibility of business. As G. Rist (2016, p. 95) argues, the exchange is above all a social relation that existed before the invention of the market. What is more, shortening the links in the distribution of agri-food goods integrates two spheres: responsible consumption and cooperation - as new, desirable forms of dependence between the producer and the consumer.

Natural aspects, such as limiting the use of unnecessary packaging or reducing pollution, due to the elimination of extended transport, can also be added to the set of benefits. A special paradox is the

famous transport of crabs from the North Sea to Morocco and back, only to peel them from the shells, because the cost of transport is definitely lower than the labour costs in northern Europe (Rist). However, this is not an isolated situation. According to the statistics of the Federation of German Consumer Organizations, more than 95% of food bought in supermarkets travelled over 100 km to be on the store shelves (Federation of German Consumer Organizations).

Shortening the supply chain is also linked to the idea of maintaining food safety together with the slogan "from the field to the table". It is a response to the expectations of modern, ethnocentric consumers, who are increasingly looking for high-quality products that guarantee the maintenance of production standards throughout the cultivation and breeding process.

Short supply chains and their most desirable form, which is direct sales, are gaining popularity year by year, especially in Western European countries. According to the Natural Marketing Institute (2013), 71% of the French and 47% of the Spaniards and Britons claim that it is important to buy local products (Report, 2013). The attitude of producers is the response to growing demand. In France in 2010 as many as 21% of farmers, i.e. 107 thousand producers sold their products in short chains (Ademe 2012) and this number is constantly growing.

However, as fairly quoted by Aubry and Chiffolleau (2009), shortening supply chains is not a guarantee of sustainable development per se. It cannot be assumed that the implementation of the short supply chain principles will be a panacea for the global problems of modern agriculture. However, it has a chance to become an alternative that goes beyond the simple model of profit maximization, but strives to strengthen local interactions between producers and food consumers.

### **3. Specification of the carp market in Poland**

Carp farming in Poland has a centuries-old tradition. Today Poland takes the first place in the European Union not only in terms of carp farming ponds area, but also in the size of their production. The number of professional, highly specialized carp farms is estimated at approx. 400 with a total area of about 70,000 ha, with the production reaching approx. 18,000 tons of carp per year (The Ministry, 2015).

However, one of the characteristics of the carp market in Poland is the fact that 80% of the consumable carp is sold in the Christmas period, which is strongly associated with the Polish culture, where carp is the main dish served on the Christmas Eve. This means that in this particular industry profits can only be gained once a year and are unfortunately difficult to predict, due to the presence of numerous threats.

In the three-year cycle of carp breeding, the spread of dangerous KHV virus, which has been constantly decimating the farms, and the occurrence of many natural pests of fish - mainly cormorants, which are under protection in Poland, are considered the greatest danger.

Additionally, the impact of negative climate change, such as water deficits and high temperatures, has been noticed in the pond economy, which is contributing to the declining supply of carp in the market.

Aside from this, the large commercial networks are a big threat for the fishermen, as they dump the price of the fish they have on offer during the Christmas time and sell carps at a price lower than the cost of production. These carps are most often imported from the Czech Republic, Hungary, Latvia or even from China. It is estimated that currently every 5 carp sold in Poland comes from import.

Another inhibiting factor influencing the carp farming is the introduction of environmental regulations that have been hindering the conduction of the business activity in a profitable way since

2004 (ie. since Poland's accession to the EU). Most of the traditional breeding ponds were then included in the *Natura 2000* program, which now covers almost one fifth of the land area. In the case of a pond economy, there is a duty to conduct (pursue) activities that may serve the purposes of protecting *Natura 2000* sites because the liquidation of a pond covered by *Natura 2000* would adversely affect habitats and species of water birds. As a consequence, owners of the pond covered by the *Natura* network (under the threat of penalties) are forced to maintain water in the pond.

The profile of carp consumers has also been changing. The research from 2014 has shown that even those who consider carp as tasty and healthy fish, as a deterrent to buying and consuming it more often identify (karp):

- offering the whole unprocessed fish for sale (35%),
- bony carp meat (25.2%),
- the necessity to skin and debone the carp at home.

Also new is the social campaign of the "Gaja club", organized on a large scale in Poland: "Do not buy live carp" which fights against the inhumane treatment of live carps. The campaign has significantly contributed to the 'removal' of carp pools from large area stores for fear of protests. There is a danger that, just like in Germany, which after the protests of activists introduced a ban on the sale of live carp in large-area stores and recorded a 50% drop in demand for carp, also in Poland the demand for carp will decrease.

#### **4. The results of own research**

Empirical research were conducted directly by M. Raftowicz during the XXIV National Conference for Carp Breeders in Rzeszów in Poland in February 2019. They had the character of in-depth, structured interviews. 20 interviews were conducted with owners of fishing farms. 10 interviewees (50%) represented the area of carp farms bigger than 500 ha, 5 out of 20 - medium farms (100-500 ha), other respondents (25%) represented small farms (less than 100 ha).

The results of the study confirmed that producers with large fishing farms, are barely interested in shortening the supply chain - despite the problems with the sale of carp and the threat of introducing regulations prohibiting the sale of live fish to large-scale stores. They strongly believe that the price is the factor the most important in bulk sale and they are able to cut the price to the level that still guarantees profits.

Small and medium producers are more favourable to the idea of shortening the supply chain. They are already beginning to strongly diversify their activities. This manifests itself through investments in small-scale processing, thanks to which as producers they can significantly increase the prices of their products and spread the profits for the whole year. A measurable effect of such activities was the establishment of commercial fisheries for anglers, the construction of fried fish restaurants and smokehouses as well as the fish processing plant, agri-tourism. Indirectly, diversification has contributed to the increase in customer loyalty, support for local entrepreneurship, and thus led to an increase in budget revenues of municipalities.

Projects related to the diversification of fish farms activities in about 60% were financed from the EU funds, with the obligation to be operated for 5 years. The remaining funds came from the private resources. However, the water and environment program *PO RYBY* proved to play a key role in gaining the remaining 40% of the investment, which compensated fishermen for the activities conducted in the *Natura* area, as it constituted the powerful capital injection and the main source of the investment.

However, the diversification of fishing activities has not always led into higher profits. It required additional fishing effort from the owners of the fish farms, covering unforeseen costs, acquiring new skills, knowledge and managerial skills. The requirement to maintain catering and agrotourism facilities for 5 years, with a clear seasonality in demand for carps, creates problems with keeping their profitability. Moreover, The 500+ Polish Government program launched in April 2016 has significantly reduced the number of candidates willing to apply for the odd jobs, and the low unemployment rate in Poland - 3,4% (Eurostat) makes it difficult to find new employees. In addition, fishermen are struggling with insufficient supply of fish - especially in the summer season, which contributes to the phenomenon of buying fish to the local restaurants from the unknown sources. Most often, direct sales - as an ideal form of short supply chains - occurs in small and medium-sized fish farms, which is undoubtedly associated with limited supply of commercial fish, which would not satisfy wholesalers or large retail chains (hypermarkets), and retail sales in their case more profitable, the average price is higher by 1.5 - 4.5 zlotys per kilogram.

## 5. Conclusions

On the basis of the conducted analyses, it can be concluded that the development of short chains is a challenge but also a necessity to introduce changes in the business distribution model. Research has shown that the idea of short supply chains in the carp market is strongly dependent on the size of production and the size of the farm. This means that the lower the production - the more emphasis is put on direct sales as the more profitable one. The development of short supply chains is also positively correlated with the diversification of the fishing farms activities (agro-tourism, recreation, gastronomy).

Summing up, short supply chains on the carp market may become a guarantee of survival for small fish farms, especially in the face of growing competition and changes in consumer attitudes.

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## The Issue of Marketing Communication Strategy of Universities

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**Abstract:** The paper aims to introduce the issue of strategic marketing planning in the university environment. In defining the university's strategy, this is a crucial decision regarding the university's target market and its related marketing mix. The paper presents a method and procedure of preparatory activities that precede the creation and implementation of an integrated marketing communication strategy at the level of a whole-university specific department - the University Department for International Relations and Marketing. From a large number of marketing activities performed at the university, the paper will be devoted to marketing communication by setting communication goals for individual segments of partners from the external environment and for the employee segment in the internal environment. The communication goals will be identified on the basis of an analysis of the university's communication opportunities from the rector's office, from the position of partners and employees.

**Keywords:** marketing of educational institution, marketing communication strategy, strategic planning, goals of strategy

**JEL classification:** M31, M37, M14

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### 1. Introduction

Marketing within the condition of a university has its place and justification. The main task of higher education institutions in fulfilling their mission is to provide higher education and creative scientific research or creative artistic activity. As part of its activities, the university carries out management processes, implementation processes and support processes. Implementation processes are the focus of marketing. They actually include the basic services provided by the university to its customers, i.e. educational services and research services. Despite the fact that we understand the university as a service institution, it is necessary to differentiate in greater detail between higher education institutions and businesses providing services. Based on customer requirements, the university creates a service supply, selects the right pricing policy, distribution channels and communicates in an appropriate and effective way. On the basis of various forms of communication, it informs its customers, persuades, reminds, strengthens the image or supports the placement of its products (Světlík, 2006). In terms of the demographic development of the population number, there is a permanent decrease in the number of inhabitants and thus a decrease in the potential university students. The competitive environment in the field of higher education is exposed to more intense competition between universities. Particularly significant is the rivalry of public universities and private

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universities, which have many times better material, human or financial resources. Other educational entities are also competitors of higher education institutions for the field of "complementary" educational services (e.g. different courses). A similar situation exists in the area of research services, which other institutions may provide in addition to the universities. The main reasons for application of the university marketing, which is reflected in its marketing activities, represent the quality service offering tailored to customer needs, the limited resources as well as their effective use and competition in the market for higher education service.

Generally speaking, marketing is the analysis, planning and control of programs designed to align the desired exchange processes with the requirements of selected markets (Nash, 2003, Zamazalova, 2010). Then there are also two fundamental pillars of the university marketing: customer service, mutually beneficial exchange. The exchange relationship can only be realized if it is beneficial for the participants in the relationship. This means that if a customer is to use the services of a particular university, these services must be of a high quality, tailored to their needs and requirements (Payne, 1996). In the past, universities had almost no sales problems. At most, they were willing to accept buyers of higher education. However, even non-acceptance had no negative consequences. The ultimate goal of marketing is to position the customer and his/her satisfaction in the centre of thinking and acting at the university. The image conveyed mainly via marketing communication affects the interest of customers and their relationship with the university (Rostasova, Kremenova, 2017). The current state of the solved issue as well as the proposal part of the paper is bound to the conditions of the selected university of the technical type (further "UNI").

## **2. Theoretical framework**

The external activity of the university in question depends crucially on its presentation through a communication policy. The image of the university in the eyes of the public is not determined by the education and research services actually provided, but rather by how the service is perceived in both external and internal environments. As part of its communication policy, four basic tools of the communication mix are emerging: advertising, including e-marketing, public relations, personal selling and sales promotion. All these tools are also useful in university marketing, but they differ in their communication tools in terms of classical marketing by their importance:

- Advertising: the main problem in implementing this communication mix tool is the high cost of using advertising media (Pitra, 2006). However, there are also those options where such high costs do not arise at the university, one of which is the use of free or low cost advertising media (notice boards informing on the offer of university fields of study and study programs at secondary schools, labour offices or at their own university) or finding partners for whom some of the tasks of science and research at the university are solved. Relatively cost-effective is reaching out to specific target segments, especially those with a multiplier effect (such as educators or career advisors) through direct marketing (Madlenak, Madlenakova, 2015). Another option is to reach out to a limited number of students with excellent results, provide them with information tailored to their needs. Afterwards these excellent students address other potential students. The current concept of university advertising is linked to the use of e-marketing in a social networking environment (Nash, 2003, Madlenak, Rostasova, 2015).
- Public Relations are the most important communication tool of the university. Through the targeted dissemination of information, the university addresses the potentially indeterminate or

negative image in the eyes of the public or reinforces the already existing positive image. In doing so, PR focus on certain limited external segments (potential students, career advisors, media, etc.). Communication with external target segments is successful at the university on condition that internal communication works. The internal public is made up not only of scientific, pedagogical and other university staff but also of students. The majority of those interested in studying at this university are in contact with already enrolled students who inform them of the study offer. That is why it is necessary to reinforce the students' identification with the university so that they are able to convey its positive image to potential students.

- Personal offer of UNI services represents personal communication with target segments. While impersonal communication through the media and social networking sites is particularly useful for alerting potential students to the UNI and its achievements, personal communication plays an important role in the actual choice of study at UNI.

Thus, communication policy can be considered the core of the marketing mix at UNI. However, it must also be borne in mind that communication policy is just one of the tools. Under the UNI conditions, other tools can be assigned to traditional marketing mix tools such as human resources at the UNI, material conditions, and UNI equipment, as well as processes and their management (Corejova, Al Kassiri, 2015). From the specific conditions that apply to universities, the tools of the marketing mix are also shifted to further areas: personalities at the university, process pedagogical approaches at the university and participatory activation – the participation of a university.

### **3. The objective of the paper**

The main objective of the paper is to introduce the approach to the integrated marketing communication of the UNI which will be more effective and systematic at the university level (by the specialized department of the UNI). Specific objectives include as follows:

- Strengthening the quality and competence of international relations and marketing staff;
- Activating communication campaigns performed through specific marketing communication tools organized in direct relation to established communication goals;
- Activating the work with the media, with a strong focus on the adoption of measures to eliminate the impact of the opening of particularly negative topics by the media (but also by the state) in relation to universities;
- Increasing the continuity of communication (both external and internal) at the university level;
- Stronger application of the evaluation of the effectiveness of marketing communication.

### **4. Material and methodology**

The results of which are presented in this paper, analytical work (SWOT analysis) was performed. It concerns the current state of marketing communication at the university as a starting point for determining the optimal communication strategy for the next five-year period (Cravens 1997). The identification of communication objectives at the university level, based on analysis of UNI communication opportunities with partners and employees has been accomplished. Likewise, key partners in education and research have been identified and communication opportunities have been defined with relevant external partners (together with prioritizing the UNI objectives), with a direct link to market segmentation that the UNI serves within its activities.

## 5. Results

Results of the SWOT analysis of the marketing communication in the UNI (further MC UNI) includes description and weights of individual aspects in two major parts, e.g. S-W analysis and O-T analysis. In performing the analytical work, a reference panel of evaluators was compiled, consisting of 11 members. Evaluation methods were used; namely arithmetic mean and pair wise comparison (Bradley, 2010, Foret, Stavkova, 2003, Meloun, Militky 2012). The evaluation of the individual aspects of the SWOT analysis took place in terms of defining the strengths and weaknesses that characterize the university's internal environment and the opportunities and threats affecting the university from the outside Cooper, Lane, 1999, Project LLL, 2010). In the overall evaluation of S and W as well as O and T the effect of the given aspect is evaluated in a five-degree rating scale and the importance of the given aspect is evaluated in a three-degree rating scale (see table 1).

**Table 1: S-W and O-T analysis of the MC UNI**

<b>Strengths</b>	<b>Weaknesses</b>
S1: Existence of a department specializing in the application of selected marketing communication tools at the university = 11.18	W1: Not unified content and design style of the website of the UNI, faculties and individual UNI workplaces = 7.27
S2: Quality and competent staff of the department = 11.36	W2: Insufficient number of employees dealing with marketing and Public Relations activities at the UNI = 11.45
S3: UNI systematic communication with all stakeholders of the UNI at the level of the Rectorate = 11.18	W3: Non-existent marketing strategy of the UNI/non-existent marketing communication strategy of the UNI = 10,00
S4: Elaborated design manual of the UNI = 7.55	W4: Low percentage of the UNI budget dedicated to communication activities): 10.64
S5: UNI promotional materials of high quality and their availability for all marketing activities and campaigns = 9.55	W5: Reducing the use of methods to determine the efficiency of communication tools used: 8.82
S6: Comprehensive market segmentation of educational and scientific research services = 9.64	W6: The trend of weakening the UNI brand perception compared to the brands of faculties: 10.64
S7: Use of social networking sites in UNI communication = 9.55	
<b>TOTAL Strengths (S): 70.00</b>	<b>TOTAL Weaknesses (W): 58.82</b>
<b>Opportunities</b>	<b>Threats</b>
O1: Support from the university top management employees towards UNI communication activities: 11.09	T1: The autonomy of the faculties and thus the resulting uncoordinated procedure of some marketing activities: 11.00
O2: Existence of a promotional material distribution channel through the EDIS University Shop ): 8.09	T2: Adverse demographic development in target segment of customers – students: 13,64
O3: Own EDIS Publishing House - cost effectiveness of some kinds of promotional materials: 6,36	T3: Lower level of cooperation in some areas at large employers in the region: 11,45
O4: Sponsors willingness to contribute to major whole-university events - memorials, celebrations, balls:9,18	T4: Dissemination of the negative image from the level of the state on the state of higher education:11,45
O5: Initiation of the cooperation of the municipality towards the university:8.82	T5: In particular, the opening of negative topics by the media in relation to universities:12,82
O6: A worldwide trend in the use of social networking sites for communication activities: 11,00	
<b>TOTAL Opportunities (O): 54.55</b>	<b>TOTAL Threats (T): 57.00</b>

Determination of the MC UNI strategy using the arithmetic mean method include: S - W = 70,00 – 58,82 = + 11,18; O - T = 54,55-57,00 = - 2,45. In connection with the determination of specific proposals for the fulfilment of the MC UNI's strategy, the order of importance of processes for achieving even higher impact of strengths using the paired comparison method was determined based on standard deviation. The order of importance of eliminating the impact of threats using the pair wise comparison method

was also determined based on the standard deviation. Based on this procedure, a proposal of priority areas in the marketing communication strategy was developed (Tables 2 - 4).

**Table 2: The importance of using individual strengths in the MC UNI strategy**

Strengths	The order of occurrence in the matrix
S2: Quality and competent staff of the department	1.
S1: Existence of a department specializing in the application of selected marketing communication tools at the university	2.
S3: UNI systematic communication with all stakeholders of the UNI at the level of the Rectorate	3.
S6: Comprehensive market segmentation of educational and scientific research services	4.
S5: UNI promotional materials of high quality and their availability for all marketing activities and campaigns	5.
S7: Use of social networking sites in UNI communication	6.
S4: Elaborated design manual of the UNI	7.

**Table 3: Order of importance in eliminating the impact of threats in the MC UNI strategy**

Threats	The order of occurrence in the matrix
T2: Adverse demographic development in the target customer segment – students	1.
T5: In particular, the opening of negative topics by the media in relation to universities	2.
T4: Dissemination of the negative image from the level of the state on the state of higher education	3.
T1: The autonomy of the faculties and thus the resulting uncoordinated procedure of some marketing activities	4.
T3: Lower level of cooperation in some areas at large employers in the region	5.

**Table 4: The UNI proposal of priority areas in the MC UNI strategy**

Strategic orientation (SO) - partial tasks	Aspect of the SWOT analysis	The order of occurrence in the matrix
SO1: Further strengthening of the quality and competence of the department	S2	1/S
SO2: Implementation of communication activities by implementing specific marketing communication tools suitable for whole-university communication with target markets	S1, S3	2/S, 3/S
SO3: Adoption of measures aimed at eliminating the impact of unfavourable demographic development in the target customers segment - students	T2	1/T
SO4: Elimination of the media impact when opening negative topics in relation to higher education	T5	2/T
SO5: Measures against the dissemination of negative image by the state on the state of higher education	T4	3/T

## 6. Discussion and conclusion

The paper, which deals with the creation of the marketing communication strategy in the UNI conditions, defines the basic procedures for the creation of this strategic document for the following periods. Obviously, it would then be necessary to address the selection and implementation of individual marketing communication sub-tools (communication mix) to stimulate partnerships at different institutional levels (Madlenak, Rostasova, 2015, Payne, 1996). Further it is also necessary to

deal with proposals to systematize the UNI branding work through partnerships in both external and internal environments, thereby raising awareness of the UNI in Slovakia and abroad. Creating proposals for the appropriate methodology for creating a UNI marketing communication budget, including alternative proposals for the creation of a system for measuring the effectiveness of the integrated marketing tools used towards individual segments (to the UNI external partners and the UNI employees), is inherent to this issue. Last but not least, it is extremely important to think about the creation of procedures for systematic alignment of communication tactics and strategies in the implementation of communication campaigns across the university.

This marketing planning process is an example of how the university accomplishes the subject matter. However, the specificities of each higher education institution mean that the recommended approach needs to be adapted both to the conditions in which the university is located and to adapt to changing market conditions. Therefore, it is necessary to make corrections to objectives, target segments, strategies and measures. Moreover, such an ideal marketing planning process can often only be realized with significantly higher costs. In addition, universities may encounter some major problems in their efforts to implement it. In general, university marketing has to some extent affected the lack of "marketing awareness" to date. This has caused some universities to have only the necessary knowledge that is not sufficient as a basis for marketing-oriented planning and management. The possibilities of implementing marketing measures are subject to considerable financial constraints and there are even some doubts as to whether marketing can be precisely organized in terms of universities. Universities, as already mentioned, consist of a number of autonomous units (e.g. faculties), which often do not sufficiently cooperate. This results in possible problems in determining and approving e.g. strategic goals of universities in the quality of the educational process, links to the business environment and so on. The specific conditions of university marketing imply the necessity of including an external factor in the process of provided services. Another important factor is the fact that universities implement their product policy under special conditions resulting from restrictions on supply flexibility. For example, the possibilities of flexible response to market demands are limited by the fact that a possible opening of new fields of study or study programmes, eventually their change cannot be decided by the university itself, but the approval must be obtained by the competent authorities. In addition, certain customer segments cannot be excluded from the process of providing educational services, as the Constitution guarantees a free choice of profession and training for the profession. However, experts point out that these doubts cannot lead to a rejection of the marketing concept and suggest a number of solutions to address these issues. First of all, the basics of systematic marketing must be developed as soon as possible at universities (Pitra, 2006). Existing statistics on labour market demand, demographic change, analysis of other educational institutions, etc. must be constantly updated and complemented through effective market research. Financial barriers are insignificant if the tools of marketing communication are tailored to a particular university. The marketing concept for the university as a whole should inevitably lead to a relatively unified presentation in the public, but at least to the compatibility of objectives, the unification of common goals and agreed action plans at individual faculties, departments and other parts of the university. University marketing activities should be created from the perspective of the customer and not from the perspective of different university interest groups. Product policy should be applied separately to products that are not subject to any restrictions (e.g. further education/training) and to less flexible supply.

Given the above-mentioned doubts about the market-oriented university management, it is natural that the process of integrating marketing into an educational institution needs to be realized gradually over a longer period of time. The first possible step is to use marketing as a student acquisition. In the second phase it is then necessary to involve students studying at the university on important marketing tasks. As far as possible, in the next step, the university should, on the basis of marketing principles, seek to redesign its educational and scientific research services. The university must actively create its image and plan its position in the educational services market. At the end of this process, there is the knowledge that meaningful marketing can function as an integrated part of the university.

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## Knowledge sharing behaviours among travel agents. The role of job resources and demands

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**Abstract:** The paper examines job demands (JDs) and job resources (JRs) as antecedents of knowledge sharing behaviours (KSBs) among travel agents, considering that KSBs may be determinant for travel agencies, which have to redefine their business. To reach this goal, the relationship between these variables is examined through a regression analysis on a sample of 100 travel agents in Italy who filled an online questionnaire. The study brings to interesting stimuli to the theoretical debate on the one hand, shading further light on determinants of KSBs; on the other hand, enriching the current debate within the managerial psychology on JD-R model. In the end, also managerial implications for travel companies are included.

**Keywords:** knowledge sharing behaviours, job resources, job demands, travel agents

**JEL classification:** L83, M12

### 1. Introduction

In the last decades, the tourism sector has been involved by deep changes (Xiang et al., 2015; Lu et al., 2016). In this scenario, travel agencies have to face challenges regarding business redefinition, processes re-organization, re-alignment of workers competencies, who are the most important resources, as it happens in service contexts.

The aim of this paper is to investigate the role of individual and job characteristics as predictor of positive behaviours at work in the tourism sector. In particular, attention is devoted to analyse job demands (JDs) and job resources (JRs) as job characteristics, which may act as key predictors of knowledge sharing behaviours (KSBs), so to contribute in enriching knowledge on this specific topic on travel agents.

### 2. Knowledge sharing

Being knowledge sharing (KS) defined as: “The exchange of employee knowledge, experiences, and skills through the whole department or organization. KS comprises a set of shared understandings related to providing employees access to relevant information and building and using knowledge networks within organizations” (Lin, 2007: 315), studies have shed light on KSBs (e.g., Carmeli et al., 2013; Wang & Hou, 2015) recognizing their contribution to exploit knowledge, generate new solutions, innovate, reduce redundant learning efforts and favour competitive advantage (Lin & Lo, 2015; Zhou & Li, 2012).

According to authors, KSBs may be affected both by individual and organizational determinants. For the first dimension, it relates to characteristics such as experience, value and stages of employment

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(O'Neill & Adya, 2007), while for second one, organizational climate and an innovation-supportive culture, along with managerial practices, can positively affect the KSBs among employees.

Studies on KS have devoted considerable attention to the investigation of managerial interventions favouring knowledge processes (i.e. engineering approach) and predictors of KS (Tohidinia and Mosakhani, 2010).

### **3. Job resources and job demands as predictor of positive outcome at work**

Social exchange theory (SET; Blau, 1964) is used as theoretical framework. According to it, people "participate" in a social exchange because they think that their efforts would be justified by the return they receive. Hence, employees experiencing high organizational support reciprocate with a greater expenditure of time and effort, higher commitment and higher levels of performance.

Well-known contributions in managerial psychology suggest the importance of psychological states experienced at work and job related characteristics in predicting employees' outcomes, such as motivation, satisfaction, performance of quality, low absenteeism as well as turnover (Hackman and Oldham, 1980).

A number of studies has been developed on antecedents of positive and negative attitudes and behaviours at work. In general, it is widely recognized that JCs – rather than individual ones - play an important role in predicting employees' outcomes (Demerouti et al., 2001).

A current line of research studying JCs as determinants of organizational behaviours is framed within the JD-R model (Demerouti et al., 2001). According to this approach, the characteristics of organizational environments can be classified into two general types, independently from the occupational setting: JDs and JRs. According to the JD-R model working conditions refer to physical, social and organizational aspects of the job, which describe the whole work context (Schaufeli et al., 2009; Schaufeli and Taris, 2014; Schaufeli and Bakker, 2004). Previous empirical findings prove that JRs and JDs have a prior role in predicting positive attitudes and behaviours at work as well as in preventing counterproductive attitudes and behaviours among employees (Schaufeli and Taris, 2014; Schaufeli and Bakker, 2004). Based on this perspective, the paper aims at investigating the relationship between specific JDs and JRs with KSBs.

JDs are those aspects of a job that require physical and/or mental effort thus associated with physiological and/or psychological costs (Demerouti et al., 2001), while JRs: (1) help individual workers in achieving organizational and personal goals, (2) reduce the negative impact of JDs, and (3) stimulate personal growth and development (Demerouti et al., 2001). Previous studies demonstrate that JDs (e.g., work overload, role conflict) may have a direct effect on resources loss and burnout and that they cause stress among employees (Bakker, Demerouti, Taris, Schaufeli, and Schreurs, 2003; Hakanen et al., 2008). Conversely, JRs are strong predictors of positive features at work, such as well-being and work engagement (Bakker and Demerouti, 2007; Bakker et al., 2003; Hakanen et al., 2006; Schaufeli and Bakker, 2004) and they may cope with demands providing workers to adjust with their work demands and favouring their wellbeing (Tims et al. 2013; Wright and Hobfoll, 2004). Indeed, according to the JD-R model, JDs drain employees' physical and emotional resources leading to poor performance and burnout. At the same time JRs (e.g., social support, decision attitude), while are proven to be related to employees' motivation and performance, also act as a buffer for the negative impact employees' may experience from JDs (Bakker and Demerouti, 2007).

Despite the interest of this stream of research in preventing stress conditions of workers and counterproductive behaviours at work, large part of the studies in the JD-R domain consider solely the variable of burnout among the negative outcomes and only work engagement as positive outcomes variables. A not so relevant number of studies examine the KSBs, that represents an crucial behaviour to analyse and to encourage especially in specific sectors such as service industry, in which the interchange of information and knowledge is a key characteristic in guaranteeing service quality delivery. Then, we posit that:

*Hp1. Individual characteristics do not play a relevant role in predicting KSBs*

*Hp2. JRs affect in a positive and significant way KSBs.*

*Hp3 JDs affect in a negative and significant way KSBs.*

*Hp4. JRs do affect in a stronger way KSBs compared to JDs*

## **4. Method**

### **4.1 Procedure and participants**

A dataset was built on the basis of available public lists of travel agents hold by each Province in Italy. A mailing list was prepared and email were sent. All the invitations included a brief statement outlining the objectives of the study and the link to the online questionnaire. A first wave of data gathering was carried out in the period of July-August 2017; two reminders (after two weeks and after three weeks) were sent. Out of more than 1000 invitations, 200 questionnaires were filled. However, due to missing data, only 100 were suitable for being used in this research.

### **4.2 Measures**

All variables were measured using existing and validated scales and their internal reliability was controlled with Cronbach Alpha (Nunnally, 1967) for the purpose of this study.

*Knowledge sharing behaviour.* For the dependent variable, namely KS, a four-item scale by Lin and Lee (2004) was adopted. They were scored on a five-point frequency scale ranging from 1 (“totally agree”) to 5 (“totally disagree”). An example of item is: “Employees in my company share know-how through work experience with each other”. Cronbach alpha is .896.

*Job demands.* JDs were measured with the 12-items ( $\alpha = .697$ ) of the scale developed by Firth et al. (2004) including four job stressors, that are: *role ambiguity*, *role conflict*, *work-overload* and *work-family conflict*, assessed each by three items (e.g., “At my job I cannot satisfy everybody at the same time”). Items were scored on the same scale. The four variables were considered as independent.

*Job resources.* Six job resources were included in the analysis chosen according to previous research in the field. *Skills development* was measured with a 5-items scale ( $\alpha = .922$ ) developed by Agervold and Mikkelsen (2004). *Co-workers support* was measured by six questions ( $\alpha = .883$ ) developed by Karasek et al. (1998). *Autonomy* was measured with 5-items ( $\alpha = .800$ ) developed by Agervold and Mikkelsen (2004). *Variety* was measured with a scale developed by Morgeson and Humphrey (2006)

and composed of six questions ( $\alpha = .777$ ). Answers were based on the same scale. Also, the *satisfaction with pay* was included ( $\alpha = .842$ ). Further, since its importance in the tourism and in any workplace in general even *technology support* offered by the company was included as a job resource in our model ( $\alpha = .921$ ).

## 5. Main Results

Data were analysed with SPSS (Version 20) and reported in table 1. Four regression models are investigated: the individual characteristics on KSBs (model 1), the JRs on KSBs (model 2), the JDs on KSBs (model 3), and the JDs and JRs on KSBs (model 4). According to the results shown in table 1, individual characteristics do not play a relevant and significant effect on KSBs since the variance explained is .09%. Thus, hypothesis 1 is supported. Also, it was demonstrated that JRs contribute to explain quite a large variance on KSB 34,7% thus hypothesis 2 is supported. Also JDs, with individual characteristics, explain 1,9% of total variance in KSBs thus less than the one explained by JRs. So, hypothesis 4 is supported and hypothesis 3 is partially supported. In the end, three out of six JRs have a positive and significant impact on KSBs, that are: pay, co-workers support and technology. As for the other JRs, they all have means which are quite high: autonomy ( $m = 4,36$ ), skills development ( $m = 4,32$ ), variety ( $m = 4,14$ ). Only one out of four JDs has a significant and positive effect on KSBs that is job clarity.

**Table 1: Regression analysis for Knowledge Sharing Behaviour**

	Model 1	Model 2	Model 3	Model 4
Gender	-,074	-,064	-,059	-,066
Education	,062	,072	,121	,099
Years organization	,174	,135	,089	,114
Age	,077	,041	,141	,070
Coordination role	,063	,114	,152	,137
Organization size	-,069	-,025	,125	,040
Skills development		,084		,016
Co-workers support		,329 ***		,243 **
Autonomy		,079		,040
Variety		-,049		-,037
Technology support		,311 ***		,312 ***
Pay		,163 *		,143
Role ambiguity			-,067	-,030
Role clarity			,504 ***	,237 *
Work life balance			-,017	,008
Workload			-,008	-,006
<i>R<sup>2</sup>adj</i>	.009	.347	.019	.358

Note, Sig: .<.1, \*<.05, \*\*<.01, \*\*\*<.001.

## 6. Conclusions, implications and limitations

The paper aims to investigate the relationship between JDs and JRs, as working determinants, and KSBs, as positive individual attitudes among travel agents. The question has a certain relevance, as it is proved that KS is crucial for enterprise development, especially in service context and in time of changes as present is, when innovation and new solutions have to be introduced to help business and being established that Job Characteristics – as JDs and JRs - affect work related outcomes.

The evidence shown in this study demonstrate some important elements. First of all, the irrelevance of individual characteristics in predicting KSBs reinforce the need of attention towards working conditions, which play a specific role in favouring KS. Moreover, the relationships between JDs, JRs and KSBs are confirmed. This allows to underline the importance in managing the equilibrium of the different dimensions of work to support individual orientation to exchange knowledge, experiences on the basis of which service can be improved like travel agencies we studied here have to do.

About the role played by individual characteristics, we proved a very limited role of such characteristics compared to job characteristics such as JRs and JDs. At the same, we also noticed that according to previous literature (Bakker and Demerouti, 2007; Bakker et al., 2003; Hakanen et al., 2006; Schaufeli and Bakker, 2004) the role of JRs on positive outcomes is much more relevant than the role of JDs.

These results suggest, as a first step, that the balance of job characteristics mix – i.e., JDs and JRs - has to become a managerial concern for an effective management of employees and that it has to be compared with general conditions that contribute to work climate and, specifically, to knowledge sharing behaviours. Specifically, care to job clarity seems to be necessary in changing context, in which

This study has some major limitations. The first is the limited number of questionnaires, the second bias may arise from common method.

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## Recording of Liabilities in Accounting Systems

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**Abstract:** Liabilities are the integral part of any business and their proper recording in the accounting is in the interest of every business entity. However, in different accounting techniques used in the past in the area of the Czech Republic was the system of recording liabilities different. The aim of the paper is based on the historical analyses of accounting instructions and old accounting records to describe recording of liabilities in administrative accounting, cameral accounting, and single-entry accounting; explain specifics and evaluate quality with regards to the information value of the accounts.

**Keywords:** accounting; single-entry; cameral; liabilities; recording; Czech Republic

**JEL classification:** M41

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### 1. Introduction

Recording of liabilities belongs to the most important part of accounting technique. The evidence of liabilities in double-entry accounting is clear and accomplished. However, when working with old accounting sources we can see other approaches to recording of liabilities which have lot of specifics. The aim of the paper is based on the historical analyses of accounting instructions and old accounting records to describe recording of liabilities in different accounting system (except double-entry accounting) used in the past in the area of the Czech Republic, explain its specifics and evaluate its quality with regards to the information value of the accounts.

### 2. Accounting systems

Although double-entry accounting is currently used as the dominant accounting system, there are other accounting forms that were used in the area of the Czech Republic in the past. The first typology of accounting systems used in the Central Europe was published by Friedrich Hügli in 1887. He named 5 accounting systems (methods) that contain different accounting techniques (forms). This is the most comprehensive classification at all, some of the forms presented by Hügle have no English terms. Therefore there are the English translation and original German terms on the list:

- The system of single-entry accounting (Das System der einfachen Buchhaltung) that includes: the single-entry business accounting (die einfache kaufmännische Buchhaltung), the single-entry administrative accounting (die einfache Verwaltungsbuchhaltung), the advanced single-entry accounting (die erweiterte einfache Buchhaltung), and the Ed. Jones' English Accounting (Ed. Jones' englische Buchhaltung).

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- The system of double-entry accounting (Das System der doppelten Buchhaltung) that includes: the Italian accounting (Die italienische Buchhaltung), the so-called German methods (Sogenannte deutsche Methoden), the collective accounting (die kollektive Buchhaltung), the two-parts accounting (die zweiteilige Buchhaltung), the note-accounting (die Zettelbuchhaltung), the German accounting or the German collecting accounting (die deutsche Buchhaltung oder deutsche Sammelbuchhaltung), the German general accounting (die deutsche Generalbuchhaltung), the control journal (das Kontrolle-Journal), the French accounting (die französische Buchhaltung), the accounting with four journals (die Buchhaltung mit vier Journalen), the Jul. Morgensterns German general accounting (Jul. Morgensterns Allgemeine deutsche Buchhaltung).

- The synchronistic accounting forms (Die synchronistischen Buchhaltungsformen) that includes: the American Accounting (die amerikanische Buchhaltung), the Logismography (die Logismographie), the Russian or Triple accounting (die russische oder dreifache Buchhaltung), the French general accounting by J. S. Quine (die französische Generalbuchhaltung von J. S. Quine).

- The system of cameral accounting (Das System der kameralistischen Buchhaltung).

- The system of constant accounting (Das System der konstanten Buchhaltung) that includes: the constant accounting in transactions with undivided administration and only one cash register (die konstante Buchhaltung bei Geschäften mit ungeteilter Verwaltung und nur einer Kass), the constant accounting with multi-member administration and several independent cash registers (die konstante Buchhaltung bei mehrgliederiger Verwaltung und mehreren nebengeordneten Kassen). (Hügli, 1887)

Based on this findings, Josef Blecha (1971) applied this structure to the area of the Czech Republic and defined typology of accounting systems valid for this region. This typology contains four accounting methods:

- single-entry administrative accounting (also old cameral accounting)

- cameral accounting

- single-entry commercial accounting

- double-entry accounting

Insufficient time anchorage of each accounting method is the most important weakness of Josef Blecha typology together with the lack of primary research especially in the connection of the oldest period of the Czech accounting development. For these reasons it was necessary to revise these conclusions and define typology of accounting systems in connection of modern approach. The final version of the typology of accounting systems (Slavíčková, 2017) contains:

- administrative accounting

- cameral accounting

- single-entry accounting

- double-entry accounting

All these accounting methods were used in the past in the area of the Czech Republic, however each of them in several different versions (forms). Before the accounting law was issued, the concrete shape of the accounting was derived usually from the needs of economic entity, knowledge of the accountant and last but not least from the accounting tradition of the office. (Slavíčková, 2017, 181) The following text describes the basic form of recording of liabilities in these accounting systems (except double-entry accounting) as it was defined in owner's instructions, handbooks or other normative resources.

### 2.1. Single-entry accounting

The system of single-entry accounting was traditionally based on ordinary and extraordinary (secondary) books. Ordinary books include 1) inventory; 2) journal (primary notebook); 3) head book. (Panzner, 1898, 11) The journal features all the realized operations in chronological order. As the journal does not allow for instant identification of the debtor or creditor balances of the subjects, there is a need to create a head book. The head book is the crucial tool of the recording of liabilities in the single-entry accounting. For this purpose, the head book is divided in separate accounts, one for each debtor or creditor. (Kheil, 1877, 43) Only less frequent debtors or creditors should be written together in one account. According of David (1921, 41), this account is called *konto pro diversi*.

The account in the head book is labelled by the name and address of the creditor or debtor and divides two sides. Claims are charged to the left, together with the date (year, month, day), description of the claim, number of page in the journal, due date and amount (see Table 1.). Sums already paid are recorded on the right side. (Panzner, 1898, 22)

**Table 1: Form of the account in the head book in the single-entry accounting**

Debit		Company/Person		
DATE	DESCRIPTION	JOURNAL	DUE DATE	SUM

Address		Credit		
DATE	DESCRIPTION	JOURNAL	DUE DATE	SUM

Source: Author based on the form published by David (1921, 44)

In the case that the same company or person works as the creditor as well the debtor in our business, the account in the head book can include both:

**Table 2: Form of the coupled account in the head book in the single-entry accounting**

DATE	DESCRIPTION	JOURNAL	DEBIT	CREDIT	BALANCE	
					DEBIT	CREDIT

Source: Author based on the form published by Panzner (1898, 24)

If necessary, the head book can be divided into two separate books, one for debtors and one for creditors. David and others highly recommend to establish register that simplify orientation between the accounts (see Table 2.). The accounts in the head book have to be closed ones or twice per year, usually on June, 30 and January, 31 (David, 1921, 45) Information about generated profits or losses in the single-entry accounting can be retrieved only if net assets are established. Net assets are in the inventory. (Kheil, 1877, 43)

## 2.2. Cameral accounting

The difference between single-entry bookkeeping and cameral accounting was, rather than in the structure of the books, in the accounting records management system. (Slavíčková, 2018) The central part of this accounting system was the Journal with time records, which served as background data for accounting in the head book that contained systematic entries. The two ledgers served for internal control (they were to be kept by two different people). The head book (Hauptbuch) was divided into sections dedicated to a certain type of homogeneous entries, and the key principle of cameral accounting rested on separate monitoring of the requirements and payments for each section (see Table 3.). (Raulich, 1935, 4)

**Table 3: Form of the account in the head book in the cameral accounting**

### EXPENDITURES

Requirements		Company/Person		Payments	
DATE	DESCRIPTION	SUM	DATE	DESCRIPTION	SUM

### REVENUES

Requirements		Company/Person		Payments	
DATE	DESCRIPTION	SUM	DATE	DESCRIPTION	SUM

Source: Author based on the form published by Raulich (1935, 6)

### **2.3. Administrative accounting**

The administrative accounting is the oldest accounting technique in the area of the Czech Republic. (Slavičková, 2017) The description of the content and main principles of the administrative accounting is quite rare. Legal framework useful for accounting did not exist in this time. The most comprehensive instructions are included into handbooks of Jan Brtvín, Mikuláš Černobýl published together in 1587 and handbook of Christophorus Fischer named *Oculus Domini* published first in Czech in 1705-1706. (Slavičková, 2017, 61)

The administrative accounting technique could be described by separate monetary and material records. Different kinds of assets (economic sectors) had separate statements (register, monetary and material accounts, etc.), which ideally analytically recorded all flows. The income and expenditure part of the accounting included asset classification, with income and expenditure divided by origin and purpose (sections). Entries were typically chronological and there was no need to account the monetary value of material flows. (Slavičková, Puchinger, 2015, 33)

The administrative accounting was marred by the number of shortcomings, recording of liabilities being one of the most pronounced ones due to its crucial role for the reporting of economic results. Based on the original sources, especially these produced by municipal governments and noble estates, three main modes of recording of liabilities were identified:

1) In the first mode the claims were recorded together with the incomes. This system did not reflect the time difference and the sum of the due payments. Between incomes there were included unpaid amounts which may have been paid later or not. Although the final balance sheet took into account the sum of claims, after the period was closed the records of then paid claims became unclear. Because the claims were added to the total sum of incomes, never paid claims had important impact on the overall picture of the municipal economy. (Slavičková, 2017, 165-166)

As we can see in the sources, this system was most likely regarded as complicated also by the accountants. What happened occasionally was that the payments of old claim were recorded into the incomes of the actual accounting period. Due to that, the same amount could be represented in incomes twice.

2) The second way was continuous recording of repayments separate from incomes and last but not least,

3) the most advanced system used a separate register of claims. Although it was close to the recording of liabilities in other accounting techniques such as single-entry or double-entry accounting, due to the absence of interconnection between the main accounting book (book of incomes) and this register of claims, the main book did not reflect payment discipline of the debtor which unavoidably led again to the distortion of the final data. (Slavičková, 2017, 165-166)

### **3. Conclusion**

Based on the comparison of all mentioned accounting techniques used in the past in the area of the Czech Republic we can say that each of these accounting techniques used different system of recording of liabilities with different value of perfection:

In the administrative accounting, recording of liabilities was inconsistent and considered inessential. It was identified three main modes of recording of liabilities, none of them was able to record liabilities without shortcomings. The general view on liabilities and the overall state of the economy in this accounting system was considerably limited. Nevertheless, the administrative accounting was used by the majority of economic entities (small economic units such as guilds or churches as well as by municipal governments or large noble-estates) from the Middle Ages till the Middle of the 18<sup>th</sup> century at least without fundamental changes. It was replaced by the cameral accounting most likely during the reign of Maria Theresa (1740-1780) and her sons Josef II (1780-1790) and Leopold II (1790-1835).

The cameral accounting was originally designed for state government and budgetary organisations in general, however it became popular also in management of noble estates during the first half of the 19<sup>th</sup> century. The structure of recording liabilities in the cameral accounting cleverly modifies form of the head book used by single-entry accounting. Although the single-entry accounting existed since the Middle Ages, it became dominating in our practice after the second half of the 19<sup>th</sup> century most likely thanks to the systematic accounting education. The system of recording of liabilities in the cameral as well as single-entry accounting is simple but very well functional and fulfill its role sufficiently. However, both these systems have limited value in terms of economic result.

From the historical point of view, it seems as the crucial moment for the development of recording of liabilities the using of head book as the main tool for recording of liabilities. While in the methods of single-entry accounting and cameral accounting the head book became functional and efficient part of the accounting technique, the diverse and imperfect system of recording liabilities in administrative accounting has fundamentally contributed to the frailty of this entire method.

All accounting instructions emphasize careful and detailed recording, importance in recovering old debts, and caution when allowing for a new debt. Unfortunately, original accounting records of liabilities were not been preserved purposely in the past, just the opposite, they were usually intestinally destroyed after the debts were payed. Due to that, while we are familiar with the theoretical form of recording of liabilities in all accounting systems, we have available only parts of the original resources that usually do not cover whole system. It is necessary to keep this in mind especially with regard to the interpretation of accounting records. It could be the problem particularly for the creating complete picture about the economy in the past.

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## The benefit of socially responsible investments – a case study of the profitability of two funds and their interlinkages

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**Abstract:** The paper investigates the linkages between a chosen socially responsible investment fund and a general fund that does not declare its focus on socially responsible investments only. We analyse the development of the value of the shares of these funds during the period 2017-2019. We compare the differences in the profitability of these funds for different short-term investment horizons. This way we validate the claims made on the profitability of socially-responsible investments and Environmental, Social and Governance investments by the administrators of the funds themselves. We assume a simple buy and hold strategy and analyse the returns provided by this strategy for both types of funds. Our results suggest that for the analysed funds there is no significant difference in profitability between the socially responsible fund and the fund that does not declare its focus on socially responsible businesses or companies.

**Keywords:** investment, fund, decision-making, social responsibility, portfolio, returns

**JEL classification:** C58, G11, M14

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### 1. Introduction

Just as economic systems that work on the principles of sustainability and responsibility are currently being developed, contemporary financial markets also provide investors with the opportunity to choose between a range of responsible investments. The aim of this research is to define the differences and similarities in the area of performance of conventional and Environmental, social and governance (ESG) funds and between the claims of investment companies on the performance of ESG funds and their actual performance. More specifically we intend to investigate the claims of the fund managers concerning the superiority of the performance of funds providing the socially responsible alternative to investment. Our motivation is one of pure curiosity. We therefore propose a comparison of the performance of two selected funds in terms of their ability to generate positive or negative returns within given time-frames. We do not assume the superiority of ESG funds or of the general funds. We, however, offer a description of the performance of these funds under specifically chosen conditions based purely on their historical performance data. This allows for the assessment of “marketing” claims of the fund managers offering socially responsible investments as a good, or sometimes even “better performing” alternative to general funds.

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## 2. Literature review

Caplan, Griswold and Jarvis (2013) divide responsible investments into three categories:

- *Socially-responsible investing (SRI)* – the investment process is based on negative industry screening, which by definition will be excluded from the investment portfolio,
- *Impact investing* – Investing in projects or companies that accurately define their goal regarding a particular social or environmental change,
- *Environmental, social and governance (ESG)* – ESG factors are taken into account and included in the fundamental analysis of the investment.

Especially SRI and ESG are abbreviations often used in relation to investments in mutual funds, respectively we talk about attributes that directly characterize a given mutual fund. In relation to the SRI and negative screening, Nofsinger and Varma (2014) mention alcohol, tobacco and arms industry as examples of excluded sectors. Berry and Junkus (2012) define SRI mutual funds as funds that exclude companies whose products are harmful to society. Investments in SRI funds thus can express the attitudes of the investors and reflect their desire to financially support (or be a part of) a business that does not destroy or damage values that the investor regards highly.

Caplan, Griswold and Jarvis (2013) note that these investment approaches have different purposes. SRI and impact investing are more focused on the mission of the company or on the values that the company or institution represents. The composition of the portfolios of this type therefore reflects mainly these aspects. In contrast, ESG's investments are aimed at improving investment performance (Caplan, Griswold and Jarvis, 2013). As such, one would expect that ESG investments would outperform the general funds in terms of maximum achievable profits, in terms of average profits, in terms of risk, in terms of diversification possibilities, or in terms of some other economically relevant criterion.

Differences between SRI and ESG are not only dealt with by professional literature, but are mainly referred to by investment companies. Axa Investment Managers define the following differences:

- *ESG - refers to the practices of an investment that may have a material impact on the performance of that investment. The integration of ESG factors is used to enhance traditional financial analysis by identifying potential risks and opportunities beyond technical valuations. The main objective of ESG integration remains financial performance. (Axa, 2019)*
- *SRI - goes one step further than ESG by actively eliminating or selecting investments according to specific social/sustainable guidelines. The underlying motive could be religion, personal values or political beliefs. SRI strategies use ESG factors to shape the objectives of the strategy and/or apply negative or positive screens on the investment universe. (Axa, 2019)*

ESG investments are expected, as pointed out by Przychodzen, Gómez-Bezares, Przychodzen & Larreina (2016), to provide an added diversification ability to the portfolio by taking into account various indicators of company performance originating in various areas of its activity. Company's societal impact (fair-trade etc.) and environmental impact (carbon emissions, natural resources consumption) are taken into account. The governance dimension of the company (reflected e.g. in the

measures taken to protect stakeholders, in the amount of corruption etc.) is also relevant for ESG fund managers.

The relationship between the ESG criteria and the corporate financial performance (CPF) has been addressed, for example, by Friede, Busch and Bassen (2015), according to which about 90% of studies found a non-negative relationship between ESG and CFP.

Before we proceed to the analysis, let us briefly summarize several statements concerning the (declared) performance of ESG funds. We have selected the following investment companies which declare the following in relation to ESG funds and their financial performance:

**NN Investment Partners:** *We have chosen to be active investors, both as equity holders and debt lenders and to engage with our investee companies. Our aim is to support them in taking a more sustainable approach going forward. This makes **them more resilient and enhances their performance potential**. It also increases our positive impact on society at large.* (NN Investment Partners, 2019)

**BNP Paribas:** *Environmental, Social and Governance (ESG) issues are increasingly taking centre stage as institutional investors exert their influence to channel more funds towards investments that deliver measurable impacts along with **improved long-term financial returns**. There is a growing belief in the link between incorporating ESG into investment decision-making and **better risk-adjusted returns**, while local regulators are beginning to implement their own ESG frameworks.* (BNP Paribas, 2019)

**Robeco:** *Robeco has long believed in the benefits of sustainability investing. We are convinced that using financially material environmental, social and governance (ESG) information in our investment processes leads to **better-informed investment decisions and better risk-adjusted returns in the long run**.* (Robeco, 2019)

As we can see, all three chosen companies declare, in one way or another, that ESG funds have better performance. Note, that the reference framework is not specified, so we can only assume that they are comparing the ESG funds with the general funds (i.e. funds without clear focus on the ESG factors). We are going to investigate these claims on an example of a European ESG fund (European Sustainable Equity fund) and a general equity fund (European Equity fund) managed by the same company, i.e. NN Investment Partners, further in this paper.

### 3. Methods and data

As suggested above, we are going to analyse the following two funds:

- **European Sustainable Equity fund** as a representative of an ESG fund. It is an equity fund of NN Investment Partners founded in 2014. The Fund invests in companies listed on stock exchanges in Europe. These companies follow the principles of sustainable development. The market risk associated with the shares used to achieve the investment objectives is considered high.
- **European Equity fund** as an example of a general fund not focused on the ESG factors. It is an equity fund of NN Investment Partners founded in 2009. The fund invests in a wide range of large companies in Europe. The market risk associated with the shares used to achieve the investment objectives is considered high.

For both funds we have acquired daily unit prices for the period of 8.5.2017 – 3.5.2019, the data was downloaded from [www.conseq.cz](http://www.conseq.cz). Since the funds are traded during working days only, we assume a 5-day week in the analysis. In total we have 510 daily prices for each of the funds. Missing values due to national holidays or other non-working non-weekend days were inputted, latest known price was used for this purpose.

In this paper we would like to provide a current view on the performance of the funds. We have therefore decided to use two years of most recent data. The 2-year period does not allow for the analysis of long-term performance. We do not see this as a substantial problem, since longer time-series might be at least slightly biased by the fading of the effects of the crisis and by the fact that general funds have much longer history than the ESG ones. The results presented further in the paper should, therefore, be interpreted with the short-term investment horizon in mind.

We have considered 5 short-term investment horizons – 1 day, 20 days, 60 days, 120 days and 240 days (note that working days are considered, i.e. we assume a month has 20 working days). A simple Buy and Hold strategy is assumed for each of the investment horizon and we focus on the returns of each of the funds between the first and the last day of the investment window. In other words the returns are computed as  $r_t = (p_{t+h} - p_t)/p_t$ , where  $t \in [1, 510 - h]$  is the index of the observation,  $h \in \{1, 20, 60, 120, 240\}$  represents the assumed investment horizon, and  $p_t$  is the price of one unit of the given fund at time  $t$ .

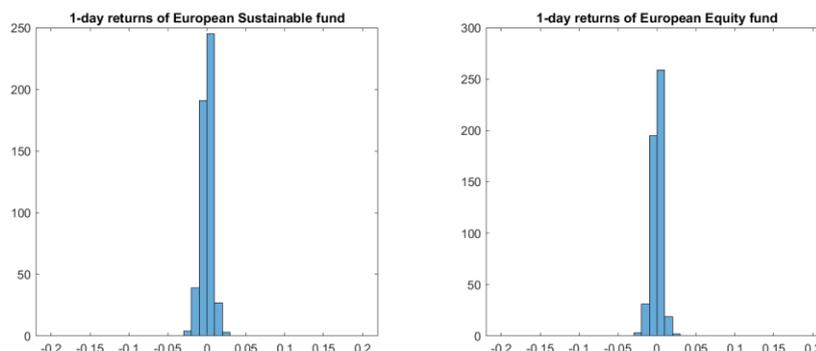
#### 4. Results

Figures 1 to 5 represent the histograms of the returns for both funds under each of the investment horizons. The values of the mean and median returns are summarized for both funds and all the considered investment horizons in Table 1.

**Table 1: Mean and median returns of the investigated funds for a Buy and Hold strategy with the respective investment horizons**

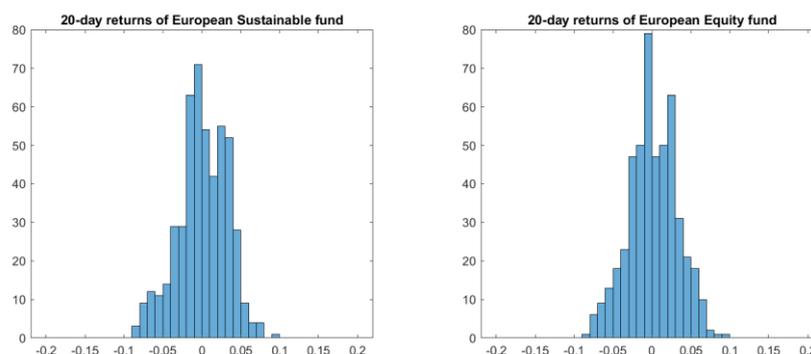
Investment horizon:		1 day	Month (20 working days)	3 months (60 working days)	6 months (120 working days)	1 year (240 working days)
ESG	Mean	0.000089	0.001244	0.000238	-0.011985	-0.014251
	Median	0.000588	0.000661	0.002061	-0.005454	-0.003301
non ESG	Mean	0.000085	0.002014	0.003479	-0.006945	-0.016479
	Median	0.000623	-0.000161	-0.000717	-0.000708	0.001022

Considering the 1-day investment horizon is not a standard investment strategy. It, however, gives us the opportunity of analysing the daily development of the price of the funds in terms of daily returns. Unlike in the time-series analysis we are focused here on the capability of the fund of creating positive daily returns, i.e. on its ability to increase in value. As expected, the returns are in units of percent tops. However, the distribution of returns is similar for both analysed funds. The mean and median of the returns is very close to zero and positive for both funds (see Table 1). There does not seem to be a significant difference in the performance of the funds as long as daily returns are considered.



**Figure 1: Comparison of the distributions of daily returns of the European Sustainable fund (left) and the European Equity fund (right)**

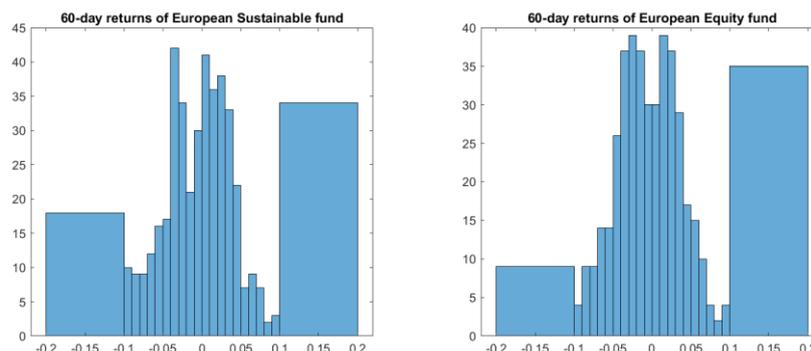
When we move the investment horizon to 20 days (see Figure 2), the possibility of obtaining higher returns (as well as higher negative returns) increases. Both distributions of monthly returns are again very similar, average returns are below 1% and positive. Interestingly the median of monthly returns for the ESG fund is positive, while the median of the non-ESG fund returns is negative. Both values are, however, so close to zero that the difference is not significant.



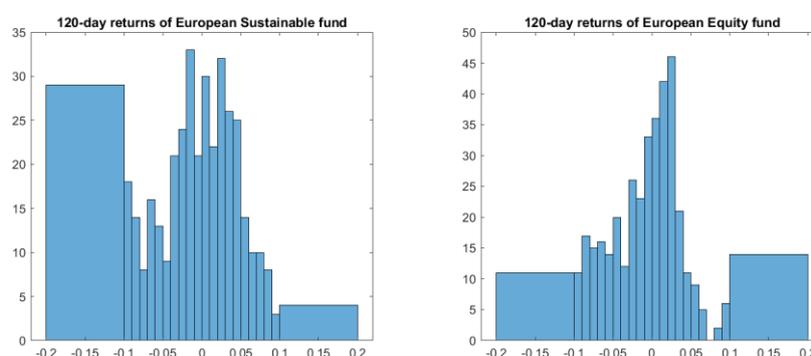
**Figure 2: Comparison of the distributions of monthly returns of the European Sustainable fund (left) and the European Equity fund (right)**

Moving the investment horizon even further (Figures 3-5) we can see that higher returns (positive and negative) are possible. Surprisingly, the 3-month investment horizon seems to result in the most cases of returns between 10% and 20%, while for a 1-year horizon positive returns over 10% are not achieved, while negative returns within the  $[-20\%, -10\%]$  interval are still rather frequent.

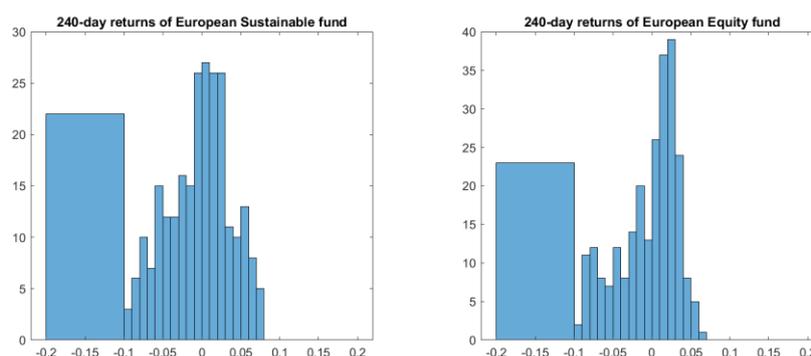
Overall there do not seem to be any apparent differences in the performance of the two analysed funds in terms of their returns as computed for the Buy and Hold strategy with the given investment horizons. One exception might be the 6-month investment horizon (Figure 4), where the ESG fund seems to underperform the non-ESG fund in terms of returns below -10% and above 10%. Still median and mean returns for the 6-month investment horizon are negative for both funds, the non-ESG fund having both values (mean and median) closer to zero than the ESG fund in this case.



**Figure 3: Comparison of the distributions of quarterly returns of the European Sustainable fund (left) and the European Equity fund (right); leftmost bins represent the frequency of the returns in  $[-0.2, -0.1)$  and rightmost bins the frequency of the returns in  $(0.1, 0.2]$ .**



**Figure 4: Comparison of the distributions of semi-yearly returns of the European Sustainable fund (left) and the European Equity fund (right); leftmost bins represent the frequency of the returns in  $[-0.2, -0.1)$  and rightmost bins the frequency of the returns in  $(0.1, 0.2]$ .**



**Figure 5: Comparison of the distributions of yearly returns of the European Sustainable fund (left) and the European Equity fund (right); leftmost bins represent the frequency of the returns in  $[-0.2, -0.1)$ .**

## 5. Conclusion

In this paper we have investigated the claims of the superiority of the ESG funds over general funds on an example of two selected funds administered by the same company. On two years of daily data we have applied the Buy and Hold investment strategy with a 1-day, 20-days, 60-days, 120-days and 240-days investment horizons. The ability of both funds to generate positive and negative returns over the

analysed periods seems to be comparable and there are no large differences in terms of the performance of the two funds. The 120-days investment horizon even suggests that the non-ESG fund might outperform the ESG fund. We have thus not found any justification of the claims made by the managers of the funds concerning the superiority of ESG funds. Our analysis, however, focused only on a very limited sample and considered short-term performance of the funds. Regardless of the limitations there do not seem to be differences between the ESG and non-ESG fund in terms of returns generation. Further analysis will therefore aim on a larger sample of funds and also on the diversification possibilities of ESG funds, which were left out of the scope of this paper.

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## Liquidity controlling system based on financial accounting - a proof-of-concept

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**Abstract:** The paper investigates the possibility of using financial accounting data to build a real-time controlling system for liquidity. The aim is to use data available in everyday accounting operations and to suggest an early warning system for liquidity shortages. Such a system would be capable of raising red (or yellow) flags when problems with short-term, mid-term or long-term liquidity are to be expected. All this based on the current state of the accounting operations already put in the accounting system. We propose the use of fuzzy rules to implement expertly defined rules for liquidity assessment. This allows not only for the customizability for every user (manager), but also for the incorporation of imprecision in these rules. Another benefit of this approach is its ability to provide both linguistic and graphical description of the assessment of the current liquidity status (e.g. using traffic-lights). We also investigate the possibilities of visualisation of the current composition of assets. The proposed method utilizes the available information and provides a much needed summary concerning one chosen aspect of the company's viability, in this case liquidity. It also stresses the need for having up-to-date information in the accounting system.

**Keywords:** financial accounting, fuzzy, rule, controlling, business administration

**JEL classification:** M41, C44

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### 1. Introduction

Financial accounting is frequently seen as a necessity for business and for the management thereof. This is by no means a complete truth. Surprisingly, its necessity does not seem to be balanced with a clearly identified benefit of correct bookkeeping. For many small and medium business owners as well as for many students of economics it is a "necessary evil" rather than a useful source of information. Even though historically financial accounting (or bookkeeping) originated from the necessity of having an up-to-date information on ones assets etc. (Slavíčková, 2017, p. 205), somehow the formal rules set by the legislation currently seem to outweigh the actual usefulness of the financial accounting data. Even though the process of current double-entry bookkeeping mimics cash-flows and flows of assets etc. in the company, there are many definitions, principles and rules to remember to do the financial accounting fully in accordance with the legislative requirements. The necessity to understand all the definitions, rules etc. seems to consume most of the learning capacity of the students of economics (i.e. future entrepreneurs) and there is not much left to appreciate the benefits of correct bookkeeping.

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This paper strives to identify the possible benefits of correct bookkeeping and to show how the information entered into financial accounting information system in the company can be directly utilized for management purposes. We intend to show that the information contained in the financial accounting books can be used to construct a real-time liquidity controlling system. The only assumption our paper makes is one of available and up-to-date financial accounting data. Using expertly defined rules represented by the tools of linguistic fuzzy modelling we evaluate the available data and derive the assessment of the current status of liquidity in the given time frame.

## 2. Preliminaries

Fuzzy sets were first introduced by Zadeh (1965). This section presents the basic notations of the theory of fuzzy sets. Let  $U$  be a nonempty set (the universe of discourse). A *fuzzy set*  $A$  on  $U$  is defined by the mapping  $A : U \rightarrow [0,1]$ . For each  $x \in U$  the value  $A(x)$  is called a *membership degree* of the element  $x$  in the fuzzy set  $A$  and  $A(\cdot)$  is called a *membership function* of the fuzzy set  $A$ .  $\text{Ker}(A) = \{x \in U | A(x) = 1\}$  denotes a *kernel* of  $A$ ,  $A_\alpha = \{x \in U | A(x) \geq \alpha\}$  denotes an  $\alpha$ -*cut* of  $A$  for any  $\alpha \in [0,1]$ ,  $\text{Supp}(A) = \{x \in U | A(x) > 0\}$  denotes a *support* of  $A$ .

A fuzzy number is a fuzzy set  $A$  on the set of real numbers which satisfies the following conditions: (1)  $\text{Ker}(A) \neq \emptyset$  ( $A$  is *normal*); (2)  $A_\alpha$  are closed intervals for all  $\alpha \in (0, 1]$  (this implies  $A$  is *unimodal*); (3)  $\text{Supp}(A)$  is bounded. The real numbers  $a_1 \leq a_2 \leq a_3 \leq a_4$  are called *significant values* of the fuzzy number  $A$  if  $[a_1, a_4] = \text{Cl}(\text{Supp}(A))$  and  $[a_2, a_3] = \text{Ker}(A)$ , where  $\text{Cl}(\text{Supp}(A))$  denotes a closure of  $\text{Supp}(A)$ . More details on fuzzy numbers and computations with them can be found for example in Klir and Yuan (1995).

A *fuzzy scale* on  $[a, b]$  is defined as a set of fuzzy numbers  $T_1, T_2, \dots, T_s$  on  $[a, b]$ , that form a Ruspini fuzzy partition of the interval  $[a, b]$ , i.e. for all  $x \in [a, b]$  it holds that  $\sum_{i=1}^s T_i(x) = 1$  and the  $T$ 's are indexed according to their ordering. A *linguistic variable* (Zadeh, 1975) is defined as a quintuple  $(\mathcal{V}, \mathcal{T}(\mathcal{V}), X, G, M)$ , where  $\mathcal{V}$  is the name of the variable,  $\mathcal{T}(\mathcal{V})$  is the set of its linguistic values (terms),  $X$  is the universe on which the meanings of the linguistic values are defined,  $G$  is a syntactic rule for generating the values of  $\mathcal{V}$  and  $M$  is a semantic rule which to every linguistic value  $\mathcal{A} \in \mathcal{T}(\mathcal{V})$  assigns its meaning  $A = M(\mathcal{A})$  which is usually a fuzzy number on  $X$ . A linguistic variable is called a *linguistic scale*, if the meanings of its linguistic values form a fuzzy scale.

## 3. Possibilities of liquidity assessment

To make things simple we will implement a simple managerial rule: “*The amount of the available funds should be sufficient to cover the liabilities of the company.*” We will start with the case of a short time frame, therefore funds in the previous rule will be represented by *cash* and *current account balance* and only *short-term liabilities (trade payables)* will be considered. Even though the above stated managerial rule is frequently presented (even in the basic courses of business administration), its formal representation is not straightforward. We need to be able to specify what “sufficient” means to be able to convert the rule into an automated controlling tool. It might be that there is not a single number that represents the sufficient amount of funds well enough for every situation/company. For this purpose, we suggest to view the “sufficient” amount of funds from two perspectives:

- Absolutely – as a difference between the available funds  $F$  and liabilities  $L$ , i.e.  $F - L$ . This allows us to assess how much money is left if we paid all the short-term liabilities.
- Relatively – as a ratio of the available funds to the amount of liabilities, i.e.  $F/L, L \neq 0$ . This tells us what percentage of liabilities can be paid by the available funds.

Even though we distinguish between the relative and absolute “sufficiency”, it might still be difficult to define a crisp “sufficiency threshold” in both cases. We therefore suggest to employ the tools of linguistic fuzzy modelling. This will allow us to distinguish between *clear sufficiency*, *no sufficiency* and *borderline sufficiency*.

### 3.1. Linguistic scale for the description of sufficient liquidity in absolute terms

To describe the amount of liquidity in monetary units (i.e. in absolute terms) and to allow for some area of borderline sufficiency we define the linguistic variable *Absolute sufficiency*. This linguistic variable has three linguistic values: “no sufficiency”, “borderline sufficiency” and “clear sufficiency”. In the further text we will assume that  $F - L$  lies in the interval  $[-r, r], r > 0$ . The meanings of the linguistic values of this variable can thus be defined e.g. using trapezoidal fuzzy numbers on  $[-r, r]$  in the following way:

- $N = M(\text{no sufficiency}) = (-r, -r, 0, k)$
- $B = M(\text{borderline sufficiency}) = (0, k, 2k, 3k)$
- $C = M(\text{clear sufficiency}) = (2k, 3k, r, r)$

where,  $k \in \mathbb{R}, k \in (0, r/3]$ . Any value  $F - L$  can now be easily interpreted using the linguistic values of this linguistic variable and the membership degree of  $F - L$  to their fuzzy number meanings. We however aim on providing easy-to-understand graphical summaries to clearly present the information on short term liquidity. In addition to linguistic descriptions we are going to use colours to represent the different states of liquidity; the traffic light coding will be used in the following way:

- IF *absolute sufficiency* IS *no sufficiency* THEN display *RED*,
- IF *absolute sufficiency* IS *borderline sufficiency* THEN display *YELLOW*,
- IF *absolute sufficiency* IS *clear sufficiency* THEN display *GREEN*.

The graphical representation of the colour outcomes of these rules will be analogous to the outputs of IS HAP system as introduced in (Stoklasa, Talašová, & Holeček, 2011; Talašová, Stoklasa, Holeček, & Talášek, 2017).

### 3.2. Linguistic scale for the description of sufficient liquidity in relative terms

To describe the relative amount of liquidity, allowing again for some area of borderline sufficiency we define the linguistic variable *Relative sufficiency*. This linguistic variable will have four linguistic values: “no sufficiency”, “borderline sufficiency”, “clear sufficiency” and “excess sufficiency”. In the further text we will assume that the relative amount of liquidity, computed for  $L > 0$  as  $(F/L) * 100$  lies in the interval  $[0, \infty)$ ; if  $L = 0$  then relative sufficiency of liquidity has no meaning. Analogously like in the previous subsection, the meanings of the linguistic values of this variable can now be defined e.g. using trapezoidal fuzzy numbers on  $[0, \infty)$  in the following way:

- $N = M(\text{no sufficiency}) = (0, 0, 100, 100 + s)$  – this way if  $F = L$  the relative sufficiency is still assessed as “no sufficiency”. The reason for this is that in this case nothing is left if all our short-term liabilities are paid.

- $B = M(\text{borderline sufficiency}) = (100, 100 + s, 100 + 2s, 100 + 3s)$
- $C = M(\text{clear sufficiency}) = (100 + 2s, 100 + 3s, 200 - s, 200)$
- $E = M(\text{excess sufficiency}) = (200 - s, 200, \infty, \infty)$  – once we have twice as many available funds as we have short-term liabilities, we consider the relative amount of available funds to be unnecessarily high; hence full “excess sufficiency” starts at 200.

Above we assume that  $s \in \mathbb{R}, s \in (0, 25]$  Again, any value  $(F/L) * 100$  can be interpreted using the linguistic values of this linguistic variable and the membership degree of  $F - L$  to their fuzzy number meanings. Similar traffic light coding will be used in the following way:

- IF *relative sufficiency* IS *no sufficiency* THEN display *RED*,
- IF *relative sufficiency* IS *borderline sufficiency* THEN display *YELLOW*,
- IF *relative sufficiency* IS *clear sufficiency* THEN display *GREEN*,
- IF *relative sufficiency* IS *excess sufficiency* THEN display *YELLOW*.

#### 4. Managerial summary of sufficiency of liquidity

In the previous section we have defined two linguistic scales for the description of currently available liquidity – both from the absolute and relative perspective. The numerical values of absolute and relative liquidity (i.e. specific values from the universes of the respective linguistic scales) can be obtained at any moment from the financial accounting system. This means that we can assess and re-assess the state of liquidity after every single operation. The numerical values may, however, be difficult to evaluate directly, particularly when an overall view of the state of the company needs to be available. For this purpose, we can provide a managerial summary in terms of a linguistic description of the current level of liquidity (absolute or relative) and also in terms of colours (see the interpretation rules presented in the previous section).

Given the fact that linguistic scales are used, i.e. linguistic variables whose meanings of linguistic terms form a Ruspiny fuzzy partition of the respective universe, the colour coding procedure suggested in (Stoklasa et al., 2011) can be used. Under these conditions every numerical value of liquidity can be assigned one colour (green, yellow and red). In cases when more than one rule applies (at least partially) to the given numerical value of liquidity (absolute or relative) a combination of two neighbouring colours is used. In this case we can determine the level of appropriateness of each of the colours as a linguistic description of the given numerical value and present this information to the manager. Note that the use of linguistic scales ensures that 100% appropriateness is fully distributed among the colours, see the example in the next section.

At this point we have two colour (or traffic light) representations – one of the absolute liquidity and one of the relative liquidity. Both pieces of information need to be taken into account to understand the situation of the company well enough in terms of liquidity. To obtain a single overall assessment of liquidity, these two pieces of information can be aggregated. The aggregation has to reflect the needs and expectations of the analyst (manager). We therefore propose the use of a linguistic rule base for this purpose. The advantage of this type of aggregation is that it can be directly defined (calibrated) by the analyst and it thus not required his/her deep understanding of fuzzy mathematics. The aggregation can be performed e.g. by the rule base summarized in Table 1. Holeček, Stoklasa, and Talašová (2016) suggest various types of inference based on such linguistic rule bases. The most

appropriate type of fuzzy inference has to be chosen by the analyst depending on his/her requirements.

**Table 1: Example linguistic rule base for the aggregation of absolute and relative liquidity sufficiency into overall liquidity assessment using colour representations.**

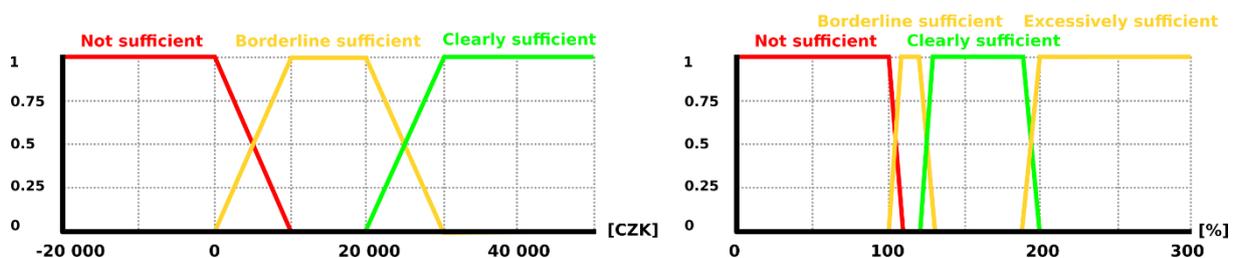
Overall liquidity assessment		Absolute liquidity sufficiency		
		No	Borderline	Clear
Relative liquidity sufficiency	No			
	Borderline			
	Clear		*	
	Excess			

\*This rule is discussed as an example in more details in the text.

This rule base uses the colour representations of current relative and absolute liquidity as inputs and derives outputs that are colour coded as well. It consists of twelve rules of the type “IF the *absolute liquidity* is *YELLOW* (borderline sufficient) AND the *relative liquidity* is *GREEN* (clearly sufficient) THEN the *overall liquidity assessment* is *GREEN*” denoted by an asterisk in Table 1. This particular rule represents the situation when even though we do not have much liquidity in absolute terms, it is still more than our current short-term liabilities (we have 30%-90% more free liquidity than we “owe”).

### 5. Example

Let us now consider a small company. We will track the balance on three accounts relevant to short-term liquidity: Cash, Current account and Trade payables. We assume the following values of parameters  $k = 10\,000$  and  $s = 10$ . In accordance with the definitions of the linguistic scales presented in a parametric way in Section 3 the actual linguistic variables that will be used for liquidity sufficiency assessment for our example company are presented in Figure 1.



**Figure 1: Linguistic scales for the description of sufficient liquidity in absolute (left) and relative (right) terms**

We assume that our company starts with 5 000CZK in cash, 20 000CZK on the current account and 15 000CZK in trade payables. This starting state is denoted by I. In Tables 2 and 3. These tables represent a simplified financial accounting system with our colour coded assessment of the sufficiency of liquidity; Table 2 tracks absolute liquidity while Table 3 tracks relative liquidity. Apart from the starting state I., we consider four subsequent accounting operations of the company with the following specifications:

- II. The company paid 10 000CZK worth of trade payables from its current account. As a result, absolute liquidity is at 10 000CZK, relative liquidity is 300% of the remaining trade payables.

- III. 9 000CZK worth of inventory was purchased. Money was transferred from the current account. (Since our focus is on short-term liquidity, we do not track accounts associated with medium- and long-term assets such as inventory in our tables.) As a result, absolute liquidity is down to 1 000CZK and relative liquidity is 120% of the remaining trade payables.
- IV. More inventory was purchased (worth 5 000CZK), invoice was provided to be paid within two weeks. As a result, trade payables increase to 10 000CZK, absolute liquidity becomes negative (-4 000CZK) and relative liquidity drops below 100% of the remaining trade payables (to 60%).
- V. A customer paid 20 000CZK to our current account for services provided by our company. Absolute liquidity thus increases to 16 000CZK and relative liquidity to 260% of the remaining trade payables.

**Table 2: Colour-coded assessment of the sufficiency of absolute liquidity for operations I.-V.**

Accounting operation	Cash [CZK]	Current account [CZK]	Trade payables [CZK]	Absolute liquidity ( $F - L$ ) [CZK]	Not sufficient	Borderline sufficient	Clearly sufficient
I.	5 000	20 000	15 000	10 000	0%	100%	0%
II.	5 000	10 000	5 000	10 000	0%	100%	0%
III.	5 000	1 000	5 000	1 000	90%	10%	0%
IV.	5 000	1 000	10 000	-4 000	100%	0%	0%
V.	5 000	21 000	10 000	16 000	0%	100%	0%

**Table 3: Colour-coded assessment of the sufficiency of relative liquidity for operations I.-V.**

Accounting operation	Cash [CZK]	Current account [CZK]	Trade payables [CZK]	Absolute liquidity ( $100F/L$ ) [%]	Not sufficient	Borderline sufficient	Clearly sufficient	Excessively sufficient
I.	5 000	20 000	15 000	166.6	0%	0%	100%	0%
II.	5 000	10 000	5 000	300	0%	0%	0%	100%
III.	5 000	1 000	5 000	120	0%	100%	0%	0%
IV.	5 000	1 000	10 000	60	100%	0%	0%	0%
V.	5 000	21 000	10 000	260	0%	0%	0%	100%

We can clearly see in Tables 2 and 3 that the sufficiency assessment of liquidity can be performed without complications after each operation. Since the absolute liquidity never reached more than 20 000CZK, which is the left significant point of the meaning of “Clearly sufficient absolute liquidity”, the assessment of absolute liquidity is never better than YELLOW (borderline sufficiency) after any of the operations. This is in line with the definition of the respective linguistic scale which requires at least 20 000CZK of liquidity for it to be considered “clearly sufficient” at least to some extent and at least 30 000CZK of liquidity to have absolute liquidity that can be considered clearly sufficient (in full extent). Note that even though operations I. and II. result in the same absolute liquidity assessment, i.e. we have 10 000CZK in free short-term liquidity, the relative liquidity is considered to be excessive after operation II. as in this case we have three-times as much liquidity as we have trade payables.

Given the relatively low amount of trade payables after operation III. the relative liquidity is still reported as YELLOW while absolute liquidity assessment reports 90% RED and 10% YELLOW. This makes perfect sense as in this case we only have reserve of 1 000CZK. The rest of the operations can be interpreted in an analogous way. If the 100% YELLOW relative liquidity and 90% RED + 10% YELLOW absolute liquidity is difficult to interpret for the manager, the linguistic rule base presented in Table 1 can be employed. If we assume the min t-norm (see Holeček et al., (2016) for more details), then the following two rules are applicable:

- “IF the *absolute liquidity* is YELLOW AND the *relative liquidity* is YELLOW THEN the *overall liquidity assessment* is YELLOW” (10% applicable)
- “IF the *absolute liquidity* is RED AND the *relative liquidity* is YELLOW THEN the *overall liquidity assessment* is RED” (90% applicable)

This means that YELLOW is a 10% applicable summary of the overall liquidity assessment while RED is a 90% applicable. A majority vote classification would thus result in a RED colour overall liquidity assessment. Alternatively, 10% YELLOW + 90% RED, i.e. a fuzzy classification of the overall liquidity assessment, can be used.

## 6. Conclusion

This paper proposes the idea of a continuous monitoring of short-term liquidity in a company based on the information available in its financial accounting system. It provides outputs in a linguistic and colour coded way to facilitate their easy understanding. On an artificial example of five accounting operations we show the feasibility of real-time monitoring of company characteristics based on its financial accounting data.

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## Aspects of the taxation of Immovable Property

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**Annotation:** The paper deals with the current problematic aspects of taxation of acquiring property rights to real estate for individual tax subjects, legal and natural persons, including related issues in the context of Czech tax jurisdiction. The amount of this tax is a significant revenue for the State Budget and is influenced by of number the factors. The article describes and analyses, the effects of property ownership on taxation in the area of ownership transfer, property tax, Value added tax and Income Tax.

**Keywords:** Real estate property tax, real estate property transfer tax, real estate property acquisition tax,

**JEL classification:** H 24

**Grant affiliation:** The contribution is processed as an output of a research project the selected issues of public finances, in particular budgetary policy, accounting and reporting registered by the IGA\_AS under the registration number 0108/2019.

### 1. Introduction

Tax on property is defined as recurrent and non-recurrent taxes on the use, ownership or transfer of property. These include taxes on immovable property or net wealth, taxes on the change of ownership of property through inheritance or gift and taxes on financial and capital transactions (OECD, 2019). In practice, property taxes also overlap with other types of taxes, such as income tax or value added tax (VAT). The real estate transfer taxpayer can be the buyer, seller, or both. In various countries, there may be different types of rates (single or multiple tax rates, progressive tax rates) Kubátová (2018). Property taxes are historically the longest used type of taxes. The land tax (tributum) existed along with the cadastral land register in both ancient Greece and ancient Rome, where this tax was also paid for transfers of property, especially when it was sold. On Czech territory since the 12th century pay taxes on cultivated land and tax townhouses (Falada, Starý, 2009). In the Czech Republic (CR), all taxes can be imposed only by law, which is based on the Constitution from the provisions of the Charter of Fundamental Rights and Freedoms, Article 11 (1992). From the constitutional point of view, taxes can be seen, as limiting the rights of owners, but from the perspective of the state as a civil obligation. The central administrative body is the Ministry of Finance of the CR, the Tax Administration is performed by the Financial Administration, Customs and Excise Taxes. The function of taxes is not only a way of obtaining resources to finance the state, but also in its stimulating function for the desirable behavior of tax subjects. Property taxes are part of the tax system of the CR. Harmonization processes, including European Union (EU) directives do not affect property taxes. According to the European Court of Human Rights and the European Commission at the Council of Europe, the attribute of a sovereign state is the power to tax property. International standards defining the basic principles of the tax structure for property tax are not determined.

### 2. Methodology and objectives of the paper

The article focuses on the problematic aspects of taxation changes in the ownership of real estate in the context of the CR tax jurisdiction. The aim of the paper is to describe the development and analyze

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the current state and problematic aspects of taxation of acquisition of property rights to immovable property. The basic question is, what impacts does the change of the taxpayer have on the acquirer in the Act on Real Estate Acquisition Tax. That question is at first glance may seem obvious, but the change in combination with other factors, can bring many complications for the purchaser of new housing. In qualitative research, which was conducted in 2018, they were used analysis methods available resources dealing with taxation changes in the ownership of real property in connection with the principles of tax theory and tax fairness (Smith, 2001).

### **3. Property Taxes**

Property taxes are not very profitable for public budgets, but their undeniable advantage is the low probability of tax evasion. Property taxes in the CR apply to real estate. Taxation of movable and capital assets is governed by the Income Tax Act, ie the income tax. Real estate is a status variable that is visible, has a fixed value, and the taxpayer is generally easily identifiable. The basic tax principles state that taxes should be legally perfect, positively influence economic behavior and in a Particular be fair. Generally, taxes reduce disposable income taxpayers, causing distortion as changing prices of goods and services and thus leads to a change in relative prices. Property as a fair basis for taxation is problematic because property taxes are other aspects of taxpayers' taxation beyond pension taxes or consumption taxation (Atkinson, Stiglitz ,1976). A taxpayer with a higher income, have a greater ability to pay also in case of acquisition of assets. Ownership of immovable property does not always mean higher taxpayer's ability to pay. In certain cases, the taxpayer's own real estate, but it does not have income, which can only increase the sale of their own property. Acquisition of ownership rights to the property as a base the principle of fair taxation solvency is questionable. In most cases it is a situation where the purchaser acquires property for the purpose of solving their housing needs. Savings arise from already taxed income and interest. The buyer pays the purchase of the property for a payment. It usually combines own money (savings) and a mortgage loan that is not subject to tax in the Czech Republic. If the acquisition of the property is not exempt from this tax, the property owner is obliged to pay a regular property tax once a year, to pay the tax a one-off tax on the transfer of the property. The problem is that the taxpayer pays the property acquisition tax, regardless of the actual amount of his disposable income. The property acquisition tax causes an increase in the price of the property, including the costs of the related services, and thus the relative price of the property changes. Under certain circumstances, property tax may appear to be an example of double taxation by combining income taxes and property taxes (ownership or change of property ownership) and VAT (Jílek, 2015). Ownership of property is subject to real estate tax, property change is subject to property transfer tax. In the case of acquiring property rights for consideration, the property acquisition tax represents a further taxation of the taxpayer's savings invested in the property purchased, and the taxpayer's savings have already been taxed once by the pension tax.

#### **3.1. Development of property taxes in the Czech Republic since 1993**

As a result of social changes, a new tax system was set up in 1993, in which taxes were divided according to the object of taxation, namely direct and indirect taxes. Direct taxes included income taxes, property taxes and road taxes. Indirect taxes included value added tax and excise duties. Property tax was subject to ownership and change of ownership of the taxpayer's immovable property. Real estate tax (Act No. 338/1992 Coll.) Was divided into taxes on land and buildings (from 2014 on tax on land, buildings and flats). The division into two taxes is due to the differences in the elements of the tax base. The calculation of the tax on buildings and units and the land tax is done separately within the real estate tax return, resulting from the sum of both taxes. The basic function of the real estate tax is the fiscal function, because it is a traditional source of income for municipalities in whose territory the property is similarly located in various forms in the countries of the European Union. Act No. 357/1992 Coll. related to inheritance tax, gift tax and real estate transfer tax. The real estate transfer tax was preceded by the cancellation of the notarial fee for real estate transfers. Income from movable and capital assets was taxed according to the provisions of Act No. 586/1992 Coll., On Income

Tax. A major change in real estate transfer tax was to be brought by the upcoming government reform of public finances in 2007-2010, which included a governmental proposal to abolish this tax with planned implementation in 2009-2010. The coalition refused to implement the proposal of the previous government due to adverse impacts on state budget revenues. The Real Estate Transfer Tax Act remained in its original form and became the model for the Senate's statutory measure No. 340/2013 Coll., On Real Estate Acquisition Tax (Legal Measure), which newly regulated the transfer of property rights to real estate. The real estate acquisition tax is a one-off direct property tax, which is subject to the acquisition of a real property (ie transfer and transfer of title to immovable property). It is therefore a transfer tax because it is linked to a change in the owner of the real estate.

This is a transfer tax. It is associated with a change in the person of the property owner. Under the Statutory Measure of 2014, the real estate transfer tax was the taxpayer of the property transfer tax unless otherwise stated in the property sale contract. The taxpayer could either be the seller not the buyer. One of these persons was therefore a taxpayer and the other a guarantor for the tax due. The legal measure was the only tax law that, in its original version, allowed the taxpayer to choose. This provision expired in October 2016. Since then, an amendment to the Act on the Acquisition of Real Estate Tax has come into force, which has abolished the institute of the tax guarantor and has strictly determined the taxpayer of property rights to the property. In 2014, the real estate transfer tax underwent fundamental changes resulting from the new Civil Code (Act No. 89/2012 Coll.). Financial Administration requirements to simplify the determination of the taxpayer of this tax. The laws defining the taxation of all methods of transferring immovable property, which were based on Act No. 357/1992 Coll., On Inheritance Tax, Gift Tax and Real Estate Tax, were abolished. The Inheritance Tax was abolished and the Gift Tax was transferred into Act No. 586/1992 Coll., On Income Tax, with effect from 1 January 2014, as amended.

### **3.2. Basic parameters of property acquisition tax**

The tax on the acquisition of immovable property as a lump-sum tax is only payable when acquiring property rights in immovable property for consideration. Tax revenue flows into the state budget. Real estate tax is a regular tax, the yield of which flows into municipal budgets. The property tax object is the possession of property rights, the real estate transfer tax is the transfer of property rights to the property. The basic term of property acquisition tax is a consideration that can take the form of a monetary but also a non-monetary value. The value of non-monetary benefits is valued according to Act (Act No. 151/1997), on Property Valuation. Alternatively, the payment may merge multiple types of payment, for example, in part by paying a monetary amount, in part by the assignment of a claim, by taking over liability, etc. The taxpayer is the acquirer of the acquired property right to immovable property. Exemption from immovable property tax includes exemptions in the public domain, exemptions for new buildings, exemptions in kind, exemption of transfers and other exemptions in kind. The subject of property acquisition tax is the acquisition of property rights to the property (land, construction, right of building, flat, commercial space, part of the utility network, acquisition of immovable property in the trust fund, acquisition of the building), which is located in the cadastral territory of the CR. The territorial jurisdiction of the subject-matter of the tax is the place where the immovable property where the acquisition of the property is pecuniary is situated. For example, in the case of the acquisition of a building right, the existence of which is not confined to a particular place. the place where the building's land is situated is decisive for determining the territorial jurisdiction. The acquisition of property rights to immovable property by land consolidation, the conversion of legal entities with exception of the transfer of assets to a shareholder and the property provided as compensation for expropriation are excluded from the subject of immovable property acquisition tax. The tax on the acquisition of immovable property is based on the acquisition value less the eligible expenditure. The acquisition value may be the price negotiated, the comparative tax value, the price found, or the so-called special price. VAT is included in the agreed price. The comparative tax value is the amount corresponding to 75% of the official value of the immovable property acquired. It can be determined by an expert opinion on the price ascertained, or in the case of selected types of

immovable property, an alternative method of valuation by the so-called guide value is allowed. The guide value is an alternative method of valuation that can be used in an exhaustive list of immovable property according to legislation. The benchmark is based on the prices of immovable property at the place where the immovable property is located, in comparable time period, taking into account the type, location, purpose, condition, age, equipment and technical characteristics of the immovable property.

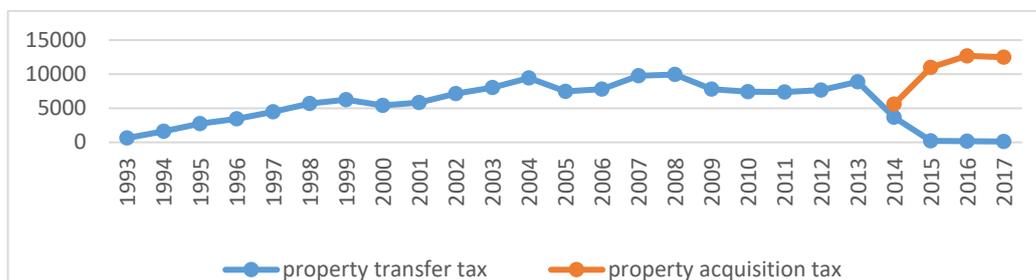
The value of financial management is free of charge. The taxpayer can decide which of the methods of determining the value of immovable property will choose whether to use the option of setting a guide value by the financial administration or to have the price determined by an expert opinion. The taxpayer must choose one of the ways, because both ways cannot be combined. The price that the taxpayer has demonstrably paid to the expert for making an expert opinion of the ascertained price as a basis for determining the tax base is the only eligible tax expense. The acquisition value is determined on the date when the immovable property was acquired. Under the Civil Code (§ 1099), the moment of acquisition of immovable property constitutes a legal effect for the transfer of ownership right to the Land Register. All real estate in the CR is registered in the Land Registry (Act No. 256/2013 Coll.) In the Land Register (a public list where all property rights to the property are recorded (inventory, description, geometric and location of the property). The real estate tax rate is 4 percent. The tax on the acquisition of immovable property is not assessed when it does not exceed the limit of CZK 200. The maturity of the tax including the filing of the tax return for the acquisition of immovable property is at the latest by the end of the third calendar month following the calendar month, the deposit of the ownership right to the real estate. Tax revenue flows into the State Budget.

#### **4. Discussion**

In the CR there is a differentiated taxation of movable and immovable property. Movable and capital gains are subject to income tax and real estate property and property tax. Real estate tax is a regular tax that its owner pays once a year. The size of the tax is calculated from the area of the property, the purpose of its use and the coefficient of the municipality where the property stands. The income tax on real estate flows into the municipal budget. Acquisition tax is a one-off tax paid by the real estate acquirer according to the cadastre register within 3 months of acquisition. The tax base is the price of the property determined in accordance with the statutory provision. The economic incidence of property acquisition taxes is now fully affecting the buyer, the tax revenue flowing to the state budget. Transfers of ownership rights to real estate are taxed at a uniform rate, the calculation of the final amount of real estate tax rounded to the nearest hundred crowns is multiplied by a 4 % tax rate. By October 2016, the tax on the purchase price of the property was paid either by the seller or by the buyer under the purchase agreement. As of November 2016, the buyer pays the acquisition tax exclusively, the acquisition tax change was announced in advance, increased the demand for housing. The assumption of the Czech financial administration that potential real impacts of shifting the nominal incidence will only be short-lived until prices are adjusted to the new equilibrium level has not materialized. The amount of the tax is the same whether it is the acquisition of the taxpayer's own housing needs, or the acquisition of an investment apartment, or for a reason other than the acquisition of own housing. Transfers of real estate as shares of companies are excluded from the subject of tax.

Theoretically, the seller can keep the current purchase price of the property or reduce the purchase price by tax, which is not the case in the current period of increased demand for residential housing. The amount of tax on the acquisition is influenced by the price of the property on the market, the elasticity of demand and the supply of the real estate market. VAT comes into the price of the property, which has three rates according to the size of the residential area of the property. When the seller is a VAT payer and more than 5 years have passed since the final inspection, the sale of the property is completely exempt from VAT. The housing unit with a living space of up to 120 meter<sup>2</sup> is subject to a 15% VAT rate, the area of the living space over 120 meter<sup>2</sup> is subject to a tax rate of 21%. In the case

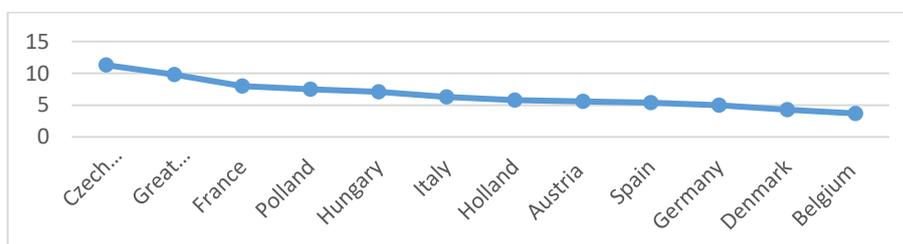
of buying a family house, the conditions differ only by the size limit of the area, up to 350 meter<sup>2</sup>, 15% reduced rate of VAT will be used; Nowadays, when the price of real estate is growing in the long term, the price of real estate acquisition also increases with the price.



Source: Own processing by data Czech Financial Administration

Figure 1: Fiscal impacts of property transfer tax in years 1993-2017 and property acquisition tax in years 2014-2017 on public budgets (in millions of CZK)

In the Annual Report of the Financial Administration from 2017, cumulated arrears of real estate transfer tax and property acquisition tax for the years 2012-2016 in the amount of CZK 310 million are published. Income tax on the acquisition of immovable property totaled CZK 12,697 million in 2016 and CZK 12,478 million in 2017, which is almost 2% less than in 2016. This year, the following factors influenced the price of real estate: the increasing interest in residential housing, especially in the capital city of Prague, the statutory city of Brno and other regional capitals. Furthermore, the stagnant construction of new apartments, the lack of rental apartments at affordable prices, the regulation increasing mortgage interest rates by the Czech National Bank and speculative purchases of investment apartments. The whole situation was also supported by the higher sensitivity of the Czech population to price movements in the property market.



Source: Own processing by date of the OECD

Figure 2: The number of annual wages needed to buy an average flat by the OECD

According to banks, the average cost of buying an apartment for January 2019 is CZK 3.13 million, while the buyer with an average income would spend approximately 48% of monthly income on a mortgage payment. The availability of owner-occupied housing is decreasing in the CR, while interest in rental housing is increasing. However, the cost of rental housing is also increasing at a faster rate than wages. Over the past five years, average rentals of apartments have risen by 40 % and average wages by 27%. For example, the normal rent for an apartment in a block of flats of 50 meter<sup>2</sup> (ie a social flat) was CZK 9,000 in 2015 and in 2019 it is CZK 13,000, which tenants are still able to pay. For this reason, in the CR, the interest of citizens in owning their housing prevails. In a period of high employment, wage growth is usually more profitable to own and pay mortgage payments, pay high rents for housing. The high price growth and rental housing growth in the CR is far from the possibility of acquiring ownership of housing and the availability of rental housing. Is not in line with the latest version of the Housing Policy Concept for 2016-2020. Currently, the Ministry for Regional Development is revising this material and organizing consultation days, that are more, or less related to methodological consultancy for territorial self-governing units on housing development programs, that contradict this

development. In order to support housing, the first acquisition of a new real estate is exempted from the property acquisition tax in the Czech Republic within five years of the building approval.

## 5. Conclusion

The impact of the current regulation of the statutory measure on the acquisition of immovable property is viewed both from the perspective of the financial administration and from the perspective of the state budget from the perspective of the taxpayer. According to the Financial Administration, the amendment to the Legal Measure 2016 simplified the determination of the taxpayer and shortened the tax administration on the acquisition of immovable property, increased the possibility of controlling tax liability, facilitated tax execution and enforceability of the tax due. The lack of administrative acts in determining the price of transfer of ownership rights by the financial administration can be considered a shortcoming. Impact of this change on the taxpayer is both positive and negative. Positive impacts can be seen in the reduction of the taxpayer's administrative burden when the tax base is determined by comparing the agreed price and determined by the financial administration. However, there are situations where this is not the case. And it is preferable for the taxpayer to use an expert's valuation. The point is that most lay taxpayers are unable to anticipate all the consequences of choosing the method of determining the value of immovable property. In practice there are cases where the taxpayer, when saving negligible expenses for an expert opinion, then pays the tax on the acquisition of immovable property disproportionately higher than it would be charged in the case of using an expert opinion for the purpose of determining the tax base.

The Amendment Legal Measure 2016 did not remove the disproportionate advantage over other taxpayers and prevent tax evasion in the event of a transfer of shares in commercial corporations owning real estate. In fact, there is a change in the ownership of immovable property that is part of the company's assets, without such a change being currently subject to real estate transfer tax. Furthermore, the ability to pay property tax is affected by the taxpayer's ability to pay, which is different for taxpayers, which is not taken into account in the Statutory Property Acquisition Tax. The legal measure on the acquisition of real estate does not distinguish between the purpose of acquiring real estate when it comes to taxation, whether it is an ownership dwelling, a social dwelling, or an investment only. Also, the Income Tax Act does not have a higher tax rate on investment income, or a special property tax rate on empty apartments, as is common elsewhere in the world. In conclusion, the change of taxpayer to the acquirer has affected the rise in property prices. In terms of the transferability of the transferor, he receives remuneration for the property and is a net tax-free income.

Politicians' suggestions to change the regime of legal measures to acquire real estate respond to this situation (Czech Pirates Party proposal, 2018). In May 2019, the Senate of the Parliament of the Czech Republic submitted a proposal for an amendment to the legal measure on acquisition tax, which is intended to exempt the first sale of apartments in a family house. The current regulation applies only to the first purchase of a family house or apartment in an apartment building, as the trend to define housing units in newly built family houses is growing. In the Parliament of the CR, there are proposals for amendment of the statutory measure concerning the consideration of taxation, social housing, lowering the rate for the first acquisition of a young person's apartment, increasing the tax rate for real estate with above-standard value, investment apartments, or a special tax for empty apartments in the most demanded locations. In May 2019, the Senate of the Parliament of the CR submitted a proposal for an amendment to the legal measure on acquisition tax, which is intended to exempt the first sale of apartments in a family house. The current regulation applies only to the first purchase of a family house or apartment in an apartment building, as the trend to define housing units in newly built family houses is growing. In the Parliament of the Czech Republic, there are proposals for amendment of the statutory measure concerning the consideration of taxation, social housing, lowering the rate for the first acquisition of a flat of young persons, increasing the tax rate for real estate with above-standard value, investment flats, or a special tax for empty flats in the most requested locations.

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## MODERN METHODS OF CUSTOMER SATISFACTION MEASUREMENT

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**Abstract:** Acquisition of feedback from customers has become a necessity. It can be divided into direct and indirect. The indirect feedback is pursued via mystery shopping or via a secret or inspecting customer who observes feelings while drawing services or shopping for goods. He did not spend his own money, so the impression differs. Since about 2005, D Telecom and Skoda Auto, direct feedback has been used. It was copied very early by other telecommunication companies and automobile factories, followed by e-shops. We introduce development, risks and difficulties of these methods called Customer Satisfaction Index, used as CCS, CSI, ICCA etc., including misusing these tools in employees' assessment based on customers' opinions.

**Keywords:** Customer Satisfaction Index, Mystery Shopping, CSI KPI ICCA

**JEL classification:** M1, M10, M19

### 1 Introduction

The origin of this publication comes from the invisible nuances in entrepreneurship within the last decade. Since the Second World War we moved to an age that is both modern and peculiar. Most goods and services are overproduced and are thus in excess in today's world. The ultimate goal is to convince our customers and consumers that they might want our goods or services. The same can be seen in the context of the state/government, when the so called "hidden taxes" are preferred to reduce the substitution effects (Klazar, 2010, p.55). Also management and marketing started hosting plethora of new strategies, plans and abbreviations, such as KPI in which case one cannot even be sure whether it is still management related or whether it is a curse word. All manufacturers and contractors wish to see constant surges of at least something even though there is no one to keep buying. And the most important aspect is being neglected. As Hrnko and Křištofiaková (2016, p.277) say, judging the quality of a product or a service is rather subjective manner. What does the customer think? Why does he want to or why did he buy the product? What is his motivation (Němec, 2014, p.33)? And so, by the need to measure something that is by its very nature difficult to measure, a new discipline which takes into account everything was born in order to accumulate feedback from the customer. For the purpose of the methods described in this paper it is indifferent whether the customer to whom the goods are being sold is an actual person, a large company, government or even internal employees. Those methods are very simple and most consumers are familiar with them. How it works, how they are applied, what they measure and how to actually realize them mostly remains hidden as a company know-how. Here is a brief introduction to those methods and how to put them into practice.

### 2 Division of evaluation methods

The evaluator can be a third party which is a distinctive aspect for the indirect method of the Mystery shopping. Direct methods are characterized by the feedback coming directly from the customer and it doesn't matter whether the customer is past, present or future. Customers usually follow their interests that are often professional or technical specialized.

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## **2.1 Indirect method – Mystery shopping**

Mystery shopping is nowadays considered a sophisticated tool the use of which is relatively simple and easily realized. (Smith, 2010, p.29-31) For example, one can have a small business such as a restaurant, a shop or a hairdressing salon. To this business they send a person whom they trust to evaluate how their business operates. The trusted person can be anyone, for example a friend or an outsider from an agency.

### **2.1.1 How Mystery shopping works**

The most important thing to know is what we want to find out and whether the evaluator is the good one for the job. Basic distinction is that the purchase or the visit is realized by a third party = evaluator. This person usually gets the evaluation requirements from the supplier of services or the seller of goods. These requirements can be very complex and thorough investigations of the functioning of the shop. They can also be specifically targeted on a quality of the goods or services, the employee's knowledge of contemporary offer of goods or services. Both of those are rather extreme examples of the scope this method might cover. The task has to be clear, specified and has to contain information about what we wish to find out, what the mystery shopper should pay attention to and how they should behave. The difficulty of this method is ensuring that the observed institution will not find out that they are being observed and thus will not display better kind of behaviour towards the mystery shopper than they would to a regular customer (Dolista, 2005, p. 18).

Provided a comprehensible task and an appropriate third party, the realization of mystery shopping itself is fairly simple. Appointed person visits the place of evaluation on a previously unset time, embodies a customer and asks the staff questions or actually proceeds to make a purchase in order to find out answers to previously set questions. In this day and age, the whole process is often recorded on a voice recorder or a hidden camera for a future evaluation. This evaluation is realized outside the observed place. The most common practice how to evaluate the services is by a questionnaire given to the mystery shopper prior to the shopping itself. This questionnaire is a part of the initial task given by the institution which desires the data to be collected. It does not necessarily have to be the owner of the business or shop. It can be a franchisor who is providing the franchisees with the opportunity to conduct business under their name. (Pamln, 2009, p.22). The franchisor then wishes to test the quality of the provided services. Or to find out how a contemporary commercial campaign is doing. A note from the legislation is important here. (Dolista, 2008, p. 94). If we wish to record any sort of material, may it be audio or audio-visual, a signed agreement must be gathered from every single potentially observed person, otherwise that recording cannot be used for anything whatsoever. The evaluator has a uniform evaluation scale for more outlets they visit.

### **2.1.2 Disadvantages of Mystery shopping**

The process is rather slow. The evaluator is realistically able to visit five to seven outlets in a day. Moreover, the costs for mystery shopping are much higher than they are for its direct counterparts. It is necessary to travel long distances and a lot of time and money is spent on further processing of the data. Evaluated person can find out they are being evaluated.

## **2.2 Direct method – Customer Satisfaction Index (CSI, ICCA)**

Fairly new and modern evaluation method. (Hill 2006) The basic distinctive feature is that in this case the evaluation is gathered directly from the customer (Terry, 2006) and not a third party as it is the case of the mystery shopping. The customer evaluation is subjective (Cochran, 2003, p. 14) and is based around 360-540 degree feedback (Amstrong, 2006, p. 19). The customer is contacted via phone, email or a website 24 to 48 hours after their visit of the designated place. (Hayes, 2008, p.72) They are asked previously prepared questions (Self, 2007, p.112) and the purpose is to evaluate the services and goods using a school scale (1-5). They can also state any positive or negative aspects of their visit and ultimately assess the visit as a whole with a final grade.

### **2.2.1 Companies using Customer Satisfaction Index (CSI, ICCA)**

This method and its variations is used by all telecommunication providers in the Czech Republic since 2005 for try-outs and fully since 2009. Additionally, Peugeot, Toyota, Skoda Auto, to name a few, use these methods as well. The abbreviations of this method can vary.

T-Mobile uses this method by the name ICCA (International Customer Contact Analysis), Telefonica uses CSI (Customer Satisfaction Index), Peugeot ISC (Index of Satisfaction Customer) and Toyota CCS (Complete Customer Satisfaction). Further variations of this method can be encountered mostly in a simplified electronic form on e-shops (alza.cz) and search engine (google.com, heureka.cz, seznam.cz, vision.com and many more).

### **2.2.2 Advantages of Customer Satisfaction Index (CSI, ICCA)**

This method offers swift and highly operational features and it is considered rather progressive. Given an appropriate preparation we can gather countless reactions on a recently played commercial, a new product or a new offered service in a matter of hours. All that with a fraction of expenses required by other methods. Expenses are significantly lower than for mystery shopping mostly because it doesn't require physical visit of the evaluated places and thus it saves funds and time which can be used for further analysis of the gathered data.

Data gathering – a call centre employee is able to gather reactions from three to seven customers within an hour. In the case of an evaluation via website, we can have hundreds of reactions during an hour. All that while being generated only by a few employees of a call centre or an assessing computer.

It is recommended to conduct the evaluation after two days from the customer's visit or a week after their purchase from an e-shop even though it is being conducted immediately or within a few hours after.

### **2.2.3 Disadvantages of Customer Satisfaction Index, (ICCA, CSI)**

The evaluation is subjective but despite that we try to aim the customer to evaluate each point separately by detail questions. Some customers might neglect the evaluation.

Various views on the evaluation scale (while mystery shopping has a uniform view because most of the evaluations are realized by the same person).

#### **2.2.4 Risks of Customer Satisfaction Index, (ICCA, CSI)**

Do they evaluate the correct place? The customer often does not have to know whether they are evaluating the correct outlet. For example, it is possible that the customer visits other outlets in the meantime. The customer is not required, nor is he often able, to distinguish which outlet he evaluates.

Insufficiency of reactions.

The customer can be satisfied but gives the store a mark "3". This is a typical feature of the ICCA evaluation. It was swiftly discovered that the time and places of the evaluation influences the customer's assessment much more than how they were treated.

Lust for vengeance from the customer if all of their needs were not fulfilled.

The unwillingness of customers to give great evaluation leads to biased results.

If the customer visited more stores in a short period of time they can then assess all the places collectively or compare them.

Validity

There is a risk that every customer may have a different evaluation scale or they can be subjected to peer pressure or hints

Quality

We can get a significant amount of assessments in a short period of time.

Even in cases where all the customer's needs were met they might still assess their visit poorly mainly due to inappropriate timing of the phone call.

#### **2.2.5 Methods of evaluation via Customer Satisfaction Index (ICCA, CSI)**

For simplicity several scales for evaluation were proven.

1 – 5, 5 – 1, 1 – 10 points, 1 – 5 should be converted to points mainly because of the differences in school scales (which can be 1 – 5 in one state but 5 – 1 in the other).

The biggest issue is to gather enough reactions to ensure its validity. Due to the customers' unwillingness to be contacted for the purposes of marketing, the amount of calls for a store has settled on 10 – 100 per month.

Risks and possible mistakes during the first data collection

1. Usage of the scale 1 – 10 – most frequently sent by SMS (Vodafone). Even though a customer might want to send back 10, as in satisfied to the fullest, there is a risk that they might miss the 0 and send back only 1. A possible solution for this issue is moving the scale to 0 – 9 which is always only one character
2. Usage of the scale 1 – 100 – it is not preferred because of the ultimate lack of 100 and 1 points.

3. The attitude of the people processing the evaluation. The evaluation is subjective. To achieve more objectivity, shouldn't the best and the worst result be disregarded?

Consequent processing of the data is mostly done via three methods.

1. Arithmetic mean
2. Geometrical mean
3. Sum of the points

It might be obtained by machine processing or electronic completion by customers.

### **2.2.6 Use X misuse of Customer Satisfaction Index (ICCA, CSI)**

The main use is to tie this evaluation with the financial one. That is in the case of franchisor X franchisee, supplier X business partners and employer X employee. Initially, in the years preceding 2010, the financial bump made only 5-10% of the total amount of money which was used for motivation. Today it is not unusual that this bump makes up to 80% of the total amount. From the view of the evaluated, sometimes one customer with a differently set scale is enough to devalue the whole sales motivation for the given period (days, months, quarter, half-year). This uncompromising tool for evaluation is used frequently. The employee can easily calculate that he will not get any bonuses in the certain period because the mean simply could not be fixed. This can demotivate and harm the loyalty of the employee. It is thus recommended to choose the form where these problems are eliminated even before they arise.

### **3 Conclusion**

Modern methods of surveying customers' satisfaction have moved from indirect assessments by a third party (mystery shopping) to the area of a direct evaluation by the customer (CSI) in the last decade. Latest trends are to automatize this process as much as possible. So more often than a phone call, the customer's evaluation happens online or via an SMS. These evaluation methods are not only a tool for employee control, but they also affect buying possibilities of customers and are used as a filter for the suppliers or the choice of a vacation. The beneficiaries are the middlemen such as google.com, heureka.cz, zbozi.cz, TripAdvisor and many more. Many of these tools are slowly progressing from the point of an evaluation tool to the point of an oppression tool and many opportunities are missed because of one simple miss-click.

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## **Is a profitable job more satisfying than a purposeful one? Comparing the role of autonomy, relatedness and competence at work with subjectively evaluated wages as predictors of work satisfaction.**

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**Abstract:** Deci and Ryan (2000) have identified three key aspects of human functioning as the fundamental elements of motivation: autonomy, relatedness and competence, which they labelled as basic psychological needs (BPN). They argue that the fulfilment in those areas is the ultimate goal of each human. Yet when we think about the working world, many claim (Brown, Gardner, Oswald, & Qian, 2008; Clark, Kristensen, & Westergard-Nielsen, 2009; Walczak, 2017) that it is the workers' wage, which determines his or her satisfaction. The current paper presents a comparison of those two potential sources of work satisfaction: subjective earnings pitted against a more purposeful set of goals – the need for autonomy, relatedness and competence (BPN). On the basis of two cross-sectional samples of Polish workers (n1=625; n2=340) a case is made for the supremacy of BPN over subjective wages in determining the person's work satisfaction.

**Keywords:** work satisfaction, subjective wage perception, basic psychological needs at work

**JEL classification:** M540 Personnel Economics: Labor Management; Job Satisfaction; Job Motivation Y80 Psychology – Personality & Individual differences

### **1. Introduction**

Work satisfaction is an important topic from both theoretical as well as from applied perspective. A broad discussion on the issue of the relation between work satisfaction and work effectiveness suggest that happy workers are as well effective on their job (Vroom, 1967; Taris & Schreurs, 2009). Yet it is more problematic to determine, what is required from work in order for it to be satisfying. A basic assumption would be that people work because of the rewards (i.e. pay) that they derive from work. This assumption would mean that the higher the wage, the greater the utility of work, and therefore also a direct positive relation between wages and worker's happiness. Yet as many researchers show (Brown et al., 2008; Clark et al., 2009; Walczak, 2017) the impact of nominal wage on work satisfaction is relatively little, as it is the subjective evaluation of earnings, which determines their value. This may suggest that it will not be the amount of money per se, but rather what one thinks about its relative value, that determines the wage's effectiveness. This in turn allows for the comparison of what a person thinks and feels about earned money, with what one thinks one needs from work in general.

A key theory, applicable to the domain of work, determining what a person needs, was developed by Deci and Ryan (2000). They postulate that each person's needs can be grouped in three main categories – need for autonomy, relatedness and competence. The need for autonomy can be described as the desire to be in control of one's own action. If a person acts on her own behalf, the performance will be greater than when the same act is performed on behalf of someone else. Studies of Deci (1971) show that a material reward for performing a given action can diminish motivation to

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perform that action, as compared with the situation when the reward is not monetary, in which case the motivation increases. The second category of basic needs is the need for relatedness. It can be interpreted as a need to be in contact with other people, to be acknowledged by others. Deci and Ryan (2000) admit that the need for relatedness may be less central for motivation than other needs, as the many examples of individually performed activities show, yet Deci and Ryan also present numerous evidence, showing that performance is greater, when facilitated by others (see also: Walczak, Kubátová, & Seitlová, 2018, for the review of the facilitation effect). The third category of fundamental human needs is the need for competence. It can be interpreted as the need to feel competent, to feel able to perform the action under consideration. Deci and Ryan (2000) suggest, that a positive feedback about performing a given action is the key element enhancing the feeling of competence, and thus increasing the motivation to perform that action. Yet they also suggest that monetary feedback is worse than performance information not related to money. All those considerations point to a suggestion, that money may be more of a hindrance than help in achieving optimal and satisfactory work performance.

The abovementioned basic psychological needs are not the only needs a person can feel. But they can be understood as the underlying needs, that is the needs being reason – or basis - for other needs. Many people may for example express a need for money, that is the need for material gratification for performing their work. But if we ask them why do they need money (or more money) the answers may vary. Some may say they need money to go to nice vacations, others – that they want it to impress their friends with fancy stuff they buy. This in turn can be interpreted as the need for more control over one's surrounding (autonomy) or the need for better relations with important people (relatedness). Ryan, Huta, & Deci (2008) argue, that the fulfilment of the basic needs is more closely related with the attainment of lasting satisfaction, than attainment of any other type of needs. They relate it with the concept of Eudaimonia, the path to a life well lived. Previous research has shown (Sirgy, 2012; Walczak & Derbis, 2015), that eudaimonia may be a path to more life (and work) satisfaction, as compared with a more direct pursue of pleasurable activities (hedonism).

Considering the abovementioned argumentation we might speculate, that the wage will be influencing the satisfaction derived from work, only to that extent in which it allows for the fulfilment of the basic psychological needs. Putting it into different words, only a work which allows for the satisfaction of the basic psychological needs for autonomy, relatedness and competence, will be perceived as satisfying.

## **2. Method**

### **2.1. Study assumptions**

On the basis of the abovementioned considerations, the following hypotheses have been assumed:

H1: Both the subjective wage evaluation and the satisfaction of basic psychological needs will be positively related with work satisfaction.

H2: Satisfaction of basic psychological needs will explain more variance in work satisfaction as compared with the subjective wage evaluation.

## 2.2. Sample

Two samples were used to test the hypotheses. First consisted of 625 working adults (of which n=385 were women), aged 20-62 ( $m_o=29.9$ ;  $sd=9.5$ ), with average tenure  $m_t=7.9$ ;  $Sd=9.7$ . Second consisted of 340 working adults (of which n=230 were women), aged 18-61 ( $m_a=32.7$ ;  $Sd=9.4$ ), with  $m_t=9.8$  ( $Sd=8.9$ ) years of work experience. Both groups were recruited to an on-line study from the extended social network of the author, with the use of the snow-ball technique. The first group took part in the study in January 2018, while the second group in May-June 2018.

## 2.3. Measurement tools

All study participants filled a set of measurement tools on the google docs platform. Besides sociodemographic indicators, all participants described their employer, by its size (number of employees), industry and type of company's capital (international, mixed, local or government organisation). The depended variables were measured as follows. Subjective wage perception was measured with two declarative items. In one, participants compared own wage against the wage of those doing similar work. In the other, against the wage of friends and colleagues. For both wage evaluation questions, the answers scale ranged from 1 – (I earn) significantly less than (...) to 10 – (I earn) significantly more than (...). The level of fulfilment of basic psychological needs at work was measured in one sample with the Basic Psychological Needs at Work scale (Deci et al., 2001), in the polish adaptation by the author. The scale measures the degree to which one's job satisfies the need for autonomy, competence and relatedness. It does so with 21 questions in total, separated into three dimensions. In the other sample, the autonomy, relatedness and competence needs fulfilment were measured with specific items (two for each dimension) selected from the CCT questionnaire (Blanch, Sahagun, & Cervantes, 2010), in the polish translation by Walczak & Martin. For autonomy, it was the agreement with the statements: "My work gives me a sense of liberty" and "I have autonomy in making work-related decisions". For relatedness, it was the evaluation of "relations with work friends and colleagues" and "esteem in the work group". For the competence dimension, it was the agreement with "my work demands of me according to my abilities" statement and the evaluation of "acknowledgement of one's work by its receivers". The main dependent variable Work satisfaction was measured in both samples with the Work Satisfaction Scale by Zalewska (2003).

## 3. Results

As a first step, a correlation matrix of dependent variable and other variable in the study was analysed in both samples. As in both samples the assumption about normal distribution of the variables was not met, the Spearman's rank correlation was used in place of Pearson's correlations.

**Table 1: Spearman's rank correlations of the dependent variables in sample 1.**

**\*indicates statistical significance on  $p < .01$  level**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Work satisfaction		.60*	.27*	.60*	.24*	.30*	.27*
(2) Basic Psychological Needs: autonomy	.60*		.27*	.55*	.21*	.22*	.16*
(3) Basic Psychological Needs: relatedness	.27*	.27*		.33*	.12*	.17*	.02
(4) Basic Psychological Needs: competence	.60*	.55*	.33*		.18*	.23*	.20*
(5) subjective earnings evaluation: vs people doing similar work	.24*	.21*	.12*	.18*		.55*	.28*
(6) subjective earnings evaluation: vs friends	.30*	.22*	.17*	.23*	.55*		.41*

(7) Brutto wage (in PLN, declaration)	.27*	.16*	.02	.20*	.28*	.41*	
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**Table 2: Spearman's rank correlations of the dependent variables in sample 2.**

**\*indicates statistical significance on p<.01 level**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Work satisfaction		.59*	.52*	.43*	.37*	.34*	.25*
(2) Basic Psychological Needs: autonomy	.59*		.67*	.59*	.28*	.25*	.21*
(3) Basic Psychological Needs: competence	.52*	.67*		.50*	.24*	.21*	.23*
(4) Basic Psychological Needs: relatedness	.43*	.59*	.50*		.12	.14	.08
(5) subjective earnings evaluation: vs people doing similar work	.37*	.28*	.24*	.12		.71*	.43*
(6) subjective earnings evaluation: vs friends	.34*	.25*	.21*	.14	.71*		.46*
(7) Brutto wage (in PLN, declaration)	.25*	.21*	.23*	.08	.43*	.46*	

A look on the correlation matrix (table 1&2) allows to conclude, that all the variables are in relation with work satisfaction (while many are also in relation with each other), which confirms hypothesis 1.

In the second step, a linear regression analysis was performed, to compare the effects of different variables on work satisfaction.

**Table 3: Linear regression analysis for the work satisfaction, Sample 1**

N=609	Dependent variable: work satisfaction R= .705 R <sup>2</sup> = .497 Corr. R <sup>2</sup> = .493 F(5,603)=119.38 p<0.0001					
	b*	Std. b* err.	b	Std. b err.	t(602)	p
Intercept			-6.613	1.370	-4.826	.000
Basic Psychological Needs: autonomy	.362	.036	1.503	.148	1.140	.000
Basic Psychological Needs: relatedness	.055	.031	.262	.149	1.762	.079
Basic Psychological Needs: competence	.354	.036	1.777	.183	9.730	.000
Subjective earnings: vs people doing similar work	.063	.035	.267	.149	1.798	.073
Subjective earnings:vs friends	.089	.035	.330	.131	2.523	.012

**Table 4: Linear regression analysis for the work satisfaction, Sample 2**

N=332	Dependent variable: work satisfaction R= .641 R <sup>2</sup> = .410 Corr. R <sup>2</sup> = .401 F(5,326)=45.363 p<0.0001					
	b*	Std. b* err.	b	Std. b err.	t(326)	p
Intercept			.042	.262	.161	.872
Basic Psychological Needs: autonomy	.306	.064	.057	.012	4.741	.000
Basic Psychological Needs: competence	.223	.058	.050	.013	3.841	.000
Basic Psychological Needs: relatedness	.080	.054	.015	.010	1.478	.140

Subjective earnings: vs people doing similar work	.148	.060	.069	.028	2.459	.014
Subjective earnings: vs friends	.091	.059	.038	.025	1.540	.125

As can be seen in the tables 3&4, in both samples a combination of the basic psychological needs at work fulfilment and the subjective evaluation of earnings allow for a good prediction of work satisfaction, explaining 49% (sample 1) or 40% (sample 2) of variance, respectively. The satisfaction of psychological need for autonomy and competence at work proved to be a significant predictor of work satisfaction in both samples. The subjective earnings differ as predictors between samples. In one, the evaluation of earnings in comparison with friends is a significant satisfactions predictor. In sample two, it is rather the comparison of earnings with people doing similar work, which is a significant satisfaction predictor. In both cases, those earnings comparisons are significant on the  $p < 0.05$  level, but are not significant under the  $p < 0.01$  level.

To get a final evaluation for the hypothesis 2, two competitive linear regressions, with the work satisfaction as dependent variable, were conducted. To avoid complexity, the analyses were conducted only for one sample, with the more robust measures for basic psychological needs (sample two). In the first regression, as the first step, all the basic psychological needs were introduced as predictors, then - as a second step - both subjective wage evaluations were introduced into the analysis. In the second regression the order was reversed, that is both subjective wage evaluations were introduced as predictors in the first step of regression, and then all the basic psychological needs evaluations were introduced into the analysis in the second step. The results of those analyses are presented in the table 5.

**Table 5: Comparison of hierarchical regressions**

	R	R <sup>2</sup>	Corr. R <sup>2</sup>	Std. err.	Change statistics				
					R <sup>2</sup> chng.	F	df1	df2	F chng. sign.
Analysis 1: Basic psychological needs first, then subjective wage evaluations									
1 (all BPN)	.608	.369	.363	.704	.369	65.336	3	335	.000
2 (all BPN + all subj. wage eval.)	.644	.414	.406	.680	.045	12.850	2	333	.000
Analysis 2: Subjective wage evaluations first, then basic psychological needs									
1 (all subj. wage eval.)	.390	.152	.147	.815	.152	3.083	2	336	.000
2 (all subj. wage eval. + all BPN)	.644	.414	.406	.680	.262	49.742	3	333	.000

The hierarchical regression analyses allowed for the comparison of basic psychological needs versus the subjective wage evaluations effects on work satisfaction. In both orders of evaluations, the basic psychological needs at work fulfilment explains more variance of work satisfaction as compared with the subjective wage evaluations: 36% vs 15% in the first step and 26% vs 5% in the second step, respectively. This confirms the second study hypothesis.

#### 4. Discussion and Conclusion

The results show that both the subjective evaluation of earnings and the fulfilment of basic psychological needs at work play a significant role in predicting workers' satisfaction. It is however the more underlying construct of the basic psychological needs, which has a stronger impact. Those results add to the discussion about a broader meaning of work. It appears to be not only a place

where people exchange their time for money. If we want the work to be satisfying, we need to think about it also as a place where people build their relations, prove their competences and have the possibility to act on their own accord. Of course different work environments and different types of jobs can fulfil those needs to a different extent, but it is important to underline that the discussed needs are universal, and that work is not a place where they stop having impact.

The study findings may be therefore highly applicable to the working world. For once, they show that – although important – money will not be enough for having a satisfied workforce. It seems to be more important to allow workers having their own initiatives, where they can be in control and where they can fully utilise their competences. This suggestions seems to align strongly with the postulates of Hackman & Oldham (1980; Oldham & Hackman, 2010) about designing work environments where employees can flourish. Considering earlier works in this area (Walczak, 2013), we might suspect the importance of those topics will rise in the current, changing working world.

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