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I. General Economics

CITES-listed Wildlife Trade of the Czech Republic

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Abstract

Wildlife trade involves many animal and plant species and their products. CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) aims on protecting endangered plants and animals from being overharvested for the purposes of international trade through system of regulations, permits and monitoring. CITES Trade Database is a tool dedicated for the evidence of international trade of endangered wildlife species. We used records from the CITES Trade Database to conduct the analysis of the legal wildlife trade in the Czech Republic in the period 2008-2018. A total amount of 12,615 shipment records were extracted from CITES Trade Database. Amongst most imported taxons belong mammals (mostly genuses *Ursus* and *Panthera*) and reptiles (primarily genuses *Varanus* and *Trocerus*), while most exported taxons are birds (prevailing genuses *Platycercus*, *Polytelis* and *Falco*) and mammals (especially genus *Lemur*). While the export records showed an increasing trend, the imports were culminating around the average level of 642.3 records per year and lowest amount in the last year of the period. We emphasise smuggling of snowdrops and tigers and their products, which were reported to be seized, but with lack of records in legal trade.

Keywords: wildlife, international, trade, CITES, endangered species, Czech Republic

Introduction

Biological resource use represents one of the key threats to animal and plant species triggering the overall biodiversity loss (Joppa et al., 2016). Wildlife trade is one of the major causes of driving depletion of the Earth's living natural resources, underlying the biodiversity loss, while on the other hand, the utilitarian value of wild animals, plants, their products and derivatives contributes to the fulfilment of human needs, and provides a space for incentives for protection of natural habitats and ecosystems (Broad, Mulliken

and Roe, 2003). Wildlife trade is an economic activity carried out at local, national and international level (Broad, Mulliken and Roe, 2003) and may have both positive and negative consequences for conservation of biological diversity, but also for the local livelihoods of the poor in developing countries depending on harvesting wildlife species (Cooney et al., 2015).

CITES aims on protecting species from overharvesting for international trade through regulating it by a system of restrictions and permits imposed on listing of the species traded or potentially threatened by trade (Harfoot et al., 2018). The CITES Trade Database was developed in order to record the trade of live species, but also their products, to monitor trade levels, and identify where trade might adversely affect wild populations (CITES, 2013). The Database consists of reported legal wildlife trade, both import and export, of CITES Parties (Harfoot et al., 2018). The CITES Trade Database is the largest public dataset regarding international wildlife trade, however there are limits of its use related to data processing, lack of data, but also aggregation of confidential primary shipment records (Berec and Šetlíková, 2018). The user is allowed to select data variables as the year range, exporting and importing countries, source of species or specimens traded, purpose of transaction, type of product and taxon (CITES, 2013). The Database contains over 16 mil. shipment records from 1975 to 2014. During this time, a shift from predominantly wild-sourced mammals, birds, reptiles, invertebrates and plants towards more captive-sourced ones is shown (Harfoot et al., 2018).

The main control body of CITES in the Czech Republic is the Czech Environmental Inspectorate (ČIŽP), which monitors compliance with CITES laws, may impose measures and fines for breach of the law, detects and confiscates suspicious CITES specimens (ČIŽP, 2010). Czech Republic has seized considerable quantities of live plants and seeds, mostly cacti, orchids and snowdrops, live birds of prey and parrots, and live reptiles (Kecse-Nagy et al., 2006). One of the final controls of the Czech Environmental Inspectorate focusing on tigers bred in captivity took place in 2016, and revealed numerous violation of laws considering doubts concerning tiger records, disappeared animals, mismatched documents, high reported mortality etc., which indicated the organised trade of tiger products. During spring of the same year a joint operation „Tiger Eye“ at the Václav Havel Airport confirmed smuggling of tiger and other wildlife products (Czech Environmental Inspectorate, 2016).

Methods and Data

The aim of this paper is to analyse the volume of international wildlife trade of the Czech Republic. The CITES Trade Database was used to examine the volume of international wildlife trade of the country. Trade records for CITES-listed species for the period 2008-2018. Both imports and exports of the Czech Republic were extracted in the form of comparative table. Each record describes a single shipment between two countries. It specifies not only the states of export and import, but also the source of the traded

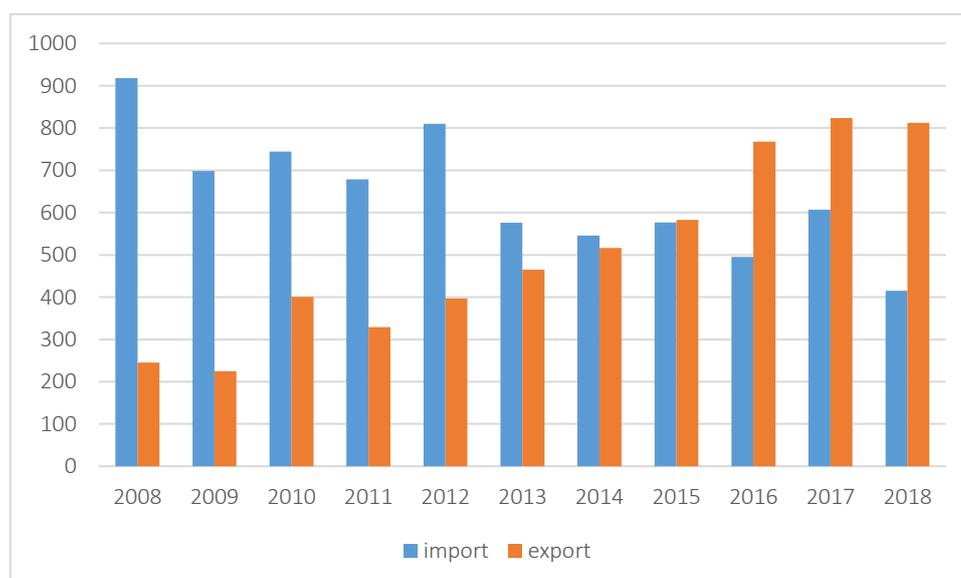
product, type of product, quantity, purpose of trade, and also biological systematization of the traded product.

A total of 12,615 shipment records were extracted from CITES Trade Database into a semicolon separated Excel file. This extraction resulted in 7,065 import records and 5,550 export records. Our method did not exclude any of these records as it aimed to capture all records of legal wildlife trade of the Czech Republic during selected period across all taxonomic groups to bring out a general overview of wildlife trade of the Czech Republic. Our approach marginalize the reported quantity volume of each record that would require setting data equivalents across the heterogeneous types of products. This represents the limit of our research. For the purposes of analysis we used the toolkit of Excel to separate and count cases, or determinate the modus in order to classify the most traded taxons.

Results

The legal wildlife trade volumes of the Czech Republic were analysed and visualised in Graph 1. In 2008 the highest amount of import records was entered (918), although there is a less visible trend of lowering the amounts in next years with overall average 642.3 records per year, the lowest volume was recorded in 2018 (415). The situation of the volumes of export records is quite opposite with the growing number of records each year. The only exception is the year 2009, when the volume recorded decreased to the minimal volume recorded (225), but with huge increase of volume in the next year, that outweighed this mild fall, and a mild fall of 12 number in the last year of the analysed period. The maximum volume of export records was entered in 2017 (824) and the overall average was 505.9 records per year.

Graph 1: The volumes of Czech Republic import and export records (2008-2018)



Source: CITES Trade Database, authors.

For the closer overview of the taxons traded in the Czech Republic, we analysed the records of imports and exports for each group, resp. class of animals and kingdom of plants (Table 1).

Tab. 1: Total wildlife trade records of the Czech Republic (2008-2018)

Taxon (class) with class examples	Export records	Import records
Actinopteri (ray-finned fishes)	7	47
Amphibia (frogs, toads, salamanders)	67	58
Anthozoa (sea anemones, corals)	0	1,025
Arachnida (spiders)	14	10
Aves (ducks, hummingbirds, owls)	2,230	375
Bivalvia (clams, oysters, mussels)	0	28
Dipneusti (lungfishes)	0	1
Elasmobranchii (sharks, rays, sawfishes)	0	9
Gastropoda (sea snails)	0	9
Hirudinoidea (passarine birds)	0	5
Hydrozoa (jellyfishes)	0	7
Insecta (beetles, bees, dragonflies, etc.)	1	160
Mammalia (kangaroos, pandas, zebras, etc.)	980	1,253
Reptilia (sea turtles, crocodiles, agamas)	549	1,644
Plantae (flowering and non-flowering plants)	1,702	2,434
Total	5,550	7,065

Note: Plantae is an exception as it is not a class, but a kingdom. The Database does not provide class systematization in plant cases.

Source: CITES Trade Database, authors.

To determinate the most traded families and genres of above mentioned groups we took a closer look into the data. We may conclude that in case of Actinopteri those were mainly fishes of Osteoglossiformes order (within family Osteoglossidae genus *Scleropages* is significant in import records only with no evidence in export) and Acipenseriformes (Acipenseridae family, where genus *Acipenser* plays important role in both export and import).

In case of Amphibia those were mostly Anura frogs and toads (genus *Mantella* and then *Agalychnis* in import records, while genus *Dendrobates* in export records).

Although there is no Anthozoa export record, we distinguish Sclerentinia order with more families to be commonly imported such as Mussidae (mainly genus *Lobophyllia* and genus *Scolymia*), Faviidae (*Caulastraea* and *Favites*) and Caryophylliidae (mostly genus *Euphyllia*). The import of Bivalvia covers only species from Tridacnidae family with most *Tridacna* genus and few *Hippopus* genus records. There is only one import record in Dipneusti class, which is genus *Neoceratodus*, while import of Elasmobranchii class contains of solely genus *Potamotrygon*. Gastropoda import records cover *Strombus* genus only, while in case of Hirudinoidea the genus is *Hirudo*, and as for the Hydrozoa class records contain only *Distichopora* genus.

Regarding Arachnida, most traded orders were Araneae with genus *Brachypelma* prevailing in export records, and Scorpionidae with genus *Pandinus* in import records and no evidence of this taxon in export records.

There is only one export record of Insecta class, which is species from Papilionidae family, genus *Ornithoptera*. All import records contain the same family, but as for most traded genus *Ornithoptera* prevails with just a fewer records of genus *Troides*.

Among most traded Aves in Czech Republic, orders Psittaciformes and Falconiformes dominate in both imported and exported records, where in case of traded Psittaciformes pre-eminently genus *Cacatua* and *Amazona* is mostly imported, while *Platycercus* and then *Polytelis* is mainly exported. As for the Falconiformes, in both terms of import and export genus *Falco* is prevailing.

In class Mammalia, the most import records cover the order Carnivora and mostly genus *Ursus* and *Panthera*, while the most export records contain mostly the order Primates with the genus *Lemur*.

In case of Reptilia, the most import records indicates Sauria order with most members of families Varanidae (genus *Varanus* only) and Chamaeleonidae (although many different genus included, most records in genus *Trioceros*), later on also the order Serpentes and families Pythonidae with genus *Python* prevailing, and Boidae family without any significantly dominant genus, but with most records in genus *Corallus*. As for the export records, Serpentes and Sauria order dominate the records. Serpentes family Boidae is prevailing (firstly *Epicrates* and later *Boa* genus), while family Pythonidae with genus *Python* places second. Amongst Sauria order most records are in family Chamaeleonidae and genus *Chamaeleo* dominates.

As for Plantae, the most and significantly dominant order of import records is Orchidales, family Orchidaceae, amazingly with no record on export side. Most traded genus within this family is *Dendrobium*. The second most imported order is Caryophyllales with Cactaceae family only, but many members of various genuses, where just a little bit prevails the genus *Astrophytum*. Export records show the dominance of order Euphorbiales (*Euphorbia* genus only), followed by the order Caryophyllales with few records of family Portulacaceae and Didiereaceae, but many records of family Cactaceae with many different genuses included, but most records in genus *Copiapoa*.

Discussion

Our analysis of legal trade of the Czech Republic showed similar results of most traded taxons as the taxons that had been seized especially the plants like cacti and orchids, or animals like birds of prey and parrots, but also reptiles. However both the export and import records lack snowdrops at all, which brings us to the conclusion that these plants are traded only illegally (regarding Kecse-Nagy et al., 2006). As for the legal tiger trade the CITES Database carries „only“ 30 export records and 9 import records of *Panthera tigris*, although the genus *Panthera* itself belongs to the most traded genuses of imported

mammals. This fact leads to a conclusion of the eminent role of illegal trade of this species in comparison with the legal trade (regarding the Czech Environmental Inspectorate, 2016). It would seem to be very useful to have exact data of seized species and their products coming out of the illegal trade. Anyway, from the personal communication with the supervisor of the Department of nature conservation, forest and CITES and the Department of international biodiversity protection in CITES that took place during December 2019, it was revealed, that even these data can not provide accurate overview of the volume of illegal wildlife trade in the Czech Republic as far as the results and volume depends on number of workers.

Conclusion

Wildlife trade represents a major threat to the Earth's biodiversity. CITES aims on regulating the international trade through system of restrictions and permits, but it also monitors trade levels of particular species and products amongst parties that signed the Convention, and runs public database of shipment records.

The aim of this paper was to analyse the volume of international wildlife trade of the Czech Republic. The most traded taxons were identified. Subsequently, the analysis of absolute volumes of records in each group was carried out within selected period. Overall, it can be stated that legal wildlife trading consists of about 642.3 import and 505.9 export records on average each year. Most traded groups of animals are birds (especially parrots and birds of prey), mammals (mostly bears, big cats and primates), and reptiles (primarily varans, chameleons, pythons and boas). Most traded groups of plants are orchids, cacti, but also spruges. However, it is nearly impossible to determinate the volume of illegal wildlife trade.

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Does Energy Dependence Threaten the State Economy?

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Abstract

The combination of the need to adjust the energy mix in favor of the environment and the demands on energy consumption and at the same time on the economic growth of states leads to an increase in energy dependence. The high level of energy dependence is often cited as a potential threat to the economic growth of the state. The aim of the paper is to find out whether there is a correlation between macroeconomic indicators and the degree of energy dependence. Using the Pearson correlation coefficient, we examine the strength of the relationship between GDP, trade balance, inflation, unemployment and the degree of energy dependence on the example of the states of the European Union in the period 2005–2018. The results of the research show that the relationship between the degree of energy dependence and macroeconomic indicators for the European Union is completely individual and the strength and direction of correlation varies from country to country. Combining the degree of energy dependence in general with the direct threat to economic growth therefore proves to be misleading and it is necessary to always deal with a specific state in this matter and take into account other factors that could affect the relationship under study. These conclusions represent the beginning of a paradigm shift that energy dependence threatens the state economy, and therefore more emphasis can be placed on other aspects, such as the environmental ones, when adopting new energy strategies.

Keywords: energy dependence, GDP, inflation, balance of payments, unemployment, Pearson correlation coefficient, correlation, EU

Introduction

In connection with the economic growth and industrial development of a country, there is often an increase in energy consumption. At the same time, all economic activity is directly dependent on the availability of energy, and its importance in the global economy is still growing. If a state is to sustain economic growth, it is essential to ensure a sufficient supply of energy (Binhack and Tichý, 2011). Due to the fact that a state covers energy consumption not only by its own resources but also by imports, it becomes energy dependent. The degree of energy dependence of each state changes over time depending on many factors, but in general its increase, which we can observe, is the cause of discussions at the national and supranational level.

In the case of the Member States of the European Union, not only is there a debate, but also an adjustment of strategies and the adoption of measures at the EU level, which is also responsible for handling energy (EUROPEAN COUNCIL, 2020). Currently, most EU countries deal with more than half of energy consumption through imports, and the ratio is still growing. Along with the increase in energy non self-sufficiency, there is also an issue of energy security, which the International Energy Agency (2020) defines as the continuous availability of affordable energy resources. From this it follows that if a state is energy dependent, it has no control over the external influences that determine energy imports, and thus its economy may be jeopardised.

In addition to endangering energy imports, diversification of energy sources is also an important aspect of energy security. It is well known that there are many ways to obtain energy. The most important fossil energy raw materials include oil, natural gas and coal. Other commonly used energy sources include nuclear, hydro, wind and solar (Hykl, 2015). Along with scientific and technological progress, preferences for the use of individual energy sources have changed in recent decades. Whether it is caused by technology that allows the use of a new energy source or new environmental knowledge that motivates the transition to other energy sources, or even the depletion of one energy source, so the transition to another energy source becomes a necessity for every country, the ratio of the structure of energy sources changes over time. However, this change may directly result in a decline in domestic energy production and there is a need to cover energy consumption with imports.

At present, the members of the European Union are required to meet the strategic energy targets in the form of a 20% transition to renewable energy sources, a 20% improvement in energy efficiency and a 20% reduction in greenhouse gas emissions (EUROPEAN COUNCIL, 2015). However, the requirements for a responsible approach to the environment are currently also coming from society as a whole towards businesses (Kasych, et al., 2020). This places demands on states to change the structure of energy sources at the national and supranational level, which, according to the above, has an impact on the degree of energy dependence. It is clear that if the members of the European Union are to be motivated to pursue these strategic goals, they should not be afraid of the impact on economic growth. As the main indicative value of economic growth is

macroeconomic indicators, it is currently extremely beneficial to identify the relationship between these indicators and energy dependence. The aim of the paper is to find out whether there is a correlation between macroeconomic indicators, which are GDP, trade balance, inflation and unemployment, and the degree of energy dependence, in the Member States of the European Union in the period between 2005 and 2018. The examined sample consists of EU countries, regardless of whether they were members throughout the period under review or became members during the study period.

Literature Research

Karanfil and Li (2015) deal with the issue of the short-term and long-term relationship between economic growth and energy demand. By applying the panel data model, they confirmed the existence of a relationship between economic growth and energy consumption, the nature of which, however, is strongly influenced by regional differences. Factors determining energy consumption are the degree of electrification, urbanisation or the economic level of development of the state. This, using time series analysis, the Augmented Dickey-Fuller test (ADF test), the Kwiatkowski-Phillips-Schmidt-Shin test (KPSS test) and the Granger causality, is confirmed by Azam et al. (2016), Based on the example of Greece, who state that income, foreign direct investment and population growth directly determine Greece's energy consumption. Using the example of OECD countries, Damette and Seghir (2013) analyse the relationship between energy consumption and economic growth and come to the conclusion that this relationship is two-way. Not only does energy consumption in these countries increase economic growth in the short term, but in the long run, economic growth also increases energy consumption. Using the same method, Osman, Gachino and Hoque (2016) also had comparable results for the GCC countries, with a change in energy consumption policy that could have a negative impact on the economic growth of the GCC countries.

The two-way dependence of energy consumption and economic growth was confirmed by Dagher and Yacoubian (2012) using the Hsiao, Toda-Yamamoto and Granger causality tests in the case of Lebanon. They point to the negative aspect of this dependence in the sense that energy is the limit to the growth of the country's economy. As a reduction in energy consumption would negatively affect Lebanon's economic growth, they see energy dependency as a risk and emphasize the importance of domestic sources. Metcalf (2014) completely disagrees with this, stating that not reducing energy dependence, but reducing energy consumption is the way to ensure the energy security of a country, specifically the USA. He states that, for example, oil shocks will affect energy prices even if the country becomes energy self-sufficient. However, we can take such an attitude in the case of the USA, not Lebanon and the like, as these are completely different regions, where different levels of economic indicators and other regional differences may be the reason why each country limits other factors in terms of energy security.

Whether the level of vulnerability of the economy to energy shocks decreases with economic development has also been examined by Van de Ven and Fouquet (2017). They

came to the conclusion that the vulnerability of the economy is not systematically dependent on economic growth, but depends on the circumstances associated with the demand and supply of energy resources. They stated that as the dependence on coal increases, the impact of energy shocks increases and that the distribution of dependence between coal and oil decreases the impact (Van de Ven and Fouquet, 2017). Czech (2017) examines the efforts to ensure energy security in the case of Poland. He sees the vulnerability of Poland's economy in terms of energy in its dependence on imports. It is considered that domestic coal resources are crucial for Polish energy security. However, due to environmental commitments to the EU, Poland is forced to move away from coal dependence, leading to an increase in energy dependence. The EU itself is tackling energy dependence. According to Fedoseeva and Zeidan (2018), the EU's economic growth is linked to the consumption of fossil fuels. As Russia is the primary importer of fossil fuels for the EU, EU's economic growth may be jeopardised.

However, in addition to economic growth, the issue of renewable resources resonates with the European Union's energy policy. Based on an econometric analysis, Acaravci and Erdogan (2018) came to the conclusion that economic growth affects emissions, while the use of renewable resources has no effect on emissions. They therefore recommend using renewables to resolve the conflict between reducing emissions and maintaining economic growth. Belaid and Zrelli (2019) share this view, confirming, using econometric models, that the growth of fossil fuels increases with economic growth and the volume of CO₂ in the atmosphere increases with the consumption of fossil fuels. Renewables, on the other hand, have not shown a link to CO₂ level growth. Svobodová et al. (2020) contribute to this issue through research that demonstrates a direct link between the size of countries' economies and CO₂ production. It states that, although there are opportunities for the use of new energy technologies and capital investment, states still prefer to protect national economies and approach long-term environmental goals through marginal investment. The protectionist behaviour of countries is supported by Northrop, which states that in the light of the Paris Agreement goals, GDP growth requires growth in fossil fuel consumption, renewables are unable to meet energy consumption requirements and economic growth is therefore incompatible with reducing emissions (Northrop, 2017). However, using the method of modelling structural equations, Chien and Hu (2008) demonstrate that the use of renewable energy sources has a positive effect on GDP growth, although they admit that it has no effect on trade balance. The positive effect of renewables on GDP and on dependence on imports was demonstrated by Andini et al. (2019) on the example of Portugal by applying a vector autoregression model and using macroeconomic and energy data. For countries that use coal as their majority energy source, the transition to clean sources is complicated, even though they are aware of environmental issues and the need to change the energy mix (Dvorak et al., 2017).

In the question of the impact of renewables and GDP growth, Ohler and Fetters (2014) applied a panel data model extended by cross-sectional data and, using econometric analysis on the example of OECD countries, came to the conclusion that it depends on specific types of renewables and their combinations. They stated that, for example, the

use of biomass, hydropower and wind in the long term has a positive effect on the GDP of OECD countries. The claim that it depends on the type of energy sources and their combination is confirmed by other authors. Within the European Union, Csereklyei et al. (2017) found that higher-income countries tend to achieve a better mix of energy sources and thus achieve better results in eliminating the dependence on fossil fuels. The best results are achieved by countries with a combination of nuclear energy and hydroelectric sources. Although they admit a low percentage of renewable resources, they conclude that the quality of the energy mix will increase as GDP grows.

The impact of a good choice of energy sources on macroeconomic indicators is reported by Bulavskaya and Reynes (2018) on the example of the Netherlands. Based on the analysis of the energy transition model, they predict GDP growth, the creation of a large number of jobs and an increase in investments. At the same time, the transition to the energy mix should lead to lower energy production, higher imports and higher energy prices. Punzi (2019) warns against the dependence of smaller states in particular on imports. Based on a dynamic stochastic general equilibrium model (DSGE), he explains that when a small economy is dependent on energy imports, it is exposed to energy price volatility. This causes long-term market uncertainty, business cycle volatility and economic slowdowns.

At the same time, the increase in energy imports, together with economic growth, is not uncommon in European countries. Using Granger's causality, Vecchione (2011) proves that even in Italy there is a causal link between GDP growth and decline and energy import growth and decline, and considers that such a high degree of energy dependence poses a risk to the Italian economy. The same relationship is described by Balaguer et al. (2015) in the case of Spain, adding that this dependence has been particularly evident since Spain's accession to the EU. Not only imports but also exports of energy sources can cause economic dependence. According to Tang et al. (2016) China's energy exports make such a significant contribution to economic growth that a change in energy policy is completely impossible in the near future. Whether a country is an energy importer or exporter, Jalil (2014) states, based on the use of the panel method, that energy consumption itself is essential for economic growth, not energy dependence.

The use of the Pearson correlation analysis is the best method to determine the existence of a relationship and its strength between macroeconomic indicators and the degree of energy dependence. The result will be a useful contribution to the ongoing debate on the ambiguous relationship between economic growth and energy dependence.

Methodology

As mentioned above, the main macroeconomic indicators include GDP, inflation, unemployment and the trade balance. In order to meet the aim of the paper, it is necessary to ask the following partial research questions:

- Is there a relationship between energy dependency and GDP growth?

- Is there a relationship between energy dependency and inflation?
- Is there a relationship between the energy dependency rate and the unemployment rate?
- Is there a relationship between the unemployment rate and the trade balance?

We will analyse these relationships on the examples of 28 states that are or were members of the European Union. These are Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Italy, Ireland, Lithuania, Latvia, Luxembourg, Hungary, Germany, the Netherlands, Malta, Poland, Portugal, Romania, Greece, Sweden, Spain, the Slovak Republic, Slovenia and the United Kingdom. We will work with annual data in the period from 2005 to 2018 incl.

Data for the degree of energy dependence will be obtained from the European Union database Eurostat under the term Energy dependence. The degree of energy dependence is defined here as net imports divided by gross available energy, with net imports calculated as total imports minus total exports and gross available energy calculated as primary production plus recovered and recycled products plus imports minus exports plus changes in inventories (Cepel et al., 2020). Data for macroeconomic indicators of countries is obtained from the World Bank (2020) database World Development Indicators. For GDP, defined as the sum of the gross value added of all resident producers in a state's economy plus taxes on products minus subsidies not included in the value of products, we choose the parameter GDP (current USD). The inflation rate, which is in the database as the parameter Inflation, consumer prices (annual %), is measured by the consumer price index and indicates the annual percentage change in the average consumer's cost of purchasing a basket of goods and services. The unemployment rate expresses the number of people of working age who are unemployed as a percentage of the labour force. The data is listed in the database as Unemployment, total (% of labour force) (modelled ILO estimate). Data for the trade balance, in the World Bank (2020) database kept under the name Net trade in goods and services (BoP, current USD), is calculated as the difference between the net imports and exports of a given country and foreign countries (EUROSTAT, 2020).

To calculate the relationship between macroeconomic indicators and the degree of energy dependence, we use Pearson's correlation coefficient. By calculating Pearson's correlation coefficient r , we find out whether there is a correlation between the rate of energy dependence and GDP, the rate of inflation, the rate of unemployment and the trade balance, and how strong it is. If $r = 0$, there is no linear correlation between the indicators. If $r < 0$, there is a negative relationship, if $r > 0$, the correlation is positive. The coefficient r must be < 1 and > -1 . The formula for calculating the coefficient r is as follows:

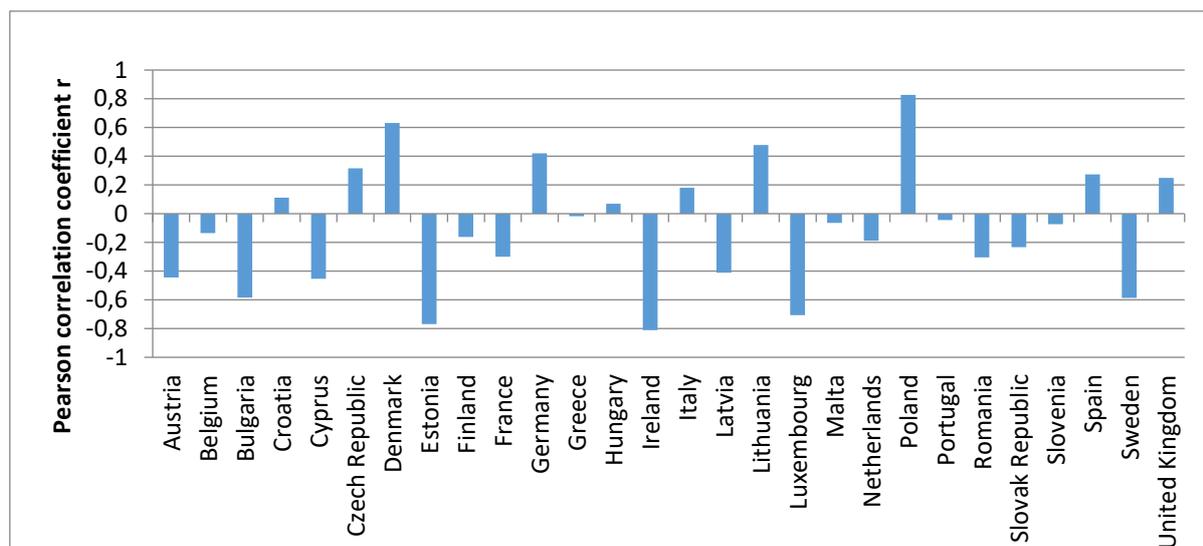
$$r = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2} \sqrt{\sum_i (y_i - \bar{y})^2}} \quad (1)$$

All data will be processed in Excel and we will use the Correl function to calculate the correlation coefficient r . To interpret the strength of correlation, we divide the coefficient r into three groups according to its value into weak, medium and strong correlation. In this case, we will consider it a weak correlation if the value of r is from 0.001 to 0.3 and from -0.001 to -0.3. We determine the medium correlation for the value of r from 0.3 to 0.5 and from -0.3 to -0.5. We will consider the value of r from 0.5 to 1 and from -0.5 to -1 as a strong correlation.

Results

As illustrated by Graph 1, the correlation between energy dependence and GDP is weakly positive in the case of Croatia, Hungary, Spain and the United Kingdom. Weak negative correlations occur in Belgium, Finland, Greece, Malta, the Netherlands, Portugal, Slovakia and Slovenia. A medium positive correlation is recorded in the Czech Republic, Germany and Lithuania. Medium negative correlations apply to Austria, Cyprus, France, Latvia and Romania. There is a strong positive correlation in Denmark and Poland. For Bulgaria, Estonia, Ireland, Luxembourg and Sweden, the correlation coefficient r acquires a strong negative value.

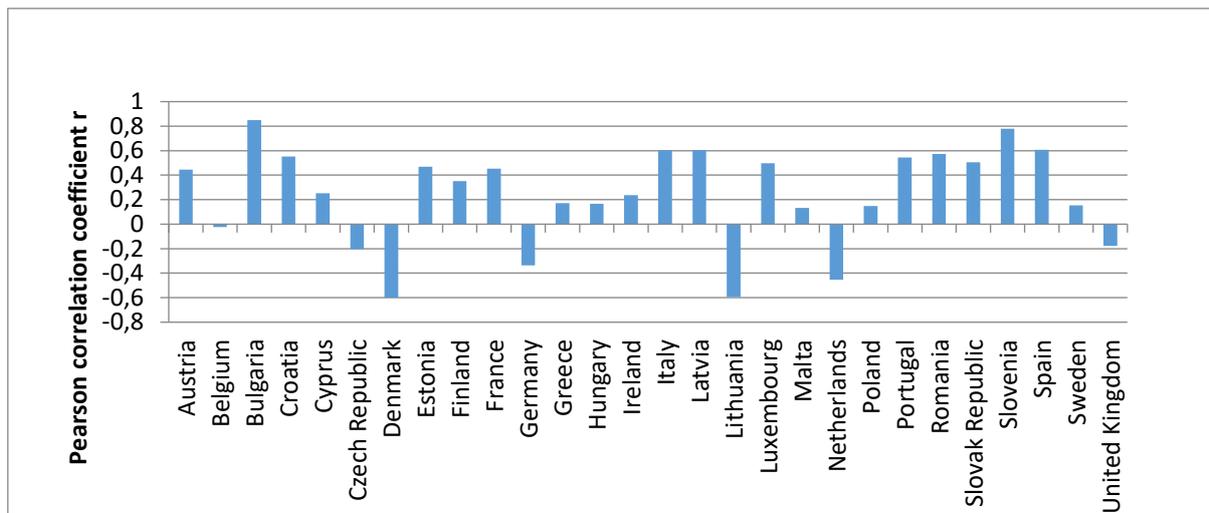
Graph 1: Energy dependence and GDP (current USD)



Source: Authors.

The correlation between energy dependence and inflation, as shown in Graph 2, is weakly positive for Cyprus, Greece, Hungary, Ireland, Malta, Poland and Sweden. A weak negative correlation occurs in Belgium, the Czech Republic and the United Kingdom. Medium positive correlations apply to Austria, Estonia, Finland and France. A medium negative correlation is demonstrated in Germany and the Netherlands. There is a strong positive correlation in Bulgaria, Croatia, Italy, Latvia, Portugal, Romania, Slovakia, Slovenia and Spain. A strong negative correlation occurs in Denmark and Lithuania. Here is Graph 2.

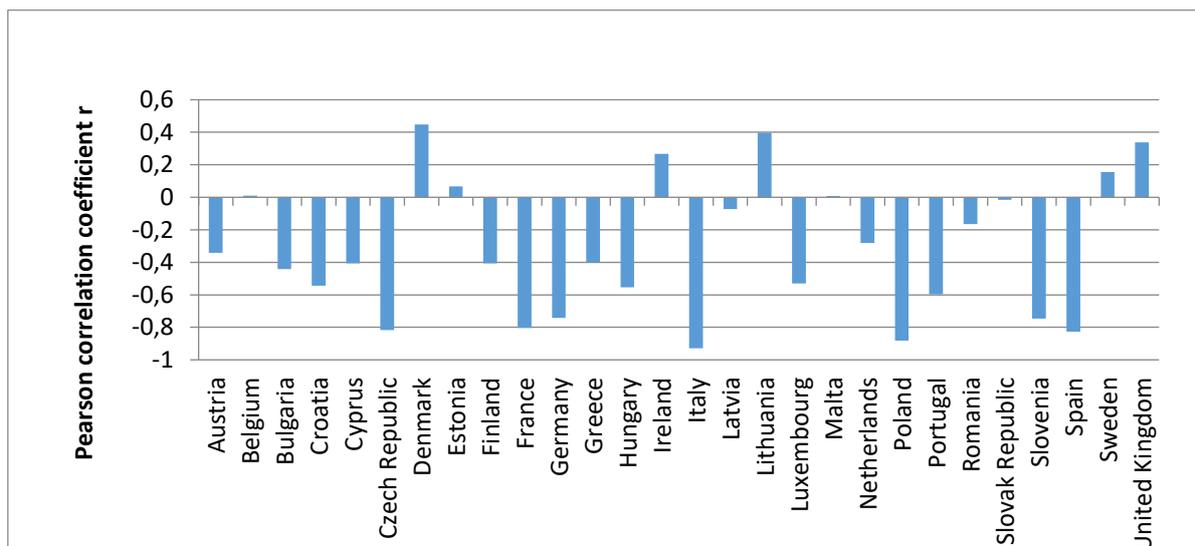
Graph 2: Energy dependence and inflation (annual %)



Source: Authors.

There is only a weak positive correlation between energy dependency and unemployment rates in Belgium, Estonia, Ireland, Malta and Sweden. A weak negative correlation occurs in Latvia, the Netherlands, Romania and Slovakia. A medium positive correlation exists in Denmark, Lithuania and the United Kingdom. Medium negative correlations apply to Austria, Bulgaria, Cyprus, Finland and Greece. A strong negative correlation occurs in Croatia, the Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Poland, Portugal, Slovenia and Spain. Shown in Graph 3, there is no strong positive correlation between the level of energy dependence and unemployment in any of the monitored countries.

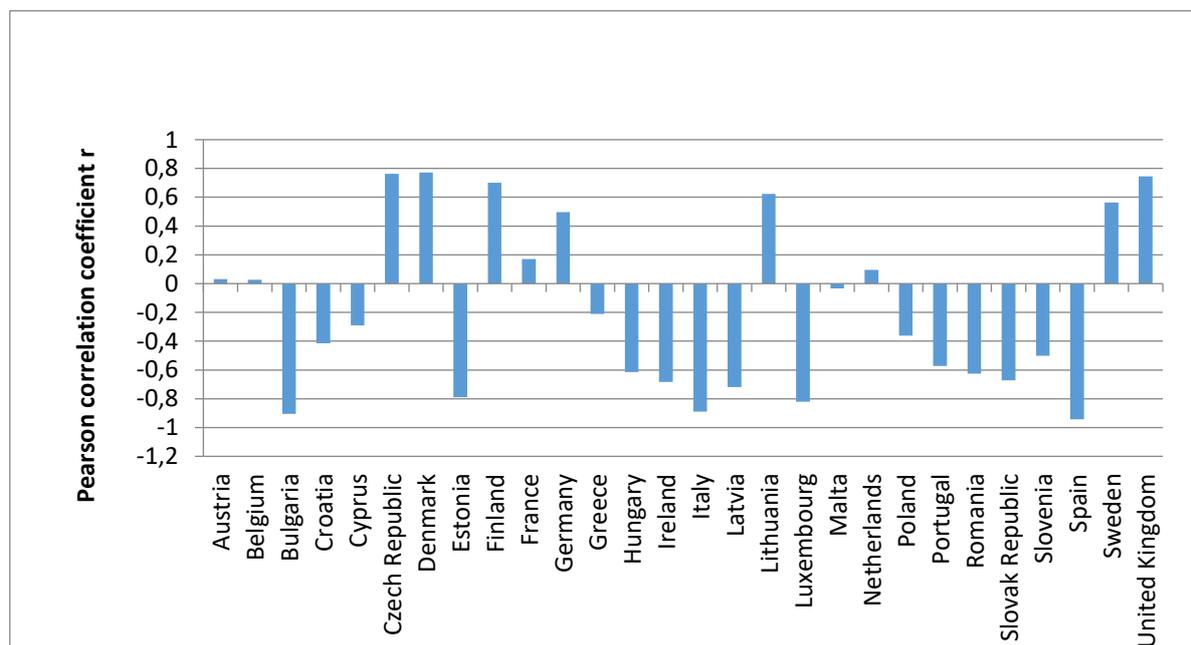
Graph 3: Energy dependence and unemployment (total % of labour force)



Source: Authors.

The correlation between the degree of energy dependence and the trade balance is weakly positive for Austria, Belgium, France and the Netherlands. The correlation is weakly negative for Cyprus, Greece and Luxembourg. A medium positive correlation exists only for Germany. A medium negative correlation exists for Croatia and Poland. A strong positive correlation occurs in the Czech Republic, Denmark, Finland, Lithuania, Sweden and the United Kingdom. Bulgaria, Estonia, Hungary, Ireland, Italy, Latvia, Luxembourg, Portugal, Romania, Slovakia, Slovenia and Spain show a strong negative correlation. The processed data is listed in the appendix. The correlation between the degree of energy dependence and the trade balance is shown in Figure 4. All processed data are given in Appendix 1.

Graph 4: Energy dependence and net trade in goods and services (BoP, current USD)



Source: Authors.

Discussion

Based on the obtained results, we are able to answer research questions that were determined previously:

Is there a relationship between the degree of energy dependence and GDP? The strength of the correlation is different in the case of the degree of energy dependence and GDP for each of the examined countries. In general, however, we can observe a trend that shows that there are fewer countries with a strong correlation than countries with a weak correlation. Specifically, 13 of the 28 states are weakly correlated in this case. Using the Pearson correlation coefficient, we found that only in case of 5 examined countries (Bulgaria, Estonia, Ireland, Luxembourg, Sweden) there is a strong negative correlation, i. e. the GDP growth decreases with the growth of the energy dependence rate.

Is there a relationship between energy dependency and inflation? Interestingly, in this point of view, most, specifically 21 of the 28 countries surveyed, show a positive correlation of different strength level. At the same time, only 11 of the 28 countries surveyed show a strong correlation.

Is there a relationship between energy dependency and unemployment? There is a strong correlation between these indicators in only 11 cases. In addition, all these cases show a negative correlation. The relationship between energy dependency and unemployment rates did not prove strongly positive in any of the countries. Positive, medium or low degree correlations apply only to 8 out of 28 countries.

Finally, is there a relationship between the degree of energy dependence and the trade balance? Regarding the relationship between these indicators, we can say that of all four examined macroeconomic indicators, there is the highest number of countries with a strong correlation. Specifically, in 18 of the 28 countries surveyed we see a strong relationship between the degree of energy dependence and the trade balance, with 12 of these countries showing a strong negative correlation. In the case of 7 states, the correlation is weak.

It is therefore evident that in order to be able to answer research questions, it is first necessary to look at the states of the European Union individually. Using Pearson's correlation coefficient, we were able to answer these questions for each individual state studied. The results of the research clearly show that the relationship between the degree of energy dependence and macroeconomic indicators for the European Union is completely individual and its strength and direction vary from country to country.

Karanfil and Li (2015) come to a similar conclusion in the case of the relationship between GDP growth and decline and energy consumption growth and decline, who state that this is strongly influenced regionally. With regard to energy issues, Northrop (2017) supports the protectionist behavior of states concerned about economic growth. However, if we look at the relationship between the level of energy dependence and the GDP of the EU countries, we find that there are fewer countries in which have shown a strong correlation than countries in which we have proven a weak correlation. Similarly, Punzi (2019) warns smaller states against energy dependence due to possible negative economic impacts. However, some of the smaller countries surveyed, such as Malta and Cyprus, show a weak correlation for all or most macroeconomic indicators. In contrast, Luxembourg has a strong correlation with three out of four macroeconomic indicators. While Vecchione (2011) uses Granger causality to prove that there is a relationship between GDP growth and an increase in energy imports in the case of Italy, our research shows that the correlation between energy dependence and Italy's GDP is among the weakest in the EU. However, a strong correlation was demonstrated in Italy for other macroeconomic indicators.

A number of authors, Dagher and Yacoubian (2012), Czech (2017) and Fedoseeva and Zeidan (2018) discuss the energy dependence of the state as a potential threat to the state and its economies. However, based on the Pearson coefficient, the relationship between

the degree of energy dependence and macroeconomic indicators is significant only in some countries, and the results show negative and positive correlations, so, after a closer examination, this relation could be a potential threat as well as an opportunity. Anyone who will continue to deal with the relationship between the degree of energy dependence and the economy of the state should take into account the results of this research and then identify the factors causing a strong relationship between these indicators. These conclusions represent the beginning of a paradigm shift that energy dependence threatens the state's economy, and therefore more emphasis can be placed on other aspects, such as the environmental ones, when adopting new energy strategies.

Conclusion

The aim of the paper was to determine whether there is a correlation between macroeconomic indicators, such as GDP, trade balance, inflation and unemployment, and the degree of energy dependence in the Member States of the European Union in the period between 2005 and 2018. Using Pearson's correlation coefficient, the strength of the relationship between the degree of energy dependence and the individual macroeconomic indicators for each country was studied, and the aim of the paper was thus achieved.

However, the strength and direction of the correlation is not the same for all countries surveyed or for all macroeconomic indicators for individual countries. In general, we can state that in the case of the relationship between the degree of energy dependence and GDP, weak correlation slightly prevails, in the case of the relationship between the degree of energy dependence and the trade balance, on the contrary, a strong correlation slightly prevails. The correlation between the rate of energy dependence and inflation reaches mostly positive values, while the correlation between the rate of energy dependence and unemployment is dominated by negative values. It is the fact that the results are not the same or show no trend in all the countries studied, which is the limit of the research result. It is not possible at this stage of research to reach a general statement, which could lead to a general recommendation.

The results shown above inevitably lead to the question, what is the cause of the individual nature of the relationship between the given parameters? How is it possible that the relationship under review does not show the same values in all countries? And what conditions precede the parameters of the investigated relationships? Based on the data we have collected for this research, it is not possible to answer these questions. Therefore, it is important to carry out further, follow-up research that answers the questions and identifies unknown variables that will help to understand the relationships between macroeconomic indicators and energy dependency, and thus be a useful support for energy decision-making with economic development.

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Evaluation of Performance of MLP Neural Networks and RBF Neural Networks in Adjusting Time Series of the Development of the Trade Balance between the USA and the PRC

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Abstract

Artificial neural networks are widely used for predicting values, for solving possible future problems and are able to provide various solutions in problem estimation, regression or optimisation. They are useful for predicting time series too. The aim of the paper is to analyse and evaluate the performance of multilayer neural networks (hereinafter referred to as "MLP") and neural networks of radial basis function (hereinafter referred to as "RBF") in adjusting time series on the example of the trade balance between the United States and the People's Republic of China. Regression was performed using neural structures. We generated multilayer perceptron networks and neural networks of radial basis function and we generated two sets of artificial neural networks. Time was the continuous independent variable. We determined the trade balance of the USA and the PRC as a dependent variable. We can state that due to the great simplification of reality, it is not possible to predict the emergence of extraordinary situations and their impact on the trade balance of the USA and the PRC. We can state that when an adjusted time series is derived from a single variable, time, RBFs perform better than MLPs. In order to make the prediction more accurate and its calculation easier, it seems appropriate to use RBF networks, which brings a relatively high degree of accuracy.

Keywords: multilayer neural networks, RBF, trade balance, future development prediction, USA, People's Republic of China, correlation coefficient

Introduction

The aim of the paper is to analyse and evaluate the performance of multilayer neural networks and neural networks of the radial basis function in adjusting time series on the example of the trade balance between the United States of America and the People's Republic of China. No known author deals with the topic as such. However, there are a number of studies that address either the topic in general without a given location or a comparison between other countries. Examples of solutions of individual authors will be gradually revealed in the following text.

Rodrigues et al. (2019) state that through the forecast of time series it is possible to predict future values according to previously observed values. Accurate time series prediction is important for a wide range of different areas.

Artificial neural networks are currently widely used in various technical applications and are becoming a common method for providing various solutions in the field of optimisation, regression and problem estimation. Vochozka (2017a) use multilayer perceptron networks (MLP) and neural networks of radial basis functions (RBF) to determine the relationship between the volume of debt and the economic result of industrial enterprises. The authors analysed the cost-to-profit ratio using three profit categories - operating profit, EBIT and EBT. However, the correlation was not confirmed. In all cases of profit, it can be stated that there is no dependence between interest and the amount of profit. Neural networks also seem to be one of the methods of optimising company inventory. They are useful for predicting time series. Vochozka (2017b) tries to verify the possibility of using neural networks for inventory management on the example of a specific company. Neural networks also seem to be one of the methods of optimising company inventory. They are useful for predicting time series. The datafile contains time series of the inventory of a specific company for the last two years. The data is fitted to a curve which deviates from the actual data and which may also predict the future development of inventory stock. Neural networks, specifically multilayer perceptron networks, were used to obtain the regression curve. Based on the neural structure, the company can predict not only the future state of inventory, but also its movement over time.

Let us go back to measuring the trade balance. This represents one of the best analyses and economic relations of the country. It serves as a monetary expression of economic transactions between a certain country and its foreign partners in a certain period. Rowland et al. (2019) aimed to compare the accuracy of time series adjustment using regression analysis and neural networks on the example of the trade balance of the Czech Republic and the People's Republic of China. Optically, the LOWESS curve was the best out of the linear regression, followed by the smallest square curve by negative exponential smoothing and the curve obtained by the smallest square weighted distance. Of the neural networks, the network 5.RBF 1-24-1 has proven to be the most useful in practice. If we look at the performance in terms of the correlation coefficient, the neural network 5.RBF 1-24-1 remains applicable.

Vochozka and Sheng (2016) use artificial neural networks to predict potential financial problems in transport companies in the Czech Republic. Data on all companies involved in transport and forwarding in the Czech Republic for the period of 2003-2013 were used to model a specific neural network. The following networks were used to model a neural network: Linear network, probabilistic neural network PNN, generalised regression neural network GRNN, radial basis function network RBF, three-layer perceptron network TLP and four-layer perceptron network FLP. The result of the analysis was a specific model of an artificial neural network. The neural network is able to determine with more than ninety percent accuracy whether a company is able to overcome potential financial problems, whether the company could go bankrupt within a few years, or whether the company could go bankrupt within one calendar year.

Wedding and Cios (1996) describe a method for using Radial Basis Function (RBF) neural networks to generate certainty factors along with normal output. When the RBF output with low values of certainty factors is disabled, the overall accuracy of the network increases. In this article, RBF networks are used in a time series application. RBF neural networks are trained to produce both time series forecasts and certainty factors. Their output is then combined with Univariate Box-Jenkins (UBJ) models to predict future data values. This combined approach improves the overall reliability of time series prediction.

According to Kleštík (2013), artificial neural networks are computational models inspired by biological neural networks, which are used for a number of different areas. At present, neural networks are used mainly for predicting values, for solving possible future problems and are able to provide various solutions in problem estimation, regression or optimisation. Liu et al. (2009) used neural networks with radial basis functions to predict exchange rates. According to their results, it can be stated that the performance of RBF neural networks for prediction is effective and acceptable.

In their contribution, Machová and Vochozka (2019) analyse the development of Unipetrol's stock prices on the Prague Stock Exchange using artificial neural networks, both MLP and the radial basis function RBF networks. They concluded that in practice the MLP is applicable for a one business day forecast. Zhang et al. (2001) investigate the ability of neural networks for linear time series predictions. In practice, it is often difficult to determine whether the basic data generation process is linear or not. Fajardo-Toro et al. (2019) focus on models and techniques for time series predictions that show a comparison of the behaviour of recurrent neural networks against other statistical techniques and different neural network architectures, such as the multilayer perceptron MLP networks, etc. Chang (2011) deals with artificial neural networks, decision trees and a hybrid model of ANN and decision tree. He concluded that, compared to the other two methods, ANN is a more stable method for predicting stock prices in a volatile stock market after the crisis.

Vrbka et al. (2019) compare the accuracy of time series adjustment using regression analysis and neural networks on the example of the trade balance between the EU and the People's Republic of China. The development over time is interesting. The most suitable

curve is selected from linear regression and three useful neural structures are selected from neural networks. Of the neural networks, three of the five conserved neural structures have proven to be successful in practice: 2. RBF 1-29-1, 3. RBF 1-29-1 and 5. RBF 1-29-1. If we look at the performance in terms of the correlation coefficient, it remains to use only the three neural networks mentioned here, between which there are practically no differences.

As Vochozka (2010) emphasised, the question is whether to continue developing evaluation methods based on mathematical and statistical methods, or to focus on other possibilities, such as neural networks. Magni (2005) also confirmed the assumption that models of artificial neural networks work better than decision trees in terms of degree of accuracy and as such can be used to predict financial performance. Furthermore, the author assured that multilayer perceptrons had a better predictive power than radial basis functions.

Data and Methods

According to the contribution of Vrbka et al. (2019), it is obvious that the RBF neural networks show better results when adjusting time series using RBF and MLP. Out of 10,000 generated artificial neural networks, 5 networks with the best characteristics were preserved. Only the RBF networks showed the five best characteristics. No MLP network was included among these artificial neural networks. If we paraphrase the aim of the paper, we come to two sub-goals:

Verify that Vrbka et al. (2019) results present a generally valid result.

To verify how MLPs lag behind the RBF in their performance in solving such a task.

To meet the goal, we will perform an experiment. We will proceed partly according to the methodology of Vrbka et al. (2019). At the same time, however, we deviate slightly from the original methodology at a certain stage. The data for analysis is available on the World Bank's website and others. Information on the trade balance between the United States of America ("USA") and the People's Republic of China ("PRC") will be used for the analysis. It will be the difference between total exports and imports between the two countries from the point of view of the USA. The time interval for which the data will be available is the monthly balance starting in January 1985 and ending in August 2018. This is 404 pieces of input data. The unit is billions of US dollars.

Descriptive characteristics of the data are given in Table 1.

Tab. 1: Datafile characteristics

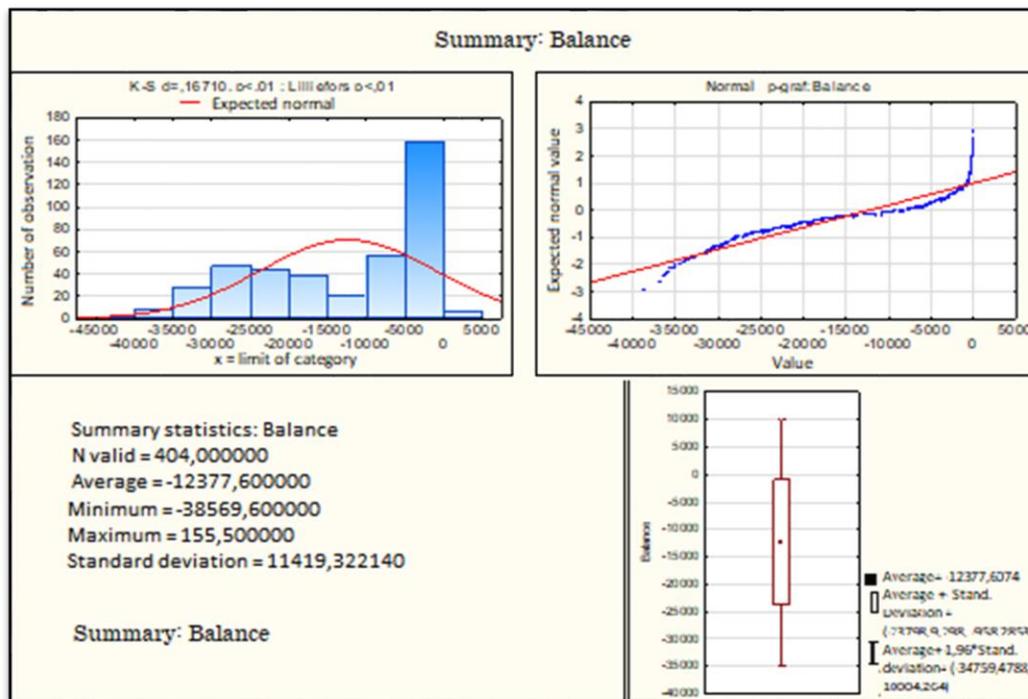
Statistics	Month (Input var.)	Balance (Output (goal))
Minimum (Training)	31,048.00	-38,569.6
Maximum (Training)	43,313.00	155.5
Average (Training)	37,316.95	-12,814.0
Standard Deviation (Training)	3,549.13	11,337.5
Minimum (Testing)	31,138.00	-34,989.5

Maximum (Testing)	42,948.00	-17.7
Average (Testing)	36,651.48	-11,114.8
Standard Deviation (Testing)	3,758.45	12,253.4
Minimum (Validation)	31,199.00	-34,518.0
Maximum (Validation)	42,979.00	-67.8
Average (Validation)	37,060.87	-11,574.6
Standard Deviation (Validation)	5,186.49	11,435.8
Minimum (Overall)	31,048.00	-38,569.6
Maximum (Overall)	43,313.00	155.5
Average (Overall)	37,180.08	-12,377.6
Standard Deviation (Overall)	3,554.16	11,419.3

Source: Authors.

Figure 1 therefore shows the graphical form of selected statistical characteristics, including the histogram of the input data.

Figure 1: Graph of basic statistical characteristics



Source: Authors.

It is interesting how the histogram does not correspond to the normal distribution. Statistica software version 12 from DELL will be used for data processing.

Regression will be performed using neural structures. We will generate multilayer perceptron networks and neural networks of radial basis function. We will generate two sets of artificial neural networks. Time will be the continuous independent variable. We will determine the trade balance of the USA and the PRC as a dependent variable.

We will divide the time series into three files - training, testing and validation. The first group will contain 70% of the input data. Based on the training data set, we generate

neural structures. In the remaining two data sets, we always leave 15% of the input information. Both groups will be used to verify the reliability of the found neural structure, or the found model. The time series delay will be 1. We will generate 100,000 neural networks. In this we differ from Vrbka et al. (2019). We will generate ten times as many networks. The aim is a greater degree of accuracy. We will keep 5 of them, which show the best characteristics. The first results will respect the creation of both MLP and RBF networks. In the second case, we will only create MLP networks. We will have at least two neurons in the hidden layer, a maximum of 50. In the case of the radial basis function there will be at least 21 neurons in the hidden layer, at most 30. For multilayer perceptron network, we will consider the following distribution functions in the hidden layer and in the output layer:

- Linear,
- Logistic,
- Atanh,
- Exponential,
- Sinus.

We will leave the other settings as default (according to the ANS tool - automated neural networks).

Finally, we compare the results of both groups of preserved neural networks.

Results

Neural structures A

Based on the established procedure, 10,000 neural networks were generated. Of these, 5 networks were preserved, which show the best parameters. Their overview is given in table number 2.

Tab. 1: Overview of preserved neural networks

Index	Network name	Training perf.	Testing perf.	Validation perf.	Training error	Testing error	Validation error	Training algorithm	Error function	Activ. Of hidden layer	Output activ. funct.
1	RBF 1-22-1	0.976717	0.990200	0.981291	2934406	1486327	2303652	RBFT	Sum of sq..	Gauss	Identity
2	RBF 1-21-1	0.980752	0.994040	0.981226	2429586	1528877	2305187	RBFT	Sum of sq..	Gauss	Identity
3	RBF 1-29-1	0.980805	0.991049	0.983911	2422931	1506385	1945204	RBFT	Sum of sq..	Gauss	Identity
4	RBF 1-25-1	0.979270	0.991914	0.981607	2614728	1343300	2402934	RBFT	Sum of sq..	Gauss	Identity
5	RBF 1-24-1	0.979458	0.991623	0.980938	2591340	1413482	2353812	RBFT	Sum of sq..	Gauss	Identity

Source: Authors.

These are only neural networks of the radial basis function. There is only one variable in the input layer – time. In the hidden layer, neural networks contain from 21 to 29 neurons. In the output layer, we logically have a single neuron and a single output variable, the trade balance of the USA and the PRC. The RBFT training algorithm was applied to all networks. In addition, all neural structures used the same function, namely the Gaussian

curve, to activate the hidden layer of neurons. They also use the same function to activate the outer layer of neurons, namely an identity function (see Table 2 for more details).

Training, testing and validation performance is definitely also interesting. In general, we are looking for a network that has ideally the same performance in all data sets (we remind you that the division of data into sets took place randomly). The error should be as little as possible.

The performance of individual data sets is given in the form of a correlation coefficient. The values of individual data sets according to specific neural networks are given in table number 3.

Tab. 3: Correlation coefficients of individual data sets

Neural network	Balance (Training)	Balance (Testing)	Balance (Validation)
1.RBF 1-22-1	0.976717	0.990200	0.981291
2.RBF 1-21-1	0.980752	0.994040	0.981226
3.RBF 1-29-1	0.980805	0.991049	0.983911
4.RBF 1-25-1	0.979270	0.991914	0.981607
5.RBF 1-24-1	0.979458	0.991623	0.980938

Source: Authors.

The table shows that the performance of all preserved neural structures is approximately identical. Slight differences have no effect on the performance of individual networks. The value of the correlation coefficient of all training data sets ranges from more than 0.97 to more than 0.98. The value of the correlation coefficient of the testing data sets reaches more than 0.99 for all neural networks. The correlation coefficient of the validation data set of all neural networks is above the level of 0.98. In order to select the most suitable neural structure, we must perform a closer analysis of the obtained results. Table 4 offers the basic statistical characteristics of individual data sets for all neural structures.

Tab. 2: Statistics of individual data sets according to preserved neural structures

Statistics	1. RBF 1-22-1	2. RBF 1-21-1	3. RBF 1-29-1	4. RBF 1-25-1	5. RBF 1-24-1
Minimum prediction (Training)	-33,729.8	-32,812.1	-35,611.6	-30,887.5	-32,039.2
Maximum prediction (Training)	385.0	202.7	465.0	312.0	312.4
Minimum prediction (Testing)	-33,279.1	-31,325.5	-31,741.1	-30,826.9	-31,946.5
Maximum prediction (Testing)	275.2	162.1	464.2	168.6	294.9
Minimum prediction (Validation)	-33,365.7	-31,632.1	-31,812.1	-30,843.1	-31,988.5
Maximum prediction (Validation)	298.4	24.6	392.5	201.5	218.5
Minimum residues (Training)	-9,657.5	-6,683.2	-7,327.8	-7,711.6	-7,774.1
Maximum residues (Training)	9,716.2	8,571.1	8,882.7	9,283.4	10,189.8
Minimum residues (Testing)	-5,983.8	-5,753.2	-6,109.0	-5,218.5	-5,993.8
Maximum residues (Testing)	4,588.2	2,638.7	4,905.4	3,590.0	3,531.9
Minimum residues (Validation)	-6,164.3	-5,445.2	-5,767.4	-4,992.1	-6,785.3
Maximum residues (Validation)	6,573.3	8,822.7	5,667.2	7,733.7	7,408.2
Minimum standard residues (Training)	-5.6	-4.3	-4.7	-4.8	-4.8
Maximum standard residues (Training)	5.7	5.5	5.7	5.7	6.3
Minimum standard residues (Testing)	-4.9	-4.7	-5.0	-4.5	-5.0

Maximum standard residues (Testing)	3.8	2.1	4.0	3.1	3.0
Minimum standard residues (Validation)	-4.1	-3.6	-4.1	-3.2	-4.4
Maximum standard residues (Validation)	4.3	5.8	4.1	5.0	4.8

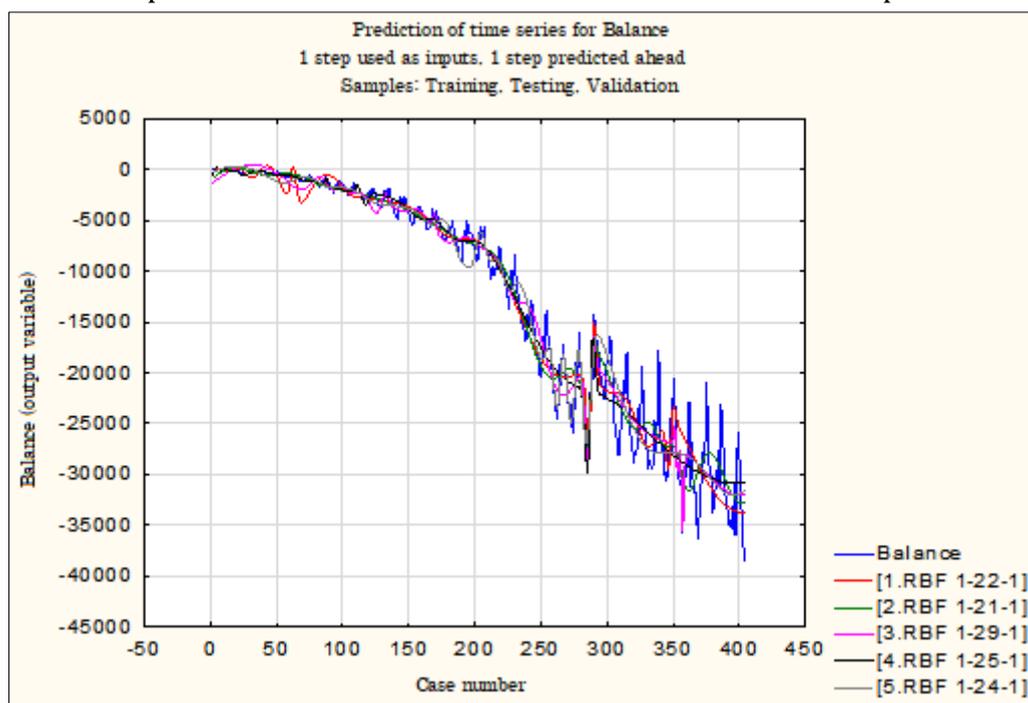
Source: Authors.

Ideally, the individual statistics of the neural network match cross-sectionally in all sets (minimums, maximums, residues, etc.). However, in the case of adjusted time series, the differences are minimal. Slightly larger differences are reflected in the characteristics of the residues. Nevertheless, we are not able to unambiguously determine which of the preserved neural networks shows the most suitable results. According to table number 4, network 3. RBF1-29-1 may appear to be the most suitable.

Figure 8 is a line chart that presents the actual development of the trade balance of the USA and the PRC, as well as the development of forecasts using individual generated and preserved networks.

The chart shows that all neural networks predict the development of the trade balance at different intervals. However, it is not the similarity of the predictions of individual networks that is important, but the similarity (or degree of similarity) with the actual development of the trade balance. In this respect, too, it can be stated that all preserved neural networks look very interesting at first glance. They respect the directions of the curve assessing the development of the trade balance and at the same time tend to perceive the extremes of this curve.

Figure 1: Line chart – development of the USA X PRC trade balance predicted by neural networks in comparison with the actual trade balance in the observed period



Source: Authors.

Neural structures B

Based on the established procedure, the second 100,000 neural networks were generated. Of these, 5 networks were again preserved, which show the best parameters. Their overview is given in table number 5.

Tab. 3: Overview of preserved neural networks

Index	Network name	Training perf.	Testing perf.	Validation perf.	Training error	Testing error	Validation error	Training algorithm	Error function	Activ. of hidd. layer	Output activ. funct.
1	MLP 1-3-1	0.976462	0.991988	0.977570	2975860	1304652	2683213	BFGS (Quasi-Newton) 60	Sum of sq.	Tanh	Logistic
2	MLP 1-2-1	0.977073	0.992287	0.977253	2888833	1327057	2697966	BFGS (Quasi-Newton) 62	Sum of sq.	Logistic	Exponential
3	MLP 1-2-1	0.978396	0.992555	0.978855	2724112	1273146	2530060	BFGS (Quasi-Newton) 86	Sum of sq.	Tanh	Logistic
4	MLP 1-6-1	0.972798	0.988162	0.977224	3557611	1995474	2934979	BFGS (Quasi-Newton) 6	Sum of sq.	Sinus	Tanh
5	MLP 1-3-1	0.972993	0.988820	0.977645	3402392	2061365	2649306	BFGS (Quasi-Newton) 27	Sum of sq.	Sinus	Tanh

Source: Authors.

In line with the aim of this paper, these are only MLP networks. There is again only one variable in the input layer - time. In the hidden layer, neural networks contain 2 to 6 neurons. In the output layer we have a single neuron and a single output variable, i.e., the trade balance of the USA and the PRC. The Quasi-Newton training algorithm was applied to all networks. Neural structures used the sine, hyperbolic tangent and logistic functions to activate the hidden layer of neurons, and the logistic, exponential and hyperbolic tangent functions to activate the output layer (see Table 5 for more details). All preserved neural structures used the sum of least squares as the error function.

The values of correlation coefficients expressing the performance of individual data sets according to specific neural networks are given in Table 6.

Tab. 4: Correlation coefficients of individual data sets

Neural Network	Balance (Training)	Balance (Testing)	Balance (Validation)
1.MLP 1-3-1	0.976462	0.991988	0.977570
2.MLP 1-2-1	0.977073	0.992287	0.977253
3.MLP 1-2-1	0.978396	0.992555	0.978855
4.MLP 1-6-1	0.972798	0.988162	0.977224
5.MLP 1-3-1	0.972993	0.988820	0.977645

Source: Authors.

The table shows that the performance of preserved neural structures differs only minimally. The value of the correlation coefficient of all training data sets ranges from more than 0.972 to more than 0.978. The value of the correlation coefficient of the test data sets falls in the range from more than 0.988 to more than 0.992. The correlation coefficient of the validation data set ranges from more than 0.977 to more than 0.978. Based on the performance of individual data sets, all stored structures appear to be usable neural networks. In order to select the most suitable neural structure, we must perform a closer analysis of the obtained results. Table 7 offers the basic statistical characteristics of individual data sets for all neural structures.

Tab. 5: Statistics of individual data sets according to preserved neural structures

Statistics	1.MLP 1-3-1	2.MLP 1-2-1	3.MLP 1-2-1	4.MLP 1-6-1	5.MLP 1-3-1
Minimum prediction (Training)	-33,188.3	-32,508.6	-32,326.8	-34,370.7	-34,674.8
Maximum prediction (Training)	-72.5	212.2	-621.2	124.8	-471.3
Minimum prediction (Testing)	-31,992.2	-31,504.4	-31,652.8	-32,049.5	-31,909.1
Maximum prediction (Testing)	-79.2	185.2	-628.8	123.6	-471.7
Minimum prediction (Validation)	-32,097.0	-31,592.4	-31,715.0	-32,227.4	-32,122.6
Maximum prediction (Validation)	-86.4	156.8	-637.0	122.3	-472.6
Minimum residues (Training)	-7,515.6	-7,532.1	-6,966.7	-8,132.8	-9,098.3
Maximum residues (Training)	9,286.3	9,067.3	9,552.5	8,637.7	7,993.4
Minimum residues (Testing)	-5,516.0	-5,641.1	-5,083.1	-6,225.7	-7,023.1
Maximum residues (Testing)	4,033.0	3,715.5	3,416.7	4,605.7	3,832.2
Minimum residues (Validation)	-6,160.4	-6,499.3	-6,283.1	-5,645.4	-6,333.9
Maximum residues (Validation)	7,169.1	7,188.7	7,695.1	6,669.0	5,646.7
Minimum standard residues (Training)	-4.4	-4.4	-4.2	-4.3	-4.9
Maximum standard residues (Training)	5.4	5.3	5.8	4.6	4.3
Minimum standard residues (Testing)	-4.8	-4.9	-4.5	-4.4	-4.9
Maximum standard residues (Testing)	3.5	3.2	3.0	3.3	2.7
Minimum standard residues (Validation)	-3.8	-4.0	-4.0	-3.3	-3.9
Maximum standard residues (Validation)	4.4	4.4	4.8	3.9	3.5

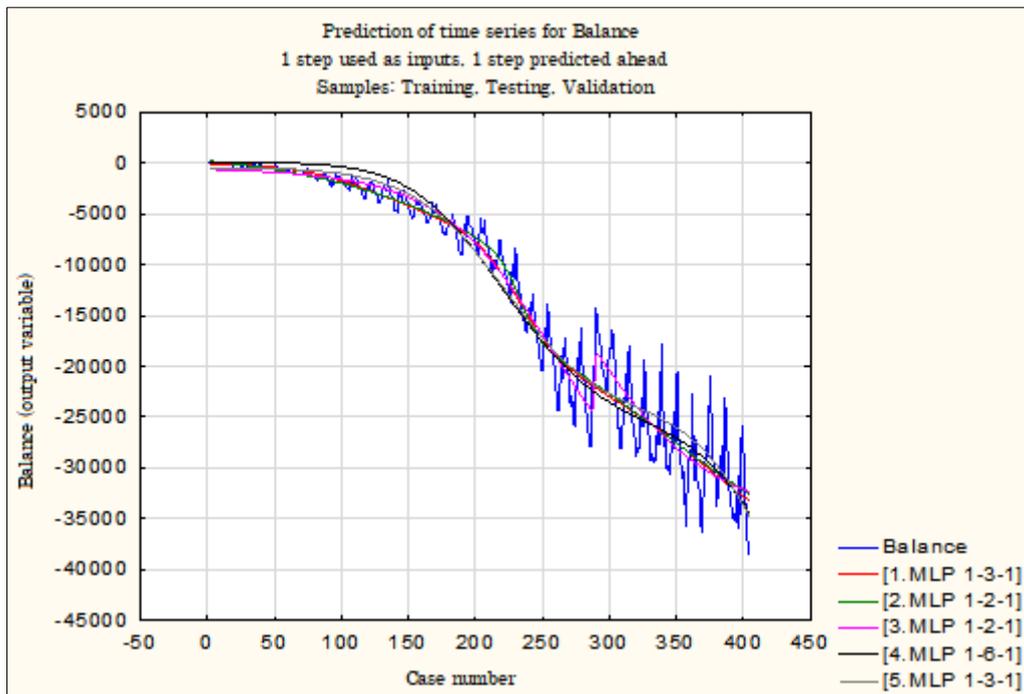
Source: Authors.

Ideally, the individual statistics of the neural network match cross-sectionally in all sets (minimums, maximums, residues, etc.). Even this table shows only minimal differences at both absolute and residual values. Even at this stage, we are not able to unambiguously determine which of the preserved neural networks shows the most suitable results.

Figure 3 is a line chart that presents the actual development of the trade balance of the USA and the PRC, as well as the development of forecasts using individual generated and preserved MLP networks.

The chart shows the differences between reality and adjusted time series and at the same time between individual time series. All preserved MLP networks adjust the time series. In the case of the 3.MLP 1-2-1 network, an attempt can be made to identify two local extremes. Due to the beginning of the time series, 4.MLP 1-6-1 and 5.MLP 1-3-1 can be excluded from considerations regarding the use of preserved neural structures.

Figure 2: Line chart – development of the USA X PRC trade balance predicted by neural networks in comparison with the actual trade balance in the observed period



Source: Authors.

The remaining three neural networks give approximately the same power. These are 1.MLP 1-3-1, 2.MLP 1-2-1 and 3.MLP 1-2-1.

Comparison of results between A and B

All generated and preserved artificial neural networks were able to adjust the examined time series – the trade balance of the USA and the PRC. The correlation coefficients of the individual sets, as quantified in Tables 3 and 6, foreshadow the minimum difference between the RBF and MLP networks. The differences of the correlation coefficients of the individual data sets are given in Table 8.

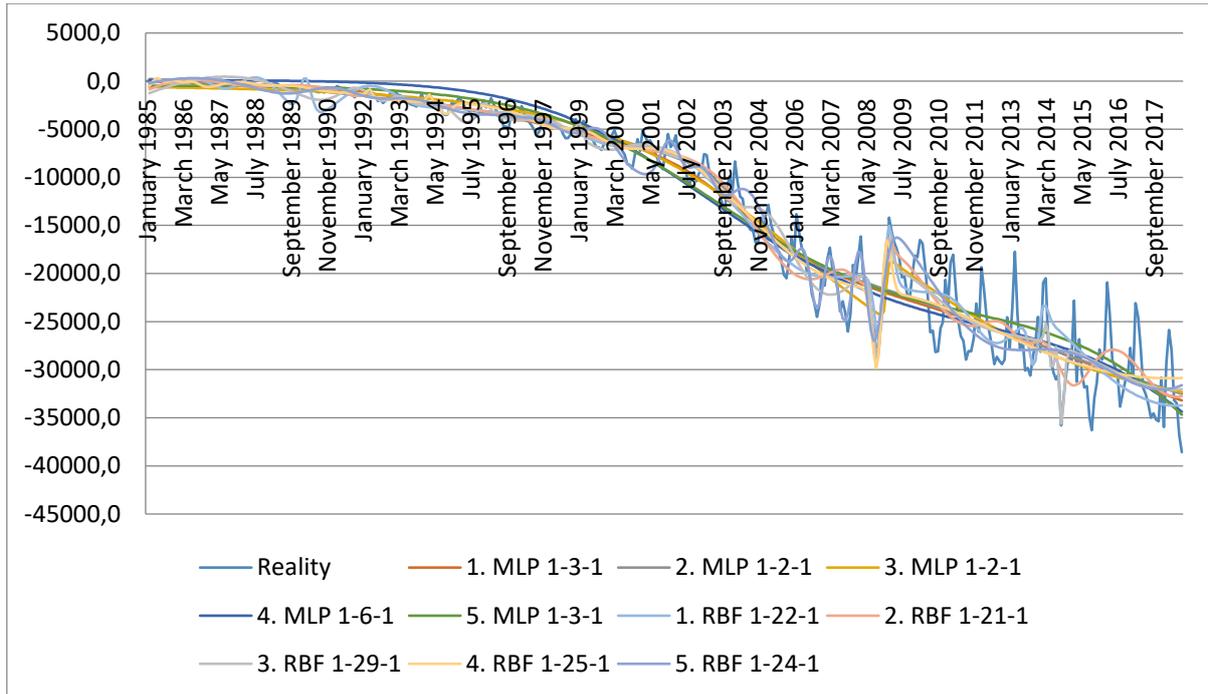
Tab. 6: Differences in correlation coefficients of individual data sets of RBF and MLP networks

Line number	Line name	Balance (Training)	Balance (Testing)	Balance (Validation)
1	1.RBF 1-22-1	0.976717	0.990200	0.981291
2	2.RBF 1-21-1	0.980752	0.994040	0.981226
3	3.RBF 1-29-1	0.980805	0.991049	0.983911
4	4.RBF 1-25-1	0.979270	0.991914	0.981607
5	5.RBF 1-24-1	0.979458	0.991623	0.980938
6	1.MLP 1-3-1	0.976462	0.991988	0.977570
7	2.MLP 1-2-1	0.977073	0.992287	0.977253
8	3.MLP 1-2-1	0.978396	0.992555	0.978855
9	4.MLP 1-6-1	0.972798	0.988162	0.977224
10	5.MLP 1-3-1	0.972993	0.988820	0.977645
11	l. 1-6	0.000254	-0.001788	0.003722
12	l. 2-7	0.003679	0.001753	0.003973
13	l. 3-8	0.002410	-0.001506	0.005056
14	l. 4-9	0.006473	0.003752	0.004383
15	l. 5-10	0.006465	0.002803	0.003293

Source: Authors.

From the generated neural networks, 5 artificial structures were always preserved. It can be assumed that the preserved networks were arranged in order from the one with the best characteristics to the one with the weakest characteristics (meaning only from the set of preserved neural networks). Therefore, to demonstrate the difference in network performance, the correlation coefficients of MLP networks in the same place in the order of the preserved networks were subtracted from the correlation coefficients of the RBF networks. According to the table, the differences are absolutely minimal, in the order of a fraction of thousandths. Nevertheless, with the exception of two differences, the results are positive. This means that RBF networks demonstrate, albeit very slightly, higher performance on all data sets than MLP networks. The situation is repeated when evaluating the basic statistics of predictions, adjusted time series, in Tables 4 and 7. Preserved RBF networks, and their adjusted time series, show smaller differences in the set of training, testing and validation than in the case of MLP networks. All this is finally confirmed by Figures 2 and 3. Figure 4 summarises the course of all preserved neural networks and the actual course of the trade balance of the USA and the PRC.

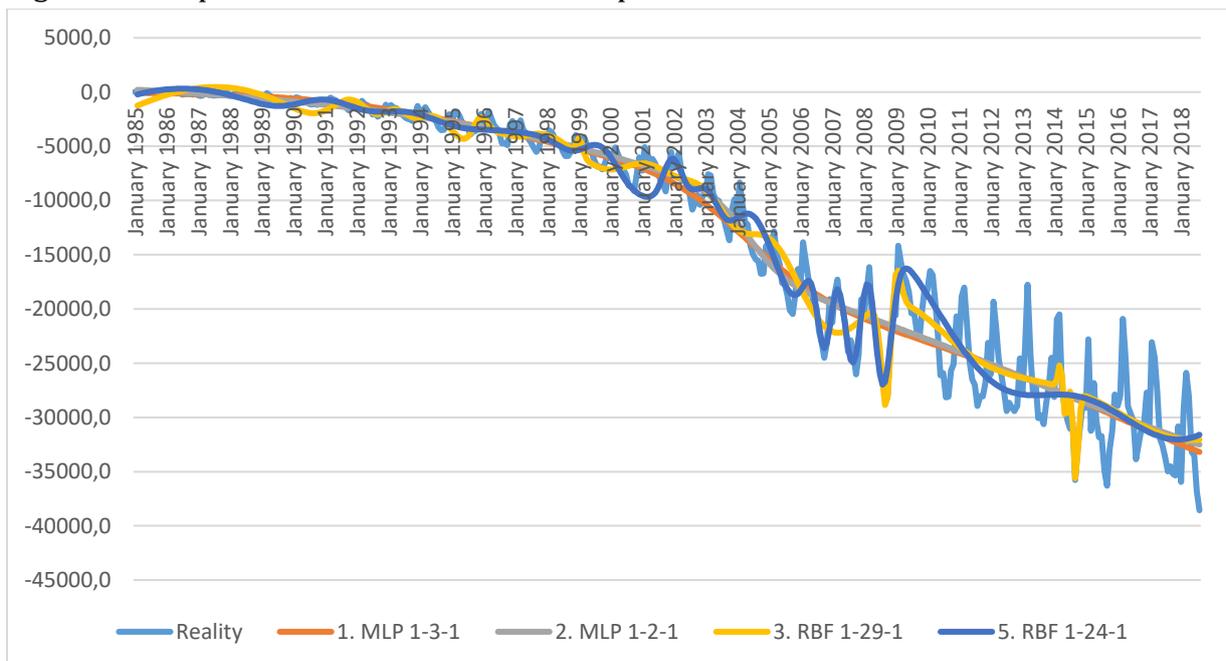
Figure 3: Comparison of preserved MLP and RBF networks



Source: Authors.

Not only from the figure, but also from previous analyses, it was possible to identify that the best networks between RBFs are 3.RBF 1-29-1 and 5.RBF 1-24-1. Among the MLPs, the best results are shown by the neural networks 1.MLP 1-3-1, 2.MLP 1-2-1 and 3.MLP 1-2-1. For a better overview, we will compare the two most successful neural networks from preserved sets (for more details, see Figure 5).

Figure 4: Comparison of the most successful preserved MLP and RBF networks



Source: Authors.

At first glance, it is quite obvious that only RBF networks of variant A show a greater ability to affect the time series according to its actual course (and let us add that they affect the two compared RBF networks as well). On the contrary, both shown time series adjusted by MLP networks generate significantly larger residues, especially in the middle and final phase of the observed time period.

Conclusion

The aim of the paper was to analyse and evaluate the performance of multilayer neural networks (hereinafter referred to as "MLP") and neural networks of radial basis function (hereinafter referred to as "RBF") in adjusting time series using the trade balance of the United States and the People's Republic of China.

In general, each prediction is given a certain degree of probability with which it is fulfilled. When we predict the future development of any variable, we try to estimate the future development of this variable based on data from past periods. Although we can include most of the factors influencing the target quantity in the model, there is always a simplification of reality and we always work with a certain degree of probability that some of the scenarios we predict will come true.

We can state that due to the great simplification of reality, it is not possible to predict the emergence of extraordinary situations and their impact on the trade balance of the USA and the PRC (perhaps in the short term it is, in the long term certainly not). An ideal prediction would be for the order of days, but for such a short prediction it is not currently possible to obtain data.

To validate the result of Vrbka et al. (2019), we worked with a significantly greater degree of accuracy. In our experiment, we generated 100,000 and 100,000 artificial neural structures, respectively.

In our post, we have verified that:

the result of Vrbka et al. (2019) presents a generally valid result. When an adjusted time series is derived from a single variable, time, RBFs perform better than MLPs.

The trade balance of both countries can be determined on the basis of statistical methods, causal methods and intuitive methods. In this case, we compared two variants of the same statistical tool. However, they can only give us a possible framework for the development of the monitored variable. It is important to work with information on possible future developments in the economic, political or legal environment. If we are able to predict its development, we can then project it into the monitored trade balance. At the same time, however, it is the personality of the evaluator - an economist, who, based on their knowledge and experience, corrects the variable determined by general statistical methods and specified on the basis of causal links. In order to make the prediction more accurate and its calculation easier, it seems appropriate to use variant A (RBF networks), which brings a relatively high degree of accuracy. Specifically, the 3.RBF 1-29-1 and 5.RBF

1-24-1 networks show very interesting results. At the same time, we must add that the result was not refined in generating ten times more neural networks in this experiment, before Vrbka et al. (2019) did.

The aim of the paper was fulfilled.

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Financial and Informational Social Support for the Residents of the České Budějovice Region

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Abstract

Social support is a highly discussed topic not only abroad but also in Czech literature. The entry focuses on the topic of social support experienced by selected residents of the České Budějovice Region and presents the results of the conducted survey that included 700 respondents in total. The objective of our entry is to describe the subjective assessments of different dimensions of social support of selected residents. The questionnaire focused on three areas of social support: financial (instrumental) support, daily activities support, and information support. The results describe significant relations between these areas of social support and other selected questions. A statistically significant relation was however detected between financial support and sex, in which women receive help more frequently than men. Financial support is more often demanded by persons younger than 30. Older persons were more likely to receive such help. There was however discovered a statistically significant relation for socio-economic status and subjective assessment of quality of interpersonal relations.

Keywords: financial support, social support, social integration, social determinants of health

Introduction

Despite the fact that the term “social support” is relatively new according to Mareš (2002), there are several definitions in the literature (f.e. Čeněk, Smolík and Vykoukalová, 2016) that focused on this topic. Caplan (1974) describes social support as a system of formal and informal relations via which people gain resources to cope with stressful situations.

According to Cobb (1976), social support is defined as information that lead people to the assumption that they are loved, respected, and belong to a network of social relations.

In the Czech Republic, Křivohlavý (2001, p. 94) focuses on the topic and states that social support in the broader sense is defined as help that is provided by other people to a person who is in a stressful situation. Social support, according to Krpoun (2012), can also be understood as help or support that an individuum receives in situations that they understand as difficult. Such situations do not only have to be stressful situations but also common everyday moments that the majority of us experience regardless of vocation, health, or age (Krpoun, 2012).

Social integration of a person into the social structure is a significant determinant for their mental health and well-being (Šolcová and Kebza, 1999). Via social connections with others, groups, and the society, an individuum gains access to social support, meaning a sort of social fund from which individuals can gain resources if needed – a system of social relations via which people get access to help when trying to accomplish goals and fulfil demands (Šolcová and Kebza, 1999). The support resources are part of the social network of individuals (Šolcová and Kebza, 1999). These resources are primarily family, close friends, neighbors, coworkers, the community, and professionals (Kebza, 2005). Social support is an important issue in socially segregated areas and it's close connected to public health (Kozubik et al., 2018, Kozubik et al. 2019).

Social support can be divided into several categories. According to Křivohlavý (2001), social support can be categorized into three categories: a) the macro level, meaning state-wide social and economic support, or help across state borders, e.g. for areas impacted by natural disasters. Urban and Kajanová (2013) mention the example of help from social services, the system of social security, etc. The second level is the meso level that according to Křivohlavý (2001) includes help of a certain social group to one of its members or to some of their neighbors that are not part of the group but are in need – e.g. members of a sports team helping another member, etc. The last level is the micro level, on which a person is helped by a person closest to them (social support as part of a dyad – a couple of people: e.g. a mother helping her child, a spouse helping the other spouse, etc. (Křivohlavý, 2001). Slezáčková (2012) differentiates between anticipated social support (when we expect that our loved ones will help us in need) and gained social support, meaning social support/help that we have already received.

Support can be also divided into individual types. House (1981) divides support into informational, emotional, instrumental, and evaluation. Emotional support is conducted among loved ones, friends, people who have an intimate relationship (Morelli et al., 2015), in which they create a space for sharing ideas and facts (Tichon, Shapiro, 2003). Instrumental support is characterized by providing material help (Morelli et al., 2015), information, and recommendations that can lead to overcoming the difficult situation, or to finding an alternative solution (Mareš, 2002). The last category mentioned by House (1981) is evaluation as support that Mareš (2002) calls the feedback support, in which the persons reflect on their behavior or acts being appropriate or not.

The importance of social support of people is also evidenced by the fact that social support according to Wilkinson and Marmot (2005) determines health and the health condition of people. Social support and good social relations significantly contribute to health. Good social relations can lower the level of physiological reactions to stress. On the other hand, people who have less social and emotional support from others are more likely to receive less mental support, tend to suffer from depression more often, and can have more complications during pregnancy, and a higher level of disability due to chronic illnesses (Wilkinson and Marmot, 2005). The positive influence of social support on individual health is also discussed by e.g. Kaplan and Toshima (1990), or Šolcová and Kebza (1999), Uchino (2004), and many others. They discuss the relation between low social support and the occurrence of a number of illnesses or vice versa – social support being a protective factor from illnesses if the social network functions well. According to Cohen, Underwood, and Gottlieb (2000), social support is a key factor of illnesses occurring, progressing, and potential curing of mental diseases.

The objective of the entry is to describe the subjective assessment of several dimensions of social support for the residents of the České Budějovice Region. The entry primarily focuses on the topic of social support – primarily on financial (instrumental) support, informational support, and support during everyday activities. Financial support is to be taken into consideration from the perspective of its impact on the health of individuals since according to Šolcová and Kebza (1999), social economic status is an important and often overlooked stress bumper. Wilkinson and Marmot (2005) perceive it as one of the social determinants of health. Similarly to Šolcová and Kebza (1999), they also state that social economic status enables access to financial sources and education – e.g. in situations where financial funds are a prerequisite to receiving the best medical care and legal help. Education broadens the possibilities of using solving approaches when cognitively evaluating and managing stressful situations.

Methods and Data

The research was conducted via a survey, which made use of a self-designed questionnaire consisting of primarily closed scale questions focusing on areas including various aspects of using health and social services, information technology, and social support. This article results from the area focused on social support. Social support was investigated within the survey at three levels: financial support, informational support, and support during everyday activities. The questions regarding the support were then tested in relation to selected socio-demographic variables such as age, household size, age, or socio-economic status, and then also in relation to mapping questions. The specific wording of individual questions including variants of possible answers is presented within the results of this article.

The representative research sample consists of quota sampling (f.e. Disman, 2002) The quotas were determined based on sociodemographic indicators, i.e. gender and age, by random selection from among approached residents of the city České Budějovice and

neighboring municipalities who were older than 15. The amount of the respondents was N=700. In České Budějovice, there were 77,000 inhabitants in the age group in question at the time of the study. Thus the research sample comprised 1% of the population. The data matrix was statistically processed in the SPSS program. Social support was processed via the Chi-squared test, the p-value was 95%.

Results

Financial (instrumental) support

The area of financial support was researched via the question: “In the case that you need financial support, do you have someone who can help you?” The respondent then could choose between the answers Yes and No, and then could select the type of person they can turn to and evaluate their readiness to help on a 5-tier scale (never – always). 46.7% of the respondents stated that they can always or usually turn to their parents or children, 27.1% to their relatives, 18.3% to their friends. The other suggestions, such as neighbors, the municipality, or private providers were selected only seldomly. It seems that getting financial help is in close connection with interpersonal relations. However, during the statistic evaluation, there was detected no significant statistical relation ($p=0.296$) between financial support and evaluating one’s own relations. A statistically significant relation was however detected between financial support and sex ($p=0.001$; PearsonChi-Square = 11.567), in which women receive help more frequently than men, see Table 1.

Tab. 1: Sex * temporary financial support

		temporary financial support		total
		yes	no	
sex	man	128	135	263
	woman	228	138	366
total		356	273	629

Source: Authors.

It is also clear that this form of support is more often demanded by persons younger than 30 ($\text{sig.}=0.000$; PearsonChi-Square = 17.441), as shown in Table 2.

Tab. 2: Age * temporary financial support

		temporary financial support		total
		yes	no	
age	younger than 30	159	77	236
	31-50	105	101	206
	51 and older	94	95	189
total		358	273	631

Source: Authors.

A statistical significance was not proven in the case of socio-economic status ($p=0.082$), nor the size of the household ($p=0.407$). No relation was also found for the question “How do you manage your income?” ($p=0.942$).

Support during everyday activities

This area was researched via the question “Do you receive help during common everyday activities (e.g. house chores)?” in which the respondent could choose from three answers: yes, no, and no but I would like to. During the statistical testing, there was discovered a significant relation between age and sex. Older persons were more likely to receive such help (sig.=0.002; PearsonChi-Square = 27.827), see Table 3, women were too (p=0.030; PearsonChi-Square = 12,388).

Tab. 3: Age and support during everyday activities

	yes	no, but I would like to	no	total
age younger than 30	22	15	208	246
31-50	35	21	156	212
51 and older	40	28	134	202
total	97	64	499	660

Source: Authors.

Tab. 4: Sex and support during everyday activities

	yes	no, but I would like to	no	total
sex men	28	27	228	283
women	68	37	271	376
total	96	64	499	659

Source: Authors.

There was however discovered a statistically significant relation for socio-economic status (p=0.748), and subjective assessment of quality of interpersonal relations (p=0.063).

Informational support

The informational component of social support was surveyed via the question “When you need someone to talk to, share your opinions, or gather some information, do you have someone to talk to?” The question was tested with an insignificant result with the variable of evaluating the quality of interpersonal relations (p=0.668), socio-economic status (p=0.437), or age (p=0.910). One significant relation was detected – sex (p=0.004; PearsonChi Chi-Square =17,078), see Table 5.

Tab. 5: Sex and informational support

	yes	no	total
sex man	165	117	282
woman	268	102	370
total	433	219	652

Source: Authors.

Discussion

Expert literature discusses gender differences in distribution and using social support. Women seek out social support more often but also provide it more often (Fort and Murariu, 2018). It is more important for women and also influences more their life satisfaction. The situation is similar also in the results of our research, which show that the financial aspect of social support was more often provided to women than men. This is mostly conditioned by a lot of factors that are based in gender relations (Nelson and Burke, 2002).

When it comes to age, other research mostly focuses on specific influences of social support in different age groups. Support is the most important for the elderly, for whom it can lower the risk of depressive states (Stafford, Antonucci and Zaninotto, 2017). This was also confirmed by our research since support during everyday activities was significantly higher for the older age group. It also depends on the influence of the environment in which the elderly person lives (Stafford, Antonucci and Zaninotto, 2017). In the case of a home setting is the influence of social support bigger, if they live in a facility for the elderly, then the environment has a negative influence (Chruściel et al., 2018).

The influence of social support for adolescents is mostly influenced by their interpersonal relations – relations with their nuclear family and their peers at school. They are aware of primarily emotional social support, both potential and given. Adolescents do not seek out help of professionals when they are depressed, they rather focus on people that they trust and who are close to them. Trust is one of the main prerequisites for adolescents seeking out social support. The reason is primarily fearing that their problems will not be perceived as severe enough or as too severe (Camara, Bacigalupe and Padilla, 2017). When it comes to the age category, we only found out a statistically significant relation only for financial social support, which was more often used by the respondents younger than 30.

Siedlecki et al. (2013) focused on the relation between social support and how individuals are satisfied with their own lives. According to the study, it was detected that despite different social goals across different age groups of adults (older than 20) and the number of friends being lower as people age, the relation between social support and one's own satisfaction has not been significantly different.

The relation between social support and socio-economic status has not been discussed too often. In their study, Stringhini et al. (2011) compared the relation between social support and socio-economic status for the genders. Men with higher socio-economic status receive better social support. For women, there was detected no connection between social support and socio-economic status. Huurre et al. (2007) discuss the connection between social support and socio-economic status, primarily for women with lower socio-economic status who receive a lower level of social support. They also state that social support for people with a lower socio-economic status has a larger influence on their depression. However, our research has not found any significant relation between socio-economic status and selected areas of social support.

Conclusion

The objective of the entry was to identify and describe selected categories of social support, primarily focusing on financial and informational social support. The authors also researched relations between these variables (financial and informational support) and other categories (age, sex, sources of financial support, etc.).

The results show that the most common sources of financial support is provided by family members; a significant variable when providing financial support is sex (women receive this kind of support more often) and age (persons younger than 30 more commonly use this kind of support). When it came to informational social support, there was not identified a significant statistical dependence between social economic status or age but was identified for the category "sex".

The implemented research could be limited by the fact that the questionnaire was in its first stage distributed based on the availability via the researchers and then by using the snowball method in which additional respondents were recruited from contacts of already participating respondents. Due to this fact, the research sample potentially did not include the entire socio-economic spectrum which may have impacted the results.

For potential consequent research, it would be crucial to look for statistically relevant connections for financial social support and the following categories: socio-economic status and the level of subjective evaluation of poverty. The goal of such research would be to prove the connection between subjective evaluation of poverty and socio-economic status.

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How to Make Phoenix to Arise from the Ashes: Brand Loyalty as a Prospective Pillar of Branding in Tourism after Crisis COVID-19

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Abstract

Current global situation has radically examined the applicability of many managerial patterns which have been created so far. The reason is that crisis COVID-19 has changed not only established frameworks of managerial practice but also functional frameworks of consumer behaviour. There is no guaranty of occurring forecasted scenarios of market development. Black swan has flown also over the brands which have been traditionally perceived as valuable. So, the aim of this paper is to discuss brand loyalty as a prospective pillar of brand value resuscitation in tourism and to identify relevant brand value sources significant to brands characterised by loyalty. On the case study of Slovak consumer perception of brand value sources, it is possible to verify so far formulated postulates and modified theories, which take into account relevance of national psychographic specifics. Primary data used in the presented study were obtained by our own survey carried out on the sample of 2,000 respondents. The given data were statistically evaluated by the factor analysis supported by implementation of KMO Test, Barlett's test of sphericity and calculation of Cronbach's Alpha for relevant brand loyalty sources in tourism. By providing this statistical evaluation of the results, it has been possible to identify relevant brand value sources which are suitable to modify methodological apparatus of brand value building and management.

Keywords: brand, brand management, branding, brand value, brand loyalty

Introduction

Traditional econometric models of marketing analysis are dominated primarily by 1) Platonic approach to argumentation and 2) abstracting from extreme values as immanent components of surveyed statistical files and phenomena. Platonic approach to argumentation consists in focussing on explicitly defined contents and ideas of their functional mechanisms. This naturally tends to favour of existing intellectual maps and thinking constructs at the expense of pro-innovative, creative and unconventional solutions conforming to market dynamics. Abstracting from extreme values makes it impossible to explore phenomena in their entirety, and concentrates only to the extent that corresponds to Gaussian normal distribution of values. However, for the sake of a true understanding of market reality, it is necessary to realize that it is the extreme values and cases that play a key role in the context of taking competent managerial decisions. The COVID-19 pandemic has caused a 22% fall in international tourist arrivals during the first quarter of 2020, the latest data from the World Tourism Organization (UNWTO) shows. According to the United Nations specialized agency, the crisis could lead to an annual decline of between 60% and 80% when compared with 2019. Thus, also in tourism and hospitality any ex-post descriptive analyses as well as ex-ante predictive analyses and constructed models have given rise to discussions on their applicability in the context of the current challenges of marketing management. Among them, the phenomenon of the black swan is dominant, which confronts hitherto created concepts of marketing management with the reality of uncertainty in economic environment. This creates space for building a relevant theoretical basis for optimizing of the decision-making processes of brand managers.

Literature Review

Brand loyalty is traditionally considered as one of the key aspects of effective brand value building and management across products and markets. Fernandes and Moreira (2019) analysed differences in consumer brand engagement according to the functional or emotional nature of consumer-brand relationships and its direct and/or indirect impact on brand loyalty. Khamitov et al. (2019) found out that while elasticities are generally highest for love-based and attachment-based brand relationships, the positive influence of brand relationships on customer brand loyalty is stronger in more recent (vs. earlier) years, for nonstatus (vs. status) and publicly (vs. privately) consumed brands, and for estimates using attitudinal (vs. behavioral) customer brand loyalty. Drawing on relational tie theory and theory of trust, Ozdemir et al. (2020) examine the role of affective and cognitive trust in mediating the relationship between corporate brands and consumers, and in loyalty towards corporate brands of national dairy products in China. They find out that while cognitive trust mediates the relationships between certain corporate brand and consumer constructs, including corporate brand competence and corporate brand communication and loyalty, affective trust mediates the effect of loyalty on corporate brand and consumer relationship constructs, including corporate brand communication,

corporate brand liking and corporate brand similarity. According to Huang et al. (2020), brand image is indirectly correlated with both repurchase and advocacy intention through cognitive brand trust, and brand image is indirectly related to advocacy intention through affective brand trust. Cuong et al. (2020) use social exchange theory and the principle of reciprocity in proposing a theoretical model to examine the essential but unexplored unique roles of individual customer equity drivers and their contribution to brand loyalty. Their study identifies a reciprocity pathway in that brand equity, which mediates the linkage between relationship equity and brand loyalty. However, brand loyalty is not analysed in details in scope of tourism and hospitality. Its importance is only stated on the positive basis of experience form other industries. Few brand loyalty specified on tourism mostly discuss location branding. Liu et al. (2020) examine to what extent emotional place attachment is impacted by people's feelings towards international companies associated with the place, and what mechanism and conditions drive such effects. They highlight that tourism marketers need to appropriately manage perceptions of local brands' authenticity and consider cultural distance when designing destination campaigns in their efforts to strengthen place attachment. This is the reason why Mody et al. (2017) conclude that while many research focused on brand loyalty has been conducted at the destination level, tourists' loyalty towards their intermediary has not been considered. Nowadays, this fact is partially invalidated by Taylor et al. (2020) who pay attention to the specific interaction between brand loyalty in case of places, tour operators and hospitality services providers. Another trend in modern tourism branding research is the phenomenon of sharing economy. Mody and Hanks (2020) state that hotels and Airbnb draw upon different sources of authenticity to create brand-loving customers. Their results indicated that Airbnb leverages brand, existential, and intrapersonal authenticity in creating brand-loving and brand-loyal customers, while hotels utilize only brand authenticity. Thus, the keys to creating customers who love and are loyal to the brand differ between hotels and Airbnb. Implications for theory and practice are discussed, and areas of future research are identified. As a rapidly evolving global pandemic, COVID-19 provides several opportunities for tourism researchers to study the resilience of the tourism industry from a socioecological system perspective (Prayag, 2020). COVID-19 is widely recognised as a challenge or even a game-changer for travel and tourism (Higgins-Desbiolles, 2020). Sigala (2020) on the contrary discusses why and how the COVID-19 can be a transformational opportunity by discussing the circumstances and the questions raised by the pandemic. Shao et al. (2020) provide insights into further research on health-related crises and crisis recovery management in tourism, especially for developing countries and regions by identifying four core themes of interest, namely (i) prophylactic measures, (ii) tourism recovery and development, (iii) policy support, and (iv) departmental management. Assaf and Scuderi (2020) develop their theory and analyse separately brand loyalty as relevant aspect of managing brand value in contemporary post-COVID-19 time. However, detailed analysis of brand value sources significant for brands characterized by loyalty presence is missing.

Methods and Data

According to the literature review above, the main aim of the article is to identify brand value sources of loyalty which are relevant to brand value building management in tourism. To achieve this aim, we have used the data from our own research provided on the socio-demographically representative sample of 2,000 respondents during the first half of 2020. This research has been conducted via a questionnaire survey in the form of computer-assisted web interviewing respecting the ICC/ESOMAR International code on Market, Opinion and Social Research and Data Analytics. The questionnaire was administered in Slovak Republic among its inhabitants over 15 years of age. Thus, the main presumption of autonomous buying decision-making has been fulfilled because this age is considered as a basic presumption for legal working subjectivity. The questionnaire consisted of three parts with the following reasoning:

- the first part covered the general socio-demographic profile of respondents;
- the second part covered questions about perception of brand value sources generally, and
- the third part covered questions about perception of brand value sources in details across the traditional typology of buying behavior and representative product categories.

Brand value sources are analyzed in their traditional structure defined by Aaker - that is, (1) imageries; (2) attitudes; (3) attributes, and (4) benefits. The components of brand value sources are set in accordance with provided literature review and with relevance to so far identified specifics of psychographic profile of Slovak consumers (See Table 1).

Tab. 1: Coding of brand value sources and their components relevant to further research evaluation

Brand Value Sources	Components of Brand Value Sources	Code
imageries	happiness	4
	expectations	5
	satisfaction	1
	certainty	2
	positive associations	3
attitudes	I aim to buy branded products	13
	I am interested in branded products on a regular basis	12
	branded products attract my attention because I consider them better	11
	branded products attract my attention because I consider them more prestigious	14
attributes	quality	19
	creativity of ad	16
	popularity	15
	availability	17
	innovativeness	18
benefits	branded product makes me happier	10
	branded product increases my social status	8
	branded product makes it easier for me to get friends	6
	branded product attracts the attention of others	7
	branded product belongs to my lifestyle	9

Source: Authors.

Factor analysis has been chosen as the main statistical tool for evaluation of the consumer's perception of brand value sources in case of brand loyalty in tourism. This analysis is one of the groups of multidimensional statistical methods which are used to create so-called factors (previously unobservable variables) to reduce the amount of originally set attributes without losing the relevant information obtained inside the data set. Recently, this statistical tool has been used with higher frequency in the social sciences due to the boom in information technology development and the need of reducing subjectivity. The definition of the relevant statistical model as well as the identification of rational assumptions is the base of this analysis. In the process of identification of relevant factors, it is primarily important to identify and test the dependence between originally defined variables through the correlation matrix. The basic presumption for the data reduction is the correlation of these variables verified by the correlation matrix creation as well as the fulfilment of the assumption that identified correlation exists as a consequence of less undetected hidden variables (factors). Based on this, it is possible to diversify originally defined variables into partial groups. In these groups, there are unified factors which internally correlate more inside the group than in comparison with other groups.

We assume that x is a p -dimensional random vector of the considered variables with a vector of mean values μ , a covariance matrix $C(X) = \Sigma$, and a correlation matrix of simple correlation coefficients $P(X) = P$. One of the basic assumptions of factor analysis is the existence of R common background factors F_1, F_2, \dots, F_R ; trying to have them as little as possible, preferably less than p . The P -dimensional random vector consists of the j -observable random variables $x_j, j = 1, 2, \dots, p$; which can be expressed by Equation (1) as

$$X_j = \mu_j + \gamma_{j1}F_1 + \gamma_{j2}F_2 + \dots + \gamma_{jR}F_R + \varepsilon_j, \quad (1)$$

where $\varepsilon_1, \varepsilon_2, \dots, \varepsilon_p$ are p stochastic error terms referred to as specific factors. If we write this in matrix, we get the Equation (2):

$$x = \mu + \Gamma f + \varepsilon, \quad (2)$$

where Γ is a matrix of factors loadings type $p \times R$; f is R -member vector of common factors, and ε is p -member vector of specific factors. Factors loadings can be considered as regression coefficients p of observed variables on R nonobservable factors, and when certain conditions of solution are met, they are also covariance between the original and the new variables. Factors loadings can be interpreted as the contribution of the r -factor of the j -specified variable, when the same units of measurement are used. To determine the adequacy of the statistical sample, we use the KMO (Kaiser–Meyer–Olkin) Test Equation (3):

$$KMO = \frac{\sum_{j \neq j'}^p \sum_{j \neq j'}^p r^2(x_j, x_{j'})}{\sum_{j \neq j'}^p \sum_{j \neq j'}^p r^2(x_j, x_{j'}) + \sum_{j \neq j'}^p \sum_{j \neq j'}^p r^2(x_j, x_{j'} \cdot \text{other } x)} \quad (3)$$

where $r^2(x_j, x_{j'})$ are simple correlation coefficients and $r^2(x_j, x_{j'} \cdot \text{other } x)$ are partial correlation coefficients under the condition of statically constant remaining $p-2$ variables. $(x_1, x_2, \dots, x_{j-1}, x_{j+1}, \dots, x_{j'-1}, x_{j'+1}, x_p)$.

Required value of KMO test should be higher than 0.6. By acquiring it, the adequacy of statistical sample is proved. Required value of Barlett's test of sphericity should be lower than 0.05. By acquiring it, the dependence between variables is proved. Required value of Cronbach's Alpha should be higher than 0.8. By acquiring it, the intrinsic consistency of the factors is proved. Detection of the optimal values of these tests forms appropriate basis to the identification of the order of brand value sources.

Results

The KMO (Kaiser–Meyer–Olkin) test has indicated the adequacy of the statistical sample used (> 0.6). When testing the brand value sources in tourism, a value of 0.931 has been acquired. Bartlett's test of sphericity has proved the existence of dependence between variables by acquiring a resulting value of 0.00 (< 0.05). The testimonial value of factor analysis in the case of research on sources of brand value in general has reached a value of 74.617% (Table 2).

Tab. 2: Total variance explained

Code 4	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.500	50.002	50.002	9.500	50.002	50.002	4.177	21.982	21.982
2	2.080	10.949	60.951	2.080	10.949	60.951	3.941	20.741	42.723
3	1.456	7.665	68.616	1.456	7.665	68.616	3.125	16.446	59.170
4	1.140	6.001	74.617	1.140	6.001	74.617	2.935	15.448	74.617
5	0.685	3.606	78.223						
6	0.480	2.527	80.751						
7	0.425	2.235	82.986						
8	0.413	2.171	85.157						
9	0.392	2.061	87.218						
10	0.359	1.889	89.106						
11	0.309	1.625	90.732						
12	0.294	1.547	92.279						
13	0.280	1.473	93.752						
14	0.261	1.372	95.124						
15	0.247	1.301	96.426						
16	0.222	1.169	97.595						
17	0.171	0.899	98.494						
18	0.151	0.797	99.291						
19	0.135	0.709	100.000						

Source: Authors.

In the case of brand value sources which are significant for brand loyalty in tourism, the existence of four relevant factors with significant components has been proven. These factors are: 1) *imageries* with five components where the value of Cronbach's Alpha was 0.854; 2) *benefits* with five components where the value of Cronbach's Alpha was 0.837; 3) *attitudes* with four components where the value of Cronbach's Alpha value was 0.841 and 4) *attributes* with five components where the value of Cronbach's Alpha was 0.869 (Table 3).

Tab. 3: Rotated component matrix

Code 4	Brand value source			
	Imageries	Benefits	Attitudes	Attributes
1	0.800			
2	0.781			
3	0.776			
4	0.767			
5	0.751			
6		0.880		
7		0.860		
8		0.850		
9		0.604		
10	0.521	0.531		
11			0.812	
12			0.784	
13			0.762	
14		0.437	0.643	
15				0.784
16				0.752
17				0.747
18				0.586
19	0.417		0.411	0.559

Source: Authors' own research in SPSS.

It has been also detected that, in the case of some components, their incorporation into factors is variant, more specifically in the case of: 1) branded products make me happier (imageries vs. benefits); 2) branded products attract my attention because I consider them more prestigious (benefits vs. attitudes) and 3) quality (imageries vs. attitudes vs. attributes).

Discussion

The imageries have been identified as the main brand value source relevant to loyalty creation and establishment in tourism. It means that components as happiness, expectations, satisfaction, certainty and positive associations are for consumers more important than quality (included simultaneously as component in various brand value sources) resp. social status (included in benefits). This finding is even more important in scope of COVID-19 crisis times due to the fact that "certainty" is connected with consumer expectations focused on health security and public safety. Similarly, as it is stated by Khamitov et al. (2019) and Ozdemir et al. (2020), brand loyalty is a relevant driver of brand success if it is created on appropriate brand value sources. It has been also developed the concept of Taylor et al. (2020) where integrated view on tourism has been applied without taking into consideration internal variability of tourism research. However, it would be useful to apply for comparative reasons also this wider point of view as COVID-19 crisis has specific impact on 1) place branding vs. 2) branding of tourism and hospitality services providers. It is mainly because of the trend stated by Mody and Hanks (2020) who have found out that the keys to creating customers who love and are loyal to the brand differ between hotels and Airbnb. Contemporary global situation indicates the

change of preferences in tourism in favour of the sharing economy concepts. The reason are the concerns about the COVID-19 pandemic on public places. This assumption can be considered as one of the most important challenges which have been highlighted by Prayag (2020) and Higgins-Desbiolles (2020). On the contrary, Sigala (2020) perceive COVID-19 as a transformational opportunity. In accordance with this approach, it can be concluded that systematic exploitation of brand loyalty benefits in brand value building and management in tourism and systematic revision of so far formulated branding patterns, is relevant response to the opportunity created by COVID-19 pandemic. However, research outcomes have some significant limitations of general applicability. They lie in the fact that the recommendations which have been done on the basis of research outcomes are valid only in scope of Slovak consumer's preferences. Thus, possible implementations of statements which result from research itself are applicable only in case of tourism services focused on Slovak consumers (domestic or foreign).

Conclusion

The aim of the paper was to constructively discuss brand loyalty as a prospective pillar of brand value resuscitation in tourism. On the case study of Slovak consumer perception of brand value sources, it has been possible to identify relevant brand value sources significant to brands characterised by loyalty. Methodologically, primary data used in the presented study were obtained by our own survey carried out on the sample of 2,000 respondents. The given data were statistically evaluated by the factor analysis supported by implementation of relevant statistical tests. It has been found out that these brand value sources are: 1) *imageries*; 2) *benefits*; 3) *attitudes* and 4) *attributes*. Thus, it has been created a valuable source of relevant information with anticipation to enhance and deepen the understanding of previous practice as well as to provide relevant content to consumers, responding to rapidly changing consumer demands and expectations in times of black swan appearance.

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Importance of Advertising Media Attributes in the Context of Long-Term Brand Building in Slovakia

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Abstract

The aim of this paper is to understand which attributes Slovak marketers consider to be the most important and consequently which media they perceive to meet those requirements best. The first part of the analysis represents the answer to the supporting research question: What do Slovak marketers consider to be the most important attributes of the advertising medium in delivering a brand building campaign. The relative importance of attributes was evaluated using MaxDiff analysis where respondents were asked to trade off the most and least important attributes in 9 different combinations of 4 attributes at the time. The responses were analysed using a simple count-based approach, which is concerned with an overall number of times the attribute was seen as the “most important” for the long-term brand building when the respondent was forced to make a choice between attributes. The purpose of this article is to help Slovak marketers become aware of their current perception of advertising media and whether this perception needs to be re-evaluated in order to prevent potential negative long-term consequences of incorrect media decisions as experienced in other countries. Therefore, this paper aims to assess the current state of the Slovak advertising industry in terms of ability to evaluate the effectiveness of advertising media to grow brand in a long-term by identifying the most important attributes Slovak marketers consider when choosing media for a brand campaign.

Keywords: media effectiveness, brand building, advertising media

Introduction

In recent years the issue of marketing accountability and effectiveness is being under the spotlight. This can be observed in a large number of new effectiveness studies carried out by independent researchers using robust datasets and methodologies. Apart from these

studies, this issue has been acknowledged as an industry priority by influential bodies such as Association of National Advertisers and the Marketing Science Institute as well as many industry leaders such as Tom Goodwin, Mark Ritson, Les Binet, Samuel Scott and others for more than ten years, yet the reason for this attention is still more than vital.

The reason for this ongoing debate is the observable trend of declining effectiveness of marketing campaigns and marketing overall (Kanso, 1995). This issue was initially brought up to more general and non-academic audience by Les Binet and Peter Field back in 2007, when they published a breakthrough and empirically grounded report “Marketing in the Era of Accountability“ analysing in detail entries to IPA Effectiveness Awards in the United Kingdom (UK) over past 9 years in order to find out what inputs of marketing campaign contributed towards profitability (Binet and Field 2007). IPA database represents probably the most comprehensive data source of this type in the world, therefore this report received substantial recognition in the UK and global advertising community. This work was then followed by another study: “The Long and the Short of It” six years later where they argued that focus on achieving short-term results will undermine long-term performance and that present-day trend is strongly towards achieving short-term results and following short-term metrics which will harm brands in the future. This was also claimed by another report “Mounting Risks to Marketing Effectiveness “commissioned by Magnetic and carried out by Enders Analysis in 2017 where they correspondingly observed that growing focus on short-term results paired with digital media landscape risks harming long-term ROI, brand equity and consumer satisfaction.

Binet and Field researched IPA Databank for almost twenty years with a sole purpose to uncover general principles about what makes marketing communication effective, what makes it work and what sells products (Binet and Field 2013). They identified two effects produced by marketing communication which they labelled as “**brand building**” and “**sales activation**”. These two effects work in a synergy enhancing each other, therefore the challenge for marketers is to find the right balance of these activities. Digital channels made sales activation easier, cheaper and more efficient therefore more focus and resources should go to brand building; however, the reality is opposite. However, according to research, this mix is currently imbalanced.

Binet and Field managed to identify three factors contributing to the observed loss of campaign effectiveness. Firstly, the **growth of “short-term” and its impact on communication strategy and media choice**. This means that the duration of campaigns shortens what favours especially digital targeted media. **The consequent focus on return-on-investment metric (ROI)** in its impact on budget and communication strategy. Adoption of this metric pushes marketers towards shorter campaigns, digital channels that are easy to measure, and “low-hanging fruit” represented by exploiting existing customer base (Binet and Field 2017). These are more likely to result in better ROI and immediate sales but do not deliver profit growth. **Lastly, the growth of over-weighting of all campaigns, whether short or long-term, towards sales activation over the brand building.** “Many marketers tend to think that the key to effectiveness is sales activation,

which has become the dominant model for a lot of digital activity, but it is actually brand building that drives the long-term sales of a brand", Alderson said.

They attribute the existence of these symptoms to two significant events that had impacted the global advertising industry. Firstly, the global financial crisis in 2008, which until these days left companies efficiency focused and risk-averse when it comes to investing in long-term marketing initiatives (Cameron, 2018). Secondly, it is the ongoing digital revolution that brought an abundance of new marketing channels, tools, and tactics which distract marketers from strategic and long-term activities (Gajanova, Nadanyiova and Moravcikova, 2019). A mentioned triplet of the outcomes of these trends reinforces each other and led to inefficient media mixes, unbalanced communications budgets, under-investment in marketing communication, less effective creative strategies, slower growth, and smaller profits (Krizanova et al. 2019). Marketers need to achieve a better balance between short and long-term if they want to exploit the full potential of marketing in today's media landscape.

One of the most crucial areas when it comes to establishing the correct balance is the ***choice of advertising media and their mix***. The research did enable to observe whether individual media are more strongly associated with short or long-term effects, therefore, sales activation and brand building. Media fall clearly to one side or the other of this divide but rarely both (Ližbetinová and Hitka, 2016). This divide should, for example, inform marketers whether using short-term metrics such as ROI will flatter certain media and make them appear less effective than they actually are. Channels that are good at one tend to be less good at the other (Stefanikova, Rypakova and Moravcikova, 2015).

Khan researched the influence of advertising media attributes on media preference among practitioners. In their study they identified and tested following list of advertising media attributes: clarity of message, capacity to depict the product, display of maximum information, ease of describing, deliberate repetition is possible, carries maximum promotional offers, can know the place of availability, provides comparative advertising, and provides referential evidence (Khan, 2017). In 2018 Ebiquity, Plc. conducted a study where they put perceptions of agencies and advertisers against the evidence. Their objective was to help advertisers re-evaluate their media effectiveness perceptions when it comes to long-term brand building. Based on their own review of the literature and expert opinions they have collected a composed a list of advertising media attributes.

Tab. 1: Attributes of advertising media

Attributes of advertising medium	
Targets the right people in the right place at the right time	Ability of the medium to target in this way.
Increase campaign ROI	Proven to increase overall campaign ROI (return on investment).
Triggers a positive emotional response	Emotional connection: Ability to trigger a positive emotional response (mood). Seamless experience: Non-interruptive seamless part of the media experience.
Increase brand salience	Enhances long-term brand equity and the degree to which the brand is noticed or thought about in a buying situation.
Maximises campaign reach	Maximises 1+ campaign reach (either as a primary driver of reach or extending reach of other media).
Gets your ads noticed	Level of ad avoidance: Extent to which consumers can deliberately ignore or avoid seeing ads. Stature and standout: Medium's sheer physical size, scale and viewability. Memorability: Medium's ability to make ad/brand message, audio or visual memorable and easy to recall. Amplification: Medium's ability to get audience talking and sharing your message on and offline.
Low audience delivery cost	Media cost per thousand (CPM).
Builds campaign frequency	Builds frequency as a single medium or in a multi media campaign.
Guarantees a safe environment	Ad appears in an environment that is third party regulated, ad is guaranteed not to appear in an inappropriate context.
Short-term sales response	Ability to activate sales in the short-term.
Transparent third party audience measurement	Audience measurement tool is fully transparent and verified by third parties. Transparent post-campaign delivery reports are provided.
Low production cost	Production as a % of media cost

Source: Ebiquity, 2018.

Methods and Data

The decline in marketing effectiveness is a relevant contemporary issue receiving substantial worldwide recognition. Amongst others, this decline has been attributed to current disbalance between brand building and sales activation in advertising. The

disbalance is partially caused by incorrect media choices done by advertisers and agencies because of their unconscious bias towards digital media channels, and lack of market orientation, which skewed marketers too much towards sales activation instead of building brands which is more important in a long-term. The landscape of Slovak advertising industry in many ways resembles the UK. Therefore, there is a reason to believe that similar discrepancy between reality and perception will be present as well. Thus, this research could either help Slovak advertisers and agencies to re-evaluate their media choice and budgets to ensure they are using the most effective mix for building their brand, or it could raise awareness of this issue and prevent this negative trend and decline of effectiveness in the future. Therefore, the current paper aims to answer the following question: ***What do Slovak advertisers and agencies consider to be the most important attributes of the advertising medium in delivering a brand building campaign?***

The primary research was conducted between 8.3.2020 and 10.4.2020. Out of 82 potential respondents, 40 were reached out to with the request to take part in the research by completing the questionnaire. In the end, 40 complete surveys were received which means a response rate of 48.8%, which is considered sufficient in the case of the expert sample, who were contacted as private personas. The response rate varied between agencies and advertisers. However, the sample is balanced with 18 responses from advertisers and 22 responses from agencies.

This paper is focused to understand which attributes Slovak advertisers and agencies consider to be the most important and consequently which media they perceive to meet those requirements best. The first part of the analysis represents the answer to the supporting research question: What do Slovak advertisers and agencies consider to be the most important attributes of the advertising medium in delivering a brand building campaign? The relative importance of attributes was evaluated using MaxDiff analysis where respondents were asked to trade off the most and least important attributes in 9 different combinations of 4 attributes at the time. The responses were analysed using a simple count-based approach, which is concerned with an overall number of times the attribute was seen as the “most important” for the long-term brand building when the respondent was forced to make a choice between attributes. It was important that the alternatives to appear the same number of time and that the context of the question does not influence the choice. Thus, 9 versions of the MaxDiff design were used where each attribute was represented by a number from 1 to 12 and by using MaxDiff software questions were created. We have used Khan research for evaluating attributes of advertising media.

Results

The actual distribution of versions was tied to whether respondent actually completes the questionnaire or not, thus perfect distribution was hard to achieve. Despite this limitation, the technique was applied in order to decrease the contextual effect of the question

design. Distribution represented by the number of times each version has been completed. Even though it is not perfect, it still to a degree serves the purpose it was applied for.

When asked “Which one of the following attributes would be the 'most important' to grow your brand in a long-term, and which one would be the 'least important'?", respondents from agencies seen as the most important attribute the ability of the medium to increase the mental availability of the brand (40). Followed by its ability to get the advertisement to be noticed (33); to trigger a positive emotional response (32); to maximise the reach of the campaign (28), and ability to target the right audience at the right place in the right time (28). Attributes such as low production costs (0); short-term sales response (0) or low-cost audience delivery (3) were not seen as important when respondents were asked to make a choice between attributes (table 2.).

Tab. 2: Relative importance of advertising media attributes for agencies

Attribute	Count
Increases mental availability	40
Gets your ads noticed	33
Triggers a positive emotional response	32
Maximises campaign reach	28
Targets the right people in the right place at the right time	28
Transparent third party audience measurement	11
Increases campaign ROI	9
Guarantees a safe environment	9
Builds campaign frequency	5
Low cost audience delivery	3
Short-term sales response	0
Low production cost 0	0

Source: Author.

When asked “Which one of the following attributes would be the 'most important' to grow your brand in a long-term, and which one would be the 'least important'?", advertisers seen as the most important attribute the ability of the medium to target the right people in the right place at the right time (41). Followed by its ability to maximise the campaign reach (30); trigger a positive emotional response (30); ability to increase mental availability of the brand (26); and ability to get the advertisement to be noticed (15). Attributes such as transparent third party audience measurement (0); short-term sales response (0); and low production costs (0) were not seen as important when respondents were asked to make a choice between attributes (table 3).

Tab. 3: Relative importance of advertising media attributes for advertisers

Attribute	Count
Targets the right people in the right place at the right time	41
Maximises campaign reach	30
Triggers a positive emotional response	30
Increases mental availability	26
Gets your ads noticed	15
Builds campaign frequency	9
Low cost audience delivery	4
Guarantees a safe environment	4
Increases campaign ROI	2
Transparent third party audience measurement	0
Short-term sales response	0
Low production cost	0

Source: Author.

Relative Importance Weighting of Advertising Media Attributes

The further analysis of the perceived advertising media effectiveness required to establish the overall relative importance of each attribute that would serve as a weight. The weight was established according to the total count of each attribute being chosen as the “most important” for building a brand in a long-term (table 4.).

The results show that two attributes were not chosen at all, thus receiving the weight of zero. This means certain implications for further research because these attributes are not perceived as important when respondents were asked to make a choice between attributes. Therefore, these attributes are omitted from the further primary and secondary analysis because the application of the zero weight would inevitably result in a zero weighted score, thus having no impact on the overall perceived effectiveness of the advertising medium for long-term brand building.

Tab. 4: Relative importance weighting of advertising media attributes

Attribute	Count	Importance weighting
Targets the right people in the right place at the right time	69	0.69
Increases mental availability	66	0.66
Triggers a positive emotional response	62	0.62
Maximises campaign reach	58	0.58
Gets your ads noticed	48	0.48
Builds campaign frequency	14	0.14
Guarantees a safe environment	13	0.13
Increases campaign ROI	11	0.11
Transparent third party audience measurement	11	0.11
Low cost audience delivery	7	0.07
Short-term sales response	0	0.00
Low production cost	0	0.00

Source: Author.

The theoretical framework of perceived advertising media effectiveness combines twelve attributes which presumably contribute to the overall perceived effectiveness of the medium to build the brand in a long-term. This research assumed that marketing practitioners perceive certain attributes as being more important for building a brand in the long-term. According to theoretical considerations, these attributes are associated with certain underlying assumptions connected to broad theories of advertising, thus attributes were categorized into three categories; long-term attributes, short-term attributes and contemporary attributes.

In order to test our perception (Short-term attributes will be perceived as more important for long-term brand building, than long-term attributes) a count-based analysis of the MaxDiff data has been conducted (table 5). The analysis was concerned with the number of times certain category of attributes is chosen by advertisers and agencies as the “most important” for the long-term brand building. According to Slovak advertisers and agencies, the long-term attributes are seen as more important than both short-term attributes and contemporary attributes, thus the first hypothesis is Rejected.

Tab. 5: Relative importance weighting of advertising media attributes by category

Category	Count
Long-term attributes	248
Short-term attributes	87
Contemporary attributes	24

Source: Author.

Discussion

Contemporary research defines a brand building as a specific type of communication. It constitutes for building mental availability through creating mental structures and associations. It prompts “system 1” of thinking through emotional priming and requires broad-reach media, distinctiveness, multiple exposures and longer time period. Brand building is also concerned in being effective rather than efficient focusing on absolute gains in terms of long-term business effects such as profit, sales or market share. In this context, it is perceived as an investment rather than a cost. This broad but empirically grounded definition was represented in this research by multiple “long-term attributes” which were identified by literature review and assessed by Slovak marketers in terms of their relative importance to other types of identified attributes. According to results Slovak advertisers and agencies consider long-term attributes as being the more important for long-term brand building than short-term attributes and contemporary attributes as well. Overall, the situation resembles the findings of the Ebiquty study in the UK.

Targeting was also seen as relatively the most important for long-term brand building, however, in the UK, it was followed by the ability of the media to increase campaign ROI, which is another short-term attribute. This attribute was perceived as relatively unimportant by Slovak marketers. This is rather expected for the UK because of the research done by Binet and Field who claim that one of the reasons for declining effectiveness is over-focusing on this metric. It seems that this negative factor may not be present in the Slovak industry, for now. It is also worth pointing out that two of the short-term attributes were considered as being not important at all; namely Short-term sales response and Low production costs, which serves as a basis for an argument that it is the “weak theory” and long-term orientation that is more prevalent in the Slovak industry.

The fact that short-term attributes are not valued for being important for long-term brand building is regarded as being rather a positive finding because it was stressed that focusing on attributes such as Short-term sales response or Increasing campaign ROI contribute to the decline of marketing effectiveness. There is a reason why a single short-term attribute, targets the right people in the right time at the right place, is ahead of long-term attributes. Findings indicate a potential difference between advertisers and agencies in their fundamental understanding of how advertising works. By comparing the results

of the MaxDiff analysis it can be assumed that advertisers are more inclined to the “strong theory” because they value targeting as the most important attribute for building brand in a long-term and agencies tend to lean more towards the “weak theory” because they value the ability to increase mental availability as the most important attribute for building brand in a long-term, and targeting was ranked fourth. The notable implication of this finding is that advertisers and agencies may not operate on the same level of understanding of how.

Conclusion

This paper evaluates potential of media attributes and aims to assess the current state of the Slovak advertising industry in terms of ability to evaluate the effectiveness of advertising media to grow brand in a long-term by identifying the most important attributes Slovak marketers consider when choosing media for a brand campaign.

It is first step for further research which can be focused on right chose of media and channels used for brand building campaigns. It can help Slovak marketers become aware of their current perception of advertising media and whether this perception needs to be re-evaluated in order to prevent potential negative long-term consequences of incorrect media decisions. Therefore, this paper aims to be an enter access to the current state of the Slovak advertising industry in terms of ability to evaluate the effectiveness of advertising media to grow brand in a long-term by identifying the most important attributes Slovak marketers consider when choosing media for a brand campaign, and by comparing their perceived media effectiveness with empirical evidence.

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Internal System of Quality Management in the Context of Ensuring the Quality of Preparation of Managers for Future Practice

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Abstract

In the presented paper, the authors deal with the internal system of quality management as a means of ensuring the quality of managers' preparation for their future practice at universities. They introduce the internal system of quality management at a university, Bachelor's and Master's study programmes in Management, the study programme graduate profile, as well as activities and methods related to ensuring the quality of study programmes, i.e. to preparation of managers for their future practice. The authors focus on the process of internal audits, evaluation of university study programmes (including the evaluation of university courses based on study results, classroom observations, feedback from students, feedback from employers, evaluation of feedback from graduates and their success; evaluation of scientific research work in the particular field of science), risk analysis, the "Bank of Proposals" and assessment of the internal system of quality management by the university's management. In the paper, the authors provide examples of good practice from the discussed field, too.

Keywords: internal system of quality management, university, study programme, manager, practice

Introduction

It is very important to prepare graduates for future practice. In order to offer the best possible education and prepare university graduates for the labour market, we attempt to permanently improve the university's quality. In practice, a complex approach – an

internal system of university quality management as a means of ensuring the quality of preparation of managers for their future practice – showed to be effective.

Those who want to hold the position of a manager in the future, can study management at DTI University in Bachelor's and Master's study programmes.

The Bachelor's study programme in Management provides students with theoretical and practical preparation for the job position of a Junior Manager. The graduates are prepared for working in the divisions of planning, human resources, finances, financial-economic analyses, production and logistics, marketing, accounting, informatics and controlling, and can find employment in all branches of entrepreneurship both in the public and the non-governmental spheres. The professional profile of Bachelor's study programme graduates in Management contains the following:

- are able to present their own opinions and working proposals to the team of co-workers and also to their superordinate,
- can manage a group of people, plan, organize, coordinate, motivate, lead and control the work of a working group,
- can apply elements of psychology, sociology, and ethics in managing a group of people,
- can hold a job position in the divisions of planning, human resources, finances, financial-economic analyses, production and logistics, marketing, accounting, informatics and controlling,
- can apply knowledge and skills in all branches of both the public and the non-governmental spheres,
- are prepared to study at the second level of university education (earn a Master's degree - Mgr. or Ing. - Senior Manager).

The Master's study programme in Management contributes to the development of knowledge in Management, Economics, and Economy, with an emphasis placed on modern trends in Management. The professional graduate profile is as follows:

In accordance with the achieved level, the graduates are eligible to work as Senior Managers. A Senior Manager – a Master of Management – knows the additional functions of management and can see management problems in a broader context; after some practice, is able to manage groups of people within an organization (business or institution) on division or organization (business or institution) levels; possesses complex knowledge about the organization (business or institution).

During their studies, graduates acquire theoretical knowledge and develop their practical skills and abilities:

Theoretical knowledge:

- possess deeper knowledge from the basic fields of Management and Informatics,
- understand and master the knowledge from special management disciplines,
- possess knowledge from supporting management disciplines.

Practical skills and abilities:

- are able to manage large groups of people, plan, organize, lead and control the work of large working groups,
- are able to hold a managerial job position in the divisions of planning, human resources, finances, financial-economic analyses, production and logistics, marketing, accounting, informatics and controlling,
- are able to manage and coordinate the work of several large working groups or an entire organization (business or institution),
- the acquired knowledge and skills enable them to find employment in all branches of entrepreneurship, including budgeting.

Additional knowledge, skills, and abilities:

- can use more complex applications of corporate information systems,
- can use communication technologies developed for large groups of people,
- can deal with enormous workload and are able to regenerate.

University education, research and innovation have a big role to play in the promotion of social cohesion, economic growth, and global competition. Given by the joint efforts of European countries to focus more and more on knowledge, university education has become an integral part of socio-economic and cultural development. The growing demand for skills and competencies brings the need for new reactions to situations by universities (ESG, 2015).

Ensuring quality is a topical issue in university environments. We consider the introduction of an internal system of university quality management an appropriate way of quality assurance.

Quality of schools can be theoretically defined as the desired, optimal level of schools' and their products' functioning. Especially in the conditions of market economies, where schools are considered a public service, and students and their parents are the schools' clients, it applies that the achieved quality of a school is decisive from the aspect of its successful existence (Průcha, Walterová and Mareš, 2003).

Turek (2015) claims that every school should work out its own quality management system, which should cover all the processes within the school, as well as the whole personnel.

As mentioned by Paulová (2009), increasing the quality of the educational process is among the requirements of the Bologna Process and Lisbon Strategy accepted by all EU member states – including Slovakia. A continuous improvement of processes in a way, which is beneficial for customers and all the stakeholders, should become the strategic goal of each organization.

In a long term, our activities focus on the issues of the evaluation of quality and the opportunities to improve the quality in the context of educational organizations. We are aware of the current need for improving the quality of schools and the quality of the

educational process itself. It is important to focus on schools' partners and their requirements, on students' personality development, development of their key competencies, and to reflect the requirements from practice.

The above statements are confirmed in the work by authors focusing on the presented issues (Kučerka, 2018; Szóköl and Horváth, 2018; Berková et al., 2019, 2016; Tureková, Bánesz and Depešová, 2015, 2014; Hašková, Lukáčová and Noga, 2019).

In the context of managers' preparation for their future practice, in agreement with Lajčín et al. (2014), Kmecová and Smetanová (2019, 2018), we consider important to pay sufficient attention to the preparation of future managers at universities.

Alongside with the issues of the realization of activities and methods, we draw attention to their evaluation. We agree with Bilčík (2017), who declares that the basic precondition for an organization's success (university in our case) is a systematic evaluation of the achieved results. In order to improve, universities should learn about the current situation in the institution, know how individual processes are carried out, and what the university's strengths and weaknesses, as well as its opportunities and threats are.

In accordance with the above, in the following parts of the paper, we deal with the internal system of university quality management, as well as activities and methods related to ensuring the quality of the offered study programmes, including the preparation of managers for their future practice.

Methods and Data

We apply a complex approach to ensuring the university's quality. Our university has introduced and applies a management quality system in accordance with ISO 9001:2015 standard in the field: Education at all levels of university education and for the related scientific research and publication work. The results of certification audit showed that the management system fulfils all the requirements of the above norm and the university has been certified by QSCert, spol. s r. o., which confirms that the introduction and application of the management quality system are in accordance with ISO 9001:2015 standard requirements in the above field.

The university, in compliance with the criteria of the Internal system of ensuring the quality of university education (KVSK); Law No. 131 on Higher Education and on Changes and Supplements to Some Laws (§ 87a); in compliance with the Standards and guidelines for quality assurance in the European Higher Education Area (ESG); and ISO 9001:2015 standard, defines the integrated Internal system of ensuring quality and the System of quality management, its policy, quality objectives and procedures in the Quality Manual and the related organizational standards.

The main objective of the internal system of quality is to focus on quality and its assurance within the university's activities.

We consider a complex approach to all the processes realized within the university an important step from the aspect of achieving success, and the graduates' preparedness for practice.

Our university's internal system of quality management is process-controlled. The controlled processes are divided into three categories which were identified based on their relation to the mission of the university and the provided services:

- main procedures – educational process, editorial and publication work, and scientific research work,
- managerial procedures – strategic management, personnel quality management, education infrastructure management, marketing and communication, documentation and record management, and improving the internal system,
- auxiliary procedures – library services, scholarships, and mobilities.

All the processes and procedures required by law are documented in the Quality Manual, the Cards of Procedures (CP) and other related documentation. In the field of documentation management, uniform practices are employed. There are also procedures for keeping records about the state of the internal system of university management, about its compliance with the requirements and procedures of continuous improvement.

In the presented paper, it is not possible to cover all the issues of school quality management. So, we focus on the internal system of quality, we deal with selected activities and methods, which are closely related to the quality assurance of study programmes and preparation of managers for their future practice.

For providing high-quality education and preparation of graduates for practice, in a functioning internal system of quality, we find it important to carry out internal audits, evaluate study programmes (evaluation of university courses based on study results, classroom observations, feedback from students, evaluation of feedback from employers, evaluation of feedback from graduates and their success, evaluation of scientific research work in the particular field of science), carry out risk analysis, have a "Bank of Proposals" and to evaluate the internal system of quality management by the university's management.

Results

In the below part of the paper, we present the results of the implementation of activities and methods related to the quality assurance of study programmes including the preparation of managers for their future practice. In this part of the paper, we provide examples of good practice in relation to the realization of the above activities and methods verified in practice.

We focus on the issues of internal audit, evaluation of study programmes, risk analysis, and the "Bank of Proposals".

Internal audits

One of the tools for ensuring high-quality manager preparation for future practice is carrying out internal audits. The aim of internal audits in educational institutions is to assess the level of compliance between the process and documentation of the system of quality, and the requirements of ISO 9001:2015 standard in practice, to review the efficiency of the system of quality and its functioning, and to improve the system of quality and its documented procedures. Internal audits focusing on the quality of the university are carried out by trained (certified) auditors, while internal audits can be carried out by suppliers as well.

Internal audits are carried out in three steps:

- preparation of the internal audit,
- realization of the internal audit,
- evaluation of the internal audit.

The process of internal audits is illustrated in Table 1.

Tab. 1: Stages of internal audit realization

Stage	Quality assurance procedures
Preparation of internal audit	Preparation of the Programme of internal audit. It contains: <ul style="list-style-type: none"> • the aim of the audit, • identification of the head of the audit team and its members, • identification of the required documents, which must be available during the audit, • date and place of the audit, • estimated time and duration of the audit, including the timetable of the internal audit.
Realization of internal audit	Internal audits begin with informing the audited about the content of the internal audit. Subsequently, the audit team collects evidence (e.g. by means of interviews, examining documents, etc.). Significant signs of discrepancies are investigated. The findings and evidence are recorded in the Control Sheet. The realization of internal audits ends with a closing session with the audited, the purpose of which is to inform them about the found discrepancies.
Evaluation of internal audit	Auditors work out the Protocol for Internal Audit. If there are any suggestions for improving the internal system of quality management, they must be stated in the Protocol. The head of the audit team submits the Protocol for Internal Audit to the Vice-Rector within 3 working days following the internal audit. The Protocol must be signed by the audited, which is a proof of admitting the found discrepancies.

Source: Authors.

Evaluation of study programmes

The management of DTI University has created a formal and effective system of study programme evaluation carried out once a year. They have set the timetable for evaluation

and the goals for a further increase in the quality of study programmes. It applies both internal and external sources of evaluation.

The evaluation process of study programmes consists of:

- evaluation of university courses based on study results, classroom observations, feedback from students,
- evaluation of feedback from employers,
- evaluation of feedback from graduates and their success,
- evaluation of scientific research work at the workplace in a particular field of science (Hrmo, 2014).

In the context of the evaluation of study programmes, we provide an example of good practice with using feedback from students.

In the Bachelor's study programme in Management (external form of study), students take the following obligatory courses:

Marketing, Corporate Economics, Law I, Mathematics, Macroeconomics, Management, Statistics for Managers, Finances and Currency, Microeconomics, Informatics for Managers I, Basic Accounting, National Economy, Controlling, Project Management, Human Resources Management, Financial-Economic Analysis, Corporate Finance, General Psychology, Operational Management, International Economic Relations, Informatics for Managers II, Management Information Systems, Manager's Personality Psychology, Seminar for Bachelor's Thesis, Entrepreneurship in SMEs.

In the context of the evaluation of study programmes and of university teachers' quality, aiming to permanently improve education, DTI University collects feedback from students on university courses and the work of teachers by means of an anonymous questionnaire survey after finishing each semester (twice year) in the Modular Academic Information System MAIS.

Evaluation by students is focused on the bellow aspects within which further sub-fields are evaluated:

- educational content of university courses and their implementation into the study programme,
- organization of education,
- evaluation of study results,
- staffing of university courses,
- availability of literature,
- the educational process – forms and methods,
- spatial and technical equipment.

Within the survey, students are provided with space for listing the most serious issues related to their studies, as well as their suggestions for improvement. They can also indicate what would contribute to increasing the quality of education.

In the process of evaluation, the following scale is applied: excellent (value 1), very good (value 2), good (value 3), satisfactory (value 4), not satisfactory (value 5).

In the questionnaire, the following data are identified: university course, teacher, students' gender, form of study, level of university study, year of study. Based on it, measures for improving the quality of particular university courses, years of study, etc. are taken.

Risk analysis

In the context of ensuring and increasing the quality of processes, the university carries out risk analyses – considers the external and internal factors of the environment, the stakeholders' requirements and expectations and determines risks and opportunities, which should be paid attention to.

In this part of the paper, we present the partial results of a risk analysis of the educational process as an example of good practice. Among the external factors, we can mention, e.g. accreditation requirements, legislation in force, competition – other universities, interest of potential students, declining demographic curve; internal factors, such as the university's system of management, number of students, preparedness of students, expertise and incentive of the personnel, personnel changes; stakeholders – e.g. partner universities (in Slovakia and abroad), Slovak state administration bodies, DTI University students, potential students, employers, the Slovak Accreditation Agency for Higher Education; requirements of stakeholders – e.g. high-quality education, demanded study programmes, school equipment, high-quality teachers, teachers' approach, organization of the educational work, etc. An example of identifying the degree of risk of possible errors for the process Education is showed in Table 2.

Tab. 2: Identification of the degree of risk of possible errors for the process Education

Name of the process step	Possible errors	Probability of occurrence (PO)	Seriousness of consequences (SC)	Degree of risk
Creation and accreditation of study programmes	Incomplete (incorrect) information in the accreditation file of the study programme	1	3	3
Organization of the academic year	Missing or incorrect information in the academic year timetable	1	2	2
Organization of the educational work	Duplicity in classrooms in which teaching should take place at a particular time	1	2	2
Final thesis	The published theme of the final thesis is not in compliance with the focus of the study programme	2	3	6

Source: Authors.

The probability of occurrence (PO) is given by the university on the scale ranging from 1 to 3 (1 – lowest PO, 3 – highest PO), seriousness of consequences (SC) on the scale ranging from 1 to 3 (1 – lowest SC, 3 – highest SC). The degree of risk is calculated by multiplying

PO and SC. The university has set the limit value for risk 6, which means that if the degree of risk reaches 6, measures will be taken. In the example of good practice above, in order to eliminate the possible error occurring with final theses, it is important to take measures.

Bank of Proposals

An additional source of information from students and personnel is the “Bank of Proposals”, by means of which students and personnel can express their opinions. In the entrance of the university building, at a visible place, a mailbox functioning as a “Bank of Proposals”, where students and personnel can write their suggestions, proposals, comments, and recommendations, is placed.

The “owner” of the process “Improving the DTI University’s internal system of quality” checks the content of the “Bank of Proposals” regularly (once a month). The proposals by the university’s students and personnel are dealt with and solved by the owners of particular processes.

Discussion

By monitoring and evaluating the effectiveness of the system of quality and the relevance of the university’s principles in the field of quality (including the activities and methods related to the quality assurance of study programmes mentioned in the paper, i.e. also the managers’ preparation), the Internal system of quality management is evaluated by the university’s management.

In order to assess the system of quality, the Vice-Rector for Quality and Development in cooperation with the responsible owners of the processes carries out an evaluation of the DTI University’s Internal system of management quality in the extent of the following outputs:

- evaluation of the offered study programmes’ quality and feedback from the participants of education,
- evaluation of scientific research work related to the field of research and innovation of study programmes based on the results of scientific research work,
- evaluation of the quality and development of the teaching staff,
- internal audit of processes and of the whole system,
- evaluation of the productivity of suppliers,
- evaluation of arguments and complaints, and the results of internal control,
- the effectiveness of corrective and preventive activities, the effectiveness of measures taken for managing risks and opportunities,
- evaluation of process performance,
- examining the extent to which the set goals have been fulfilled and the policy of Internal system of DTI University’s quality management,

- changes in the external and internal factors of the environment, which can have an impact on the system of quality management,
- feedback from relevant stakeholders,
- appropriateness of resources
- corrective measures and measures for managing risks and opportunities for improving the system of quality management.

The results of the evaluation process form a part of the Report on the evaluation of the Internal system of quality management by the university's management. The report is submitted to the DTI University's Quality Committee by the Vice-Rector. The Quality Committee discusses the report and takes action for further improvement of the system. The result of quality assessment by the Quality Committee are reflected in the following outputs (corrections in the Internal system of quality management):

- setting qualitative goals for the upcoming period,
- possible corrections in quality policy,
- suggestions of corrective measures and measures for managing risks and opportunities related to the problem fields indicated in the report on the functioning and efficiency of the system of quality,
- identification of resources necessary for the realization of the goals and taking measures for the upcoming period.

Conclusion

Ensuring the quality of the preparation of university graduates for their future practice is a demanding process, which requires a complex approach. An example of such an approach is the introduction of internal system of quality management and its proper functioning. The length of the paper did not allow us to offer a complex elaboration of the internal system of university quality management. We focused on selected tools and methods related to the preparation of graduates in the study programme Management for their future practice. We pointed out the process of realization of internal audits, evaluation of study programmes, mainly in relation to feedback from students, risk analysis, the "Bank of Proposals" and examining the internal system of quality management by the university's management. The paper includes examples of good practice confirming the importance of dealing with the issues of permanent improvement of the quality of universities.

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Mystery Shopping – a Tool for Sales Processes Evaluation in the Hospitality Facilities

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Abstract

Mystery shopping can be characterized as a marketing method used for anonymous and objective evaluation of the quality of provided services. The method helps the owner of the company, where the mystery shopping is applied, to gain better images of processes in the company, information about employee behavior towards customers, quality of provided services, environment, atmosphere, etc. It is realized by mystery shoppers who give the owner the information about used services gained by secret purchases. The aim of the paper is to examine the use of the mystery shopping method as a tool for evaluating the sales process in hospitality facilities. We research the use of mystery shopping from two points of view. On one hand, based on the structured interviews with managers of mystery shopping agencies and, on the other hand, based on structured interviews with managers of hospitality facilities that use mystery shopping method. All researched companies agreed on the statement that mystery shopping is very good primary impulse for changes in the company but has to be followed by training and to achieve success and guests' satisfaction devoted work of the management and all its employees is necessary.

Keywords: hospitality facility, mystery shopping, process, sales

Introduction

Mystery shopping is a one of the marketing methods, which serves for anonymous and fair evaluation of customer services and services quality by an external trained expert so-

called a mystery shopper who plays the role of a customer, but his task is to evaluate provided services. Mystery shopping is very well-known abroad, while in Slovakia it is not so much known or used. Mystery shopping is carried out in companies which provide services. As tourism and hospitality companies are providing services to their customers, mystery shopping has a very good exploitation right in these companies. Only few companies use the method and there are still many of them that have not yet heard about the method. But the companies which take advantage of using the method are rewarded by satisfied customers, higher quality level of services and professional behaved employees. Especially in tourism, where there are high requests on the quality of provided services and we expect from the satisfied customer, that he becomes loyal, the mystery shopping is very suitable method to be used to evaluate the sales processes. The method helps the owner to gain better images of processes in the company, employee behavior towards customers, quality of provided services, environment, atmosphere, etc. It is realized by mystery shoppers who give the owner the information about used services gained by secret purchases. The owner has the information which can help him to find out the exact problems by services providing and he can make the adjustments to improve the situation. In tourism, mystery shopping is realized in hospitality facilities, accommodation facilities, travel agencies and in other tourism companies.

Mystery shopping can be characterized "as a marketing method used for anonymous and objective evaluation of the quality of provided services and customer service" (www.toptest.sk). Baarová (2008) classifies mystery shopping among evaluation methods that deal with the study of human behavior in the society. The professional critic is usually an external, professionally trained evaluator, the so-called mystery shopper. The author further states that the method is most often applied in the field of sales and services evaluation. In examining both characteristics, it is clear that the method is used to improve the services provided to customers, it is a picture of the state of the company in terms of its employees' behavior, also serves as an impulse for corrective and preventive measures to improve customer service, retain regular customers and create the conditions for gaining new customers.

Several domestic and foreign authors (Baarová, 2008; Jankal and Jankalová, 2011; Ďad'o and Petrovičová, 2013; Moravčíková, 2014, Minghetti and Celotto, 2014; Chen and Barrows, 2015) understand mystery shopping as a form of secret visits, during which the agent, a specialist called mystery shopper pretends to be a regular customer, being a trained worker who knows exactly how to behave in the chosen environment. After visiting the company, he fills out a test form. Based on regularly repeated specialized tests and their continuous evaluation the aim is to significantly increase the level of the services. The client himself determines which aspects will be monitored. It is necessary to set the concept of mystery shopping and tasks while performing mystery shopping. The main goal is to bring the management of the facility in which mystery shopping is being performed an objective and true picture of the company from the point of view of a regular customer.

Mystery shopping is a marketing research tool. Ďaďo and Petrovičová (2013) define marketing research "as the systematic identification, collection, analysis and evaluation of information related to a particular problem the company is facing". Mystery shopping is a similar method to marketing research, but it does not fully correspond to its content. The term mystery shopping means research that is used to evaluate customer services, it is a method to improve the quality of services and customers' satisfaction with the use of the services. The method involves direct interaction between the seller and the user of the services, who tries to evaluate the quality of the services provided in a professional and secret way. The purpose is to analyze the strengths and weaknesses of the services offered, which are aimed at evaluating not only the seller's approach to the customer, but also the overall appearance of the company and employees. It allows the company to obtain information on the level of sales, qualification and behavior of employees who provide services. It is an independent feedback from the customer's point of view (Moravčíková, 2014).

Customer satisfaction helps to build his loyalty, which is essential especially in tourism, so when researching, we have to monitor the way of providing services before, during and after purchasing the service. The result should be a satisfied customer who does not pass on to the competition but happily returns to the company and becomes loyal.

We most often encounter the following forms of mystery shopping (Chen and Barrows, 2015). Mystery shopping, which measures the behavior of employees during a personal conversation with a customer. It is performed by trained staff who focus on the employee's behavior during the services providing. The examined criteria include e.g. standards of accepting clients, identification of their needs, qualification and level of services and information provided, willingness of employees, handling criticism and attacks from clients, etc. After the end of the mystery shopping, the mystery shopper processes the evaluation sheet or form and then the overall final report from all visits is processed (www.perman.sk). Mystery calling deals with the behavior of the employees during a telephone conversation. It is performed by trained employees who evaluate the required aspects of the employee's behavior, such as telephone answering standards, willingness to provide information, professional and communication level of employees, handling criticism and attacks from the customer. Same as with mystery shopping, an evaluation sheet (form) and an overall final report are processed. Mystery e-mailing measures the response of employees to a customer's e-mail inquiry. It is performed by trained staff who evaluate individual aspects of communication via e-mail and compliance with standards by the responsible employee. It is completed with an elaborated evaluation sheet (form) and an overall final report.

Mystery visit is focused on evaluating customer service in the stores and facilities and evaluation of the facility as a whole. The material and technical equipment of the store or facility, posters, appearance and behavior of sellers, the ability to provide information, consulting skills, compliance with processes and standards, length of service are monitored. Another form of mystery shopping is service mystery shopping, which measures the reaction of employees by handling customer complaints. The speed and

method of resolving complaints and returns of goods, the method of contact with the customer and finding out his other needs, or the offer of products with added value by employees are monitored. There is no direct contact with the staff during the mystery audit. The equipment of the store with promotional materials, current leaflets and readiness for the marketing campaign are monitored. Mystery flying is used to evaluate the employees on the board. The method of serving customers on the plane, the employee's attitude to the passengers, and the provision of relevant information is monitored. Mystery delivery focuses on compliance with standards in the field of parcel delivery. The speed of delivery, the control of the customer's identity, the integrity of the shipment, the approach, the friendliness of the courier are monitored, as well as the method of handing over the shipment. The goal of mystery clicks is to track internet sales. It examines communication with the employee, the availability of services, the willingness of the employee. Customer journey mystery shopping focuses on examining and evaluating the quality of services from the purchase of goods or services by customers, its use, service to the cancellation or termination of the service or goods. Another form of mystery shopping is mystery shopping with a real customer. It is used if the mystery shopper cannot simulate the role of the customer, therefore it comes into operation together with a real customer who requires a specific service, for example to set up an account at a bank. B2B mystery shopping and Competitive Intelligence mystery shopping focus on examining the quality of services provided for corporate clients in the business environment (Parobok, 2015).

The main factor in the exploitation of the mystery shopping method is the direct contact between the customer and the employee, through a service provided in person. One of the implementation criteria is the size of the company. It is mostly applied in the larger companies, because it is usually more financially demanding matter. Usually small businesses cannot afford evaluation using mystery shopping and are also unable to undertake the restructuring changes that result from the evaluation results (Ďad'ó, 2013).

Mystery shopping is covered by the international association MSPA - Mystery shopping providers association, which brings together mystery shopping services providers. One of its main goals is to improve the overall quality within the mystery shopping industry and to create an open and transparent operational connection with clear rules (www.mspa-eu.org). They require their members to adhere to ethical standards, honest, fair and professional conduct and thus participate on the good name of the mystery shopping method (Moravčíková, 2014).

Methods and Data

The aim of the paper is to examine the use of the mystery shopping method as a tool for evaluating the sales process in hospitality facilities.

Hospitality facilities provide catering services, which are a basic condition for the development of tourism. These services have a multifunctional character, as they are used not only by visitors in tourism but also by the local population. While in the past it was

not typical to regularly consume in hospitality facilities, today they are becoming more and more used and, in addition to catering, they also fulfill a social function.

We researched the use of mystery shopping from two points of view. On one hand, based on the structured interviews with managers of mystery shopping agencies and, on the other hand, based on structured interviews with managers of hospitality facilities that use mystery shopping. When choosing mystery shopping agencies, we focused on those that offer the implementation of mystery shopping in hospitality facilities in Slovakia. We asked them questions to follow (table 1).

Tab. 1: Questions in structured interview with mystery shopping agencies

Number	Question
1	What led you to the idea of dealing with mystery shopping?
2	How would you characterize companies that use mystery shopping?
3	How much on average are companies willing to spend on mystery shopping?
4	How many times per year do the companies use mystery shopping?
5	What is the most common mistake of hospitality staff made at work?
6	What is the most common mistake of hospitality management at work?
7	Are employees and management willing to take advice to improve services and quality that you offer them?
8	What is the most common reason for not applying these advices?
9	Would you be able to advise hospital facilities how to improve the quality of the provided services?
10	Where do you see the biggest problem in applying mystery shopping in the hospitality facilities in Slovakia?
11	How could mystery shopping agencies in Slovakia improve their services?

Source: Authors.

When researching the use of mystery shopping by hospitality facilities, we focused on facilities whose references we have found on the pages of mystery shopping agencies. We asked ten hospitality facilities for cooperation, three were willing to answer our questions (table 2).

Tab. 2: Questions in structured interview with mystery shopping agencies

Number	Question
1	What motivated you to use mystery shopping?
2	How many times have you used mystery shopping?
3	Has it brought an improvement to your company?
4	If it has brought you an improvement, in what specifically?
5	If it has not brought you an improvement, what was the cause?
6	How have employees reacted to the evaluation in the form of mystery shopping and the introduction of novelties?
7	Have you registered an increased number of customers or rise of their loyalty?
8	Do you also use the trainings offered by mystery shopping agencies?
9	How do you evaluate communication with a mystery shopping agency?
10	How do you perceive your experience and cooperation with the mystery shopping agency?

Source: Authors.

The work is based on data from primary and secondary sources. Primary data are obtained by the method of questioning through a standardized interview, secondary data are obtained from domestic and foreign journal (Sustainability, 2015), internet sources (www.expertz.sk, www.marketvision.sk, www.mspa-eu.org). Several methods of research are applied in the paper, using abstraction and generalization, comparison and analogy, induction and deduction.

The process of implementing the mystery shopping method runs in several phases (Jankal and Jankalová, 2011). Usually the whole process consists of three main phases, project preparation, research implementation and evaluation. In the first phase, the facility is aware of the need to implement mystery shopping, so it is looking for providers of this service. After the agreement with the mystery shopping agency on the price, specific requirements and conditions, a contract is signed. Further the tasks are on the side of the mystery shopping agency by selecting mystery shoppers and training them. In this phase, the activities of the facility (client, company), the activities of the agency (mystery shopping agency) and their combination alternate. The second phase is the phase of mystery shopping itself and the completion of the evaluation form and questionnaires. An agency providing mystery shopping services is doing her job here, and the company expects results. The evaluation phase consists of the evaluation and analysis of questionnaires and evaluation forms, from which a final report is prepared, which is then presented to the company with comments and suggestions for improvement. The whole process ends with the awareness of the problems in the company and the implementation of corrective measures.

Results and Discussion

Compared to the past due to the influence of the internet and globalization the mystery shopping is becoming an increasingly well-known and popular tool for evaluating the quality of the company's services. There are several agencies in Slovakia that deal with this method of quality assessment, employees, processes, atmosphere, hospitality, etc. However, most agencies focus on a number of service sectors. Tourism in mystery shopping agencies often stands out as just one of the many industries that these agencies deal with. Therefore, the question arises whether the agencies with such a wide portfolio of industries evaluated are able to professionally evaluate the services provided in tourism.

Characteristics of selected companies providing mystery shopping services in hospitality facilities

In the following section, we will analyze agencies that offer mystery shopping services in tourism in Slovakia. For the needs of our paper, we will engage in mystery shopping in hospitality facilities and establishments. In this form of mystery shopping, the company focuses on restaurants, bars, cafes, or other forms of catering and refreshments for clients. According to their offer we have selected five agencies, namely Tales & tails, eXpertz ltd.,

MysteryMan, COMTESSA Consulting ltd. and Market vision. These mystery shopping agencies are not only specified on hospitality facilities, their portfolio is wider.

The Tales & tails project is relatively new on the tourism market. After many years of experience abroad, the successful launch and operation of his own cocktail bar, owner decided to move his knowledge and skills further. The project, as the owner calls it, focuses on three components: bartending school, mystery shopping and catering. Mystery shopping focuses exclusively on hospitality facilities. However, in the understanding of the owner, the evaluation through mystery shopping is not only focused on checking and sending feedback, but especially on the verification of operation, evaluation and correction of mistakes. They adapt the services to the client's requirements, evaluate everything according to the client requests, from the supplier to the menu. They provide mystery shopping all over Slovakia. The price of mystery shopping depends on the required service (www.talesandtails.sk).

Agency eXpertz ltd. has been operating on the mystery shopping market for more than 5 years. Its owners, after previous foreign experience, help to improve the quality of services provided in tourism in Slovakia. Their motto is "eXpertz - a company operating in tourism and for tourism" (www.expertz.sk). They train their mystery shoppers to come into company well prepared and thus provide real information about the company. Clients who order the service are not only considered as the customers, but they approach them as their partners.

It's easy to invite your friends to the facility to evaluate the operation, secretly check employees, but friends are likely to evaluate the operation unprofessionally, not paying attention to details. However, the company offers an objective view of experienced evaluators, fast and transparent negotiations, services tailored to the client's requirements and compile a comprehensive program to increase employee and management performance and improve the overall quality of hospitality facility.

In addition to evaluating the tourism company through mystery shopping, the young dynamic team also offers trainings and a training program for employees. The training program is tailored to the needs of the client and focuses on strengthening and rehabilitating the work team, training plan for employees, consisting of their improvement, focused on sales skills, expertise, conversation and approach to customers not only in mother tongue but also in foreign language, employee motivation and crisis management. Further trainings focus on attention as the main tool of guest care, methods of active telephoning and emailing, sales skills and their improvement, selection and search of employees, employee motivation.

The agency focuses on mystery emailing, mystery calling and mystery visit. Since eXpertz ltd. offers tailor-made services, it applies an individual approach to pricing. Prices published on the website range from € 29 to € 69 for mystery shopping and € 249 for three-hour training.

The advantage of eXpertz Ltd. is its exclusive focus on tourism, professionalism, education and many years of experience of owners in tourism companies at home and abroad, their individual and partnership approach to the client.

Another agency is MysteryMan. During its operation, the agency performed hundreds of reviews of hotels and restaurants in Slovakia. It operates under the patronage of Pass Slovakia Ltd. as a MysteryMan service provider. Until 2007, MysteryMan operated as an external company called Hotel for you Ltd. As they claim on their website, they are the largest provider of mystery shopping services for hotels and restaurants in Slovakia and offer their services to top hotels and restaurants, thus helping them to constantly improve their services and effectively manage operations (www.mysteryman.sk).

The evaluation is based on a sophisticated model that uses a set of almost 200 criteria. These criteria came into existence as an intellectual property of the company on the basis of cooperation with hotel managers and international hotel companies at home and abroad. However, they are often supplemented during the evaluation based on the customer's requirements. The evaluation is followed by a training and counseling phase. The trainings focus mainly on practical exercises of the employee's behavior towards the customer, through simulated situations resulting from the evaluation visit. They are focused on the elimination of negative influences and the creation of positive contacts with customers.

On several occasions, the agency was responsible for evaluating hotels and restaurants during the Hotel of the Year and Restaurant of the Year competitions, which aim to provide an objective picture of the quality of the hotel and hospitality services. Facilities in the competition are evaluated using mystery shopping. The competition takes place in two rounds, the evaluation of the restaurant and bar is carried out in the second round. Every year, the Association of Hotels and Restaurants (ZHR SR) publishes the three most successful facilities in its category, which are evaluated in details through mystery shopping.

Interesting is specialized software called MysteryManager and it was created directly for MysteryMan. It makes it easier for employees and evaluators to work, as they process evaluations directly on the spot and can devote themselves fully to evaluation. Finally, the software enables statistical data processing that is more accurate and detailed.

Agency COMTESSA Consulting Ltd. has been operating as a training and advisory agency for tourism in the Liptov and Tatras region since 2006. They focus their activities on lecturing tourism service providers, from top managers to employees who come into contact with customers. In addition to their educational activities, they also engage in mystery shopping. Mystery shopping is a secondary activity for the agency and focuses on 5 basic areas: reception, accommodation, dining, wellness & spa, accessibility and how to provide information to tourists.

Mystery shopper is also in the case of Comtessa consulting Ltd. a specially trained person who evaluates the appearance and readiness of the facility, welcoming the guest, seating, etiquette, dining or beverage menu, assortment of food and beverages, taking over the

order, knowledge of food and beverage menu, recommendations of the server, approach, friendliness, willingness of service, dealing with special requirements, quality of food and beverages, complementary services, receipt issuance and payment (www.comtessa.sk).

The aim of COMTESSA Consulting ltd. is not only to point out the positives and negatives of employees or work processes in the company or tourism organizations. They help mainly in the elaboration of the company's strategy, marketing plan, SWOT analysis, through education and training they provide educated and prepared staff and thus try to eliminate potential threats and risks to achieve higher quality and prosperity of the facility.

After a short e-mail communication with the owner of the agency Comtessa consulting ltd. we found out that they had not yet performed mystery shopping in the hospitality facilities. They focus exclusively on the Liptov and Tatras region and a large part of their activities are devoted to trainings and workshops.

We decided to add the Market vision agency to our analysis, as it is one of the largest providers of mystery shopping in Slovakia. Since 2005, it has been the first agency in Slovakia to become a member of the international association MSPA (Mystery shopping providers association). The primary activity of the agency is not mystery shopping in a hospitality facilities or tourism, but in addition to mystery shopping in the automotive field. banking, construction, pharmacy, telecommunications, insurance, retail, luxury goods they are also engaged in hospitality mystery shopping. The agency has been operating on the market for 14 years and has already carried out more than 144,000 evaluations through mystery shopping. They have been working in the hospitality field for 3 years and have made more than 750 visits in hospitality facilities.

Like other mystery shopping agencies, Mystery vision provides an evaluation of service, its strengths and weaknesses, feedback on processes in the facility, recommendations for improving customer service and increasing sales. The agency has created the PLUS 1 concept, through which staff is taught to offer additional goods. Another activity that they implement is benchmarking or examining the behavior of a competitor as the competition seeks to retain a customer, compares the quality of service between stores and their evolution over time. If the company has more operation facilities, they try to balance the differences between the individual establishments. They also provide price analysis and information on current market prices (www.mysteryvision.sk).

They use the online application Spring not only for evaluation, registration of mystery shoppers but also for data collection. Thanks to this application, communication with mystery shoppers is easier and faster, where they have created their profile, sign up for an evaluation visit, download instructions and evaluation forms for individual visits and find out the reward. For companies, it is a quick source of feedback after the evaluation is carried out directly by the mystery shopper.

In addition to mystery shopping, the agency also specializes in the so-called Customer intelligence and Competitive intelligence. Through customer intelligence, they try to teach companies to know their customers, acquire new and retain old customers, involve them

in decision-making and development, motivate employees and thus sell more. Competitive intelligence brings monitoring of competitors, their products and prices, an overview of news on the business market, etc.

Hospitality facilities using mystery shopping

In the references on the websites of mystery shopping agencies we have found out the hospitality facilities in which evaluations through mystery shopping took place. We have contacted 10 hospitality facilities where they used mystery shopping in order to find out what benefits they had examined after mystery shopping and how they would evaluate the work of mystery shopping agencies. We have received 3 positive responses from the hospitality facilities, which were willing to answer our questions. These were the Brewery Erb in Banská Štiavnica, the Restaurant Červený rak (restaurant, pub and wine bar) in Banská Bystrica and the Restaurant X in Banská Bystrica, where the F&B manager willingly answered our questions, but the facility wishes to remain anonymous, so we do not mention its real name. We communicated with the Restaurant X and the Brewery Erb via e-mail, we met with the owner of the Restaurant Červený rak facility personally and we discussed the issues in more details.

By all three hospitality facilities the motivation for applying mystery shopping was to move to a higher level in the quality of services provided, increase customer satisfaction and ensure the constant concentration of staff by providing services. Companies recorded expected changes in the quality of provided services. However, the owner of Brewery Erb has seen only a short-term improvement in relation to mystery shopping. She added that mystery shopping is only a small part of working with human resources. The owner of the Restaurant Červený rak stated that after the training of waiters, the number of satisfied customers increased, customers also noticed an increase in the quality of services, restaurant recorded increased sales and tips, an increase in upselling and rise of the company's reputation. The aim for evaluation through mystery shopping in the Restaurant Červený rak was to better customer service, which ultimately met their expectations.

When examining the benefits of mystery shopping, companies responded differently. While mystery shopping helped one company mainly in the area of improving the work of employees, in the other one it pointed out mainly the mistakes of management and did not notice changes in the work of employees. Restaurant X recorded a positive change in management and employees' behavior. They attribute the results to the personal decisions of management and staff who are seeking improvement in every matter, even the one which no longer seems to need any improvement. Employees responded to mystery shopping in the early stages with concern, but over time they generally accepted the assessment and perceived it as a chance for their personal and professional growth. The researched hospitality facilities recorded not only an increase in the number of customers but also an increase in their loyalty. However, the Brewery Erb did not attribute this increase to mystery shopping, but the number of their customers was constantly growing.

The facilities perceive communication with the mystery shopping agency as a very professional. They provide services reliably, responsibly and professionally. The trainings were part of mystery shopping in the researched hospitality facilities. The companies perceive the training as practical, understandable, beneficial not only for the employees but also for the management. The owner and employees of the Brewery Erb appreciated the previous practical experience of the mystery shopping agency in the hospitality facilities, but they also said, that over the time, the training lost its effect and became monotonous in content and form.

The Restaurant Červený rak would be interested in using mystery shopping in the future as well, as they were satisfied with its results. Even though the work of the mystery shopping agency was evaluated positively, they think about contacting another agency and thus finding out a different view of the services providing in the hospitality facilities. Employees were informed about the evaluation before it was carried out but did not know the exact day and time. The owners of the Restaurant Červený rak appreciated that the owner of the mystery shopping agency came to the first evaluation, who found the main mistakes. Trained mystery shopper came for another visit. The evaluations were followed by training of employees and management. Finally, to determine whether the previous problems had been resolved and whether upselling had been successfully implemented, the mystery shopping agency carried out two further evaluations. Employees and management are still utilizing the training knowledge and number of satisfied customers is constantly increasing.

Restaurant X still realizes mystery shopping. Employees already had used to the evaluation and after multiple evaluations, perform their work with the greatest professionalism. But as the F&B manager claims, there is always space for improvements, so they continue to do mystery shopping and training. Mystery shopping helps them to discover hidden mistakes that they can correct and thus improve the services in all aspects. They have a good relationship with the mystery shopping agency and consider their approach to be professional and practical. The trainings help them to eliminate the identified problems, especially in the work of management and employees.

Conclusion

The development of mystery shopping in Slovakia began a little later, around the year 2000. In this time the method was already well known abroad, however, in our country it was considered more like spying and catching employees by making mistakes. Many companies fight so far fought this opinion, but the method should not be used as a tool for restrictions or sanctions, but it should provide employees with feedback on performance and mistakes, which they may often not even realize. In addition to detecting employee mistakes it can also reveal problems in business processes.

In this paper we have analyzed the mystery shopping agencies that are engaged in the evaluation of services in the hospitality facilities in Slovakia. Tales & tails is dedicated not only to the mystery shopping in hospitality facilities but is also dealing with catering and

bartending courses. Agency eXpertz Ltd. focuses exclusively on mystery shopping in tourism and the training they organize is based not only on the results of mystery shopping but especially on solution of the most common problems of tourism businesses. The main activity of the MysteryMan agency is the evaluation of accommodation facilities, but at the same time they also evaluate the hospitality department of the accommodation facility. Agency COMTESSA Consulting Ltd. focuses mainly on training of hospitality facilities and tourism organizations in the Liptov region, but, in addition to training, they also engage in mystery shopping. The last analyzed agency was Market vision, which is the largest mystery shopping agency in Slovakia. It focuses on several service sectors, including tourism. We have found that in Slovakia there are not many agencies that deal with the evaluation of services using the mystery shopping method in the tourism companies. Except eXpertz Ltd. no other agency is dealing exclusively with mystery shopping in tourism. In order to increase the sales of the agencies, they offer their services in several service sectors, thus expanding their corporate portfolios.

In the next part we have characterized the hospitality facilities using mystery shopping. We conducted structured interviews with the managers of the Brewery Erb in Banská Štiavnica, Restaurant Červený rak and Restaurant X, which wanted to remain anonymous. The hospitality facilities were satisfied with the results of mystery shopping and the subsequent trainings. They have seen an increase in their service quality and increased customer satisfaction. They want to continue to apply mystery shopping in the future. All three companies evaluate mystery shopping as a primary impulse for changes in the company but working to achieve success and satisfaction is a job especially for conscious management.

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II. Legal Aspects of Economics

Procedural Errors in the Evidentiary Process and Their Impact on Criminal Proceedings in the Slovak Republic

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Abstract

The lawful procedure in evidentiary process is a *conditio sine qua non* of the admissibility of evidence. In other words, it is a necessary condition for the admission of evidence in criminal proceedings. The violation of this condition leads to procedural errors leading to the unlawfulness of the evidence, as a result of which the accused may be acquitted. For this reason, it's the aim of this article, not only to define the procedural errors, whose incidence is particularly noticeable in providing evidence by law enforcement authorities involved in criminal proceedings, but also to analyse their impact on the outcome of the criminal proceedings, i.e. the decision about the guilt and punishment of the accused and on the basis of a specific example, to point out shortcomings which would be appropriate to prevent *de lege ferenda*. The presented article provides, on the one hand, a brief insight into the basic terminology related to the mentioned topic, explains the content and purpose of the legislation and on, the other hand, acquires more practical view, based on an analysis of selected example of procedural error in evidentiary process.

Keywords: evidence, means of proof, procedural errors, house search, evidentiary process

Introduction

Entorf (2012) maintains criminal procedural law is a significant instrument for detecting crime, whereas the quality of evidence provided for the court is crucial for final decision. The author further adds that indictment cannot be successful without properly prepared evidence. From a historical perspective, according to Trubnikova (2015), there is an interesting gradual development of criminal procedural law, which has moved from continental inquisition proceedings to criminal proceeding with an increasing number of

the elements of Anglo-American contradictory proceedings. Merkel (2014) claims the appointing of a person that is to produce evidence is nowadays often a topic of discussion, while in the past, it was the duty of judges to find evidence and prove guilt of the indicted person.

Ahori et al. (2008) regards evidentiary process as one of the primary steps of criminal proceedings that takes course and relates to all its stages. The author adds the process must aim at revealing the event as it really happened. Iburg (2000) states that the objective of evidentiary process is revealing the facts of the case without reasonable doubts in the scope necessary for a decision. With the help of means of proof and the evidence obtained from them, investigative, prosecuting and adjudicating bodies, possibly with the cooperation with the parties to proceedings, reconstruct the past events, which are the basis for making a decision about the cause of criminal proceedings.

Like the development of criminal law, according to Anastacia (2012), the development of evidence, including its principles, foundations and concepts depending on the nature of criminal proceedings, have logically undergone great many changes. Baranov (2012) states that new types of means of proof have been discovered in the past years. For instance, in the courtrooms of various states audio recordings, audio-visual transmissions or DVD media are used as means of proof. The police use the services of experts in the field of genetics, investigate crime committed (and thus detected) on the Internet, track down the offenders with the help of GPS2 systems, mobile phones, e-mails and use other modern ways.

If certain strict conditions are met, even the recordings of telecommunications traffic may be used as evidence (Cigliano, 2015).

Also, Jiang (2017) believes that evidence and application problems, with which they relate are one of the most frequently discussed topics in the field of criminal procedural law. In the background of the ongoing legislative changes in the criminal law, we can see the relentless effort of legislators to specify the procedure of law enforcement authorities¹ in the taking of evidence, as well as the way of implementation certain means of proof. Despite this effort, we should not forget the growing number of unlawful practices by providing evidence that result in decreasing the value of evidence, and such vitiating by unlawfulness becomes inadmissible in criminal proceedings (Borkov and Nikolaev, 2020)

Due to a considerable public attention to committing and clarifying crimes, especially due to a better organization and sophistication of offenders, it is the duty of law enforcement authorities to proceed with clarification prudently, consistently and, above all, in accordance with legal regulations. Although their role in criminal proceedings is irreplaceable at every single stage, it is most strongly reflected in the stage of evidentiary process, which forms an immanent part of criminal proceedings. Since the topic of evidentiary process in criminal proceedings is quite extensive, which is well-founded

¹ „Law enforcement authorities in criminal proceedings are the public prosecutor and police officer.“ Provision §10 section 1 of Criminal Procedural Code

in numerous professional publications, in the following sentences we focus attention to less known issues and procedural errors in criminal proceedings that are causally related to the final court decision about the guilt and the punishment of the accused.

Methods and Data

From the point of view of the present article as a whole; this article may be viewed as considerably systematic, which is particularly reflected in the application of the general-to-specific procedure. In the first place we applied the literary method through the study of numerous sources and, also, technical articles that gave us a sufficient view on the issue from the theoretical point of view.

In view of the topic, we could not omit the application of the method of analysis, which was particularly reflected in studying the provisions of Criminal Procedural Code as well as European and international standards on fundamental human rights and freedoms, including internal law, which relates to the following topic of procedural errors.

Due to the specific character of the researched problem, we also used the method of comparison with the legal order of the Czech Republic. In the end, it is also possible to notice a certain degree of generalization and a comprehensive assessment of the topic.

The definition of basic concepts examining the topic of evidentiary process

Evidentiary process, evidence, means of proof

The definition of the term of evidentiary process could be attributed to a relatively wide range of definitions based on a content, given that this is an area that is frequently discussed by many experts in legal matters. For the purposes of criminal procedural law, **evidentiary process** means, in particular, the activity of law enforcement authorities in criminal proceedings and the court, according to legal regulations, the aim of which is to become acquainted with the facts relevant for the decision about the guilt and the punishment of the accused (Záhora et al., 2013).

Other juristic literature offers a definition of evidentiary process as a procedural activity, which is carried out in order to reveal, perform, examine, evaluate and, last but not least, use factual data to determine the truth in a criminal case (Vajda, 1996).

However, the above-mentioned activity can be carried out only in accordance with the principles of criminal proceedings, the observance of which is given a huge emphasis and their possible violation would constitute a serious violation of the purpose of criminal proceedings. In this context, we can speak particularly about the principles allocated directly to evidentiary process, whether it is the principle of the presumption of

innocence, free evaluation of evidence, the principle of the search, immediacy, orality, and at last but not least the principle of the findings of fact beyond reasonable doubt (Šimovček et. al., 2019). Their application in evidentiary process creates a system which reflects effective, fast, but especially lawful clarifying of crimes. Due to the complexity, the evidence tends to be systematically divided into four stages, namely the search for evidence, the execution, the verification and, finally, its assessment.

However, it seems that the evidentiary process is just a kind of thoughtful activity, we should not forget that here is also a practical side of the reflow of account in the particular procedural actions of law enforcement authorities corresponding to the application of **means of proof** by which we mean mainly interrogating the accused, witnesses, experts, verification of the on-site statement, recognition, reconstruction, investigative experiments, inspection, items and documents relevant to the criminal proceedings, notifications, information obtained through the use of information technology means or means of operative investigative activities. In other words, means of proof can be defined as the tools by which law enforcement authorities obtain evidence.

Evidence is the result of the evidentiary process. Criminal Procedural Code in section 119 (2) states that the evidence can be called „*anything that might contribute to the proper clarification of the matter and what was gained from the means of proof may serve as evidence under this Act or under a special Act.*“²

The only exception to this rule is section 119 sub-section 4, Criminal Procedural Code, which mentions the situation of the use of evidence obtained by unlawful coercion or threat of coercion, which can be used as evidence against a person who used such coercion or the threatened coercion. An example of evidence is the testimony of a witness.³

Despite several common features of the Czech and Slovak criminal law, it is possible to encounter a different approach to the definition of the term of evidence in criminal proceedings. While the Slovak legislation is based on *a contrario* for evidence, we cannot consider what is not obtained by means of proof under this Act or a special Act.

There is a fact of importance, whether the evidence obtained by one of the means of proof corresponds to the lawful procedure according to Criminal Procedural Code or another special Act. Lawfulness comes to the fore over the usefulness of clarifying the matter. The Czech criminal law is based on *a contrario*, in fact, what cannot contribute to the clarification of the matter, does not serve as evidence. In the Czech provision, efficiency takes precedence over lawfulness.

Since the evidentiary process is a complex set of activities consisting of mutually related actions of law enforcement authorities, it is not surprising that their implementation leads to the cases of errors that could significantly affect the outcome of decisions about

² Provision sec. 119 (2), Criminal Procedural Code

³ Provision sec. 119 (4), Criminal Procedural Code

the guilt and punishment of the accused. We will deal with them in the following sentences.

Procedural errors in evidentiary process and their impact on criminal proceedings

In criminal proceedings, the term procedural error occurs in large numbers. Nevertheless, we do not find the meaning of the procedural error and the following synonymous expressions in both juristic publications and legal regulations. In this sense, the legislator failed to provide the legal definition without procedural errors and left the content or examples to the discretion of especially law enforcement authorities and courts. In this respect, in the light of recent case law, such errors are considered the errors in implementation which violate or deconstruct lawful procedure in the pretrial proceedings and its results, or which result in certain acts of the pretrial proceedings that are not accepted as evidence, while it is not possible to remedy these facts in court proceedings.

These include failures to deliver the indictment resolution, the action and decision of non-competent authority or the authority to be excluded, conducting the proceedings without the victim's consent, although his consent is required by the law, obtaining evidence by unlawful coercion or threat, conducting proceedings without a lawyer, as was the case of compulsory defence and failure to allow the accused or his lawyer to study the files after the end of the preparatory proceedings, insufficient clarification of crimes etc.⁴

Based on the resolution of the Supreme Court of the Slovak Republic in 2014, a procedural error can also be understood as non-compliance with the formal requirements of the procedure and acts in the pretrial proceedings. The regulation of the rights of the defence, the violation of which is demonstratively stated by the law as a procedural error, is based on section 34 sub-section 1, Criminal Procedural Code (rights of the accused) and section 44 sub-section 2, Criminal Procedural Code (rights of a lawyer).⁵

However, it is appropriate to differentiate procedural errors in two levels. In the first level there are substantive procedural errors, the existence of which seriously affects the correctness of the decision on the guilt and punishment of the accused and in the second insignificant procedural errors the occurrence of which does not affect the correctness of the decision (Viktoryová and Blatnický, 2014).

In response to the investigated issues of evidentiary process it is important to focus particular attention on the substantive procedural errors, which affect the use of evidence in criminal proceedings. In this context it is necessary to define two attributes of the use of evidence, namely its admissibility and lawfulness, and in the light of the above, also its effectiveness. The term admissibility can be defined more broadly than the concept of

⁴ Decision of the Supreme Court of Slovak Republic, File Reference No. 5 Tost 23/2016

⁵ Decision of Supreme Court of Slovak Republic, File Reference No. 2 Tost 18/2014

lawfulness because not only does it include lawful evidence (acquired *lege artis*) but also unlawful (acquired *non lege artis*).

After looking into section 119 sub-section, Criminal Procedural Code, we can only declare the existence of one explicit prohibition on the use of unlawfully obtained evidence in coercion or under the influence of the threat of such coercion, except for the application of such obtained evidence against the person who used the coercion.

In other words, the evidence obtained in the manner described above will be inapplicable procedurally, and, therefore, totally ineffective, and the defect in question is so substantial that it cannot be remedied even afterwards.

However, the application practice and the criminal procedure of law enforcement authorities have also brought about the existence of substantial defects, which are additionally remediable, and the evidence thus obtained can be used in criminal proceedings.

Currently, the possibility of their subsequent correction represents the dividing line between totally ineffective and relatively ineffective evidence. The kind of the procedural error affects the outcome of evidence. However, if it has been stated above that insignificant errors do not affect the correctness of the decision about guilt and punishment of the accused, they even cannot be granted legal consequences in the form of ineffectiveness of evidence (Jalč, 2008).

The impact of the existence of a procedural errors in criminal proceedings is conceived in the Criminal Procedural Code in section 241 subsection 1 paragraph f), also in section 244 subsection 1 paragraph h,) which states that *„the court shall refuse the indictment and return the matter back to the public prosecutor, if they find serious procedural errors, in particular that the provisions ensuring the rights of the defence counsel were violated.“*⁶

Therefore, we cannot talk about any procedural error, but about those which show the significant seriousness of the interference with the right of the accused.

Nevertheless, in the words of the District Court in Pezinok, the new legal regulation also requires the observance of, at least, minimum principles of criminal law in the pretrial proceedings in section 2, Criminal Procedural Code, whose violation must be considered as serious misconduct, as long as its material and processive impact is similar to the violation of the right of the accused.⁷ The existence of a procedural error also represents one of the reasons for the revocation of the decision by the Court of Appeals with regards to the following, *„significant in the proceedings that preceded the contested statements of the judgment, particularly because the provisions by which the clarification of the matter should have been provided or the right to defence were violated.“*⁸

The activity of law enforcement authorities consists of numerous procedural acts leading to the documentation of crimes and the detection of its offenders. Although the report of

⁶ Provision §244 section 1 letter h) of Criminal Procedural Code

⁷ Decision of District Court in Pezinok, File Reference No. 1 Pv 1107/08

⁸ Provision section 321 subsection 1 paragraph a, Criminal Procedural Code

the Prosecutor General's Office states that the rate of detection and successful punishment of the offenders is increasing,⁹ the number of criminal offenses is also increasing, including procedural errors occurring in the activities of either investigators or prosecutors neglecting the supervisory activities.

One of the reasons for this is the fact that there is a *non lege artis* procedure in documenting crime that has been committed, which devalues the evidence obtained and thus weakens its applicability or completely excludes it. Such conduct significantly reduces the likelihood of successful punishment of the offender and increases the chances of his release.

In the following example, we will approach the selected means of proof - a house search, the implementation of which is associated with numerous procedural errors by law enforcement authorities, and we will point out its influence on the decision about guilt and sentence of the accused.

House search as a mean of proof

The home search could be described in the theory of evidentiary process with a focus on the area of criminal procedural law as a special mean of proof. Such a special definition can also be observed in the legislation, which is also included in the legislator, specifically in the fourth chapter of the first part of Criminal Procedural Code, subsumed under the title of seizure of persons and things. Apart from the fact that it is undoubtedly one of the criminal processing institutes, it cannot be denied a criminalistic subtext.

Criminalistics as one of the leading methods of clarifying criminal offenses defines searching as a forensic method, the aim of which is to detain or find persons, things and other facts that are important for the clarification of criminal activity (Šimovček et. al, 2011).

The mentioned institute is very closely connected with the right to privacy as one of the basic human rights enshrined not only in the Constitution of the Slovak Republic Art. 16 (1) or Art. 19 (2) of the second title entitled Fundamental Human Rights and Freedoms, but also corresponds to the European framework for protection in the form of the Convention for the Protection of Human Rights and fundamental Freedoms, simply the European Convention on Human Rights in Article 8, points 1 and 2, including the international standard with emphasis on Art. 17 of the International Covenant on Civil and Political Rights. However, it is not surprising to recall that there is an exception to each rule, and despite this fact it makes no difference.

The use of house search is possible only with a restrictive interpretation of the conditions stipulated by law for its admissibility.¹⁰

⁹<https://www.minv.sk/?tlacove-spravy&sprava=v-roku-2019-policia-riesila-vyse-58-tisic-trestnych-cinov> also CRIME REPORT 2008 - 2019: <https://www.surveilligence.com/content/3-vzdelavacie-centrum/2-prieskumy/20200227-crime-report-2019/crime-report-2008-2019-by-surveillance.pdf>

¹⁰ In this context, it is possible to draw attention to the decision of the Constitutional Court of the Slovak Republic of March 29, 2006, File Reference No. 97/2006, which stated that the house search is a special

The use of house searches in criminal proceedings has also been accepted by the European Court of Human Rights, which has stated that states may decide at their discretion on the need for a measure, such as house searches, to obtain material evidence of crime. However, it is necessary that the legislation provides at the same time adequate and sufficient guarantees against abuse (Fryšták, 2015).¹¹

A house search, as one of the means of proof, is carried out by law enforcement authorities in criminal proceedings only if it is based on a reasonable suspicion that there is a thing or person in the house, apartment or other space used for housing that is important for the conducted criminal proceedings. This justification of the suspicion must be substantiated by the existence of such facts and information that is able to persuade that the person may have committed a criminal offense (Fryšták, 2015).¹² It is inconceivable that justification should be based solely on the reliance of law enforcement authorities to find something related to crime. The exact reasons for the use of the house search are also contained of Criminal Procedural Code in section 99 subsection 1 and only for these exemplary reasons it is possible to carry out a house search.

The lawful procedure of performing a house search

The use of house search itself must be preceded by a consent to perform it, which for the purposes of the law is authorized to be issued by the presiding judge or the judge for the preliminary hearing upon the petition of the public prosecutor. In urgent cases, the following persons are also entitled to act in this manner, the relevant presiding judge and, in the preliminary hearing, the judge for the preliminary hearing, in whose jurisdiction the search is to be performed.¹³

The warrant must be issued in writing with the justification as well. The content page must contain a description of the thing or person to be detained during the house search, provided his identity is known. Subsequently, it shall be delivered to the owner or user of the dwelling during the search and, if this is not possible, no later than 24 hours after the removal of the obstacle that prevented delivery. The person to carry out the enforcement is either the authority that has ordered it or, in most cases, at his order, a police officer.¹⁴

It should be emphasized that the *“house search may be performed only after the prior call of those that such action involves and only if the voluntary release of the sought item or the elimination of the reasons that led to such action cannot be achieved.”*¹⁵ An exception is the

intervention in the inviolability of the dwelling and can be carried out only for the purposes of the penitentiary, on the written order of the judge and a person who establishes the law.

¹¹ Judgment of ECtHR in the Case of Klass and others versus Germany 6 September 1978 (Application no. [5029/71](#)) European Court of Human Rights

¹² Judgment of ECtHR in the Case of Fox, Campbell a Hartley versus United Kingdom 30.8. 1990 Appl. No. 12244/86; 12245/86; 12383/86), Council of Europe: European Court of Human Rights, 30 August 1990

¹³ Provision, section 100 subsection 1 and subsectionsection 2, Criminal Procedural Code

¹⁴ Provision, section 100 subsection 1 and subsection 2, Criminal Procedural Code

¹⁵ Provision, section 104 subsection 1, Criminal Procedural Code

situation if the call itself would be hindered by an obstacle of a serious character or the call itself could be clearly unsuccessful.¹⁶

One of the important responsibilities of law enforcement authorities in terms of house search is to instruct the persons involved to know the right to carry out the search. Part of the home search is also the obligation of the authority to take an uninvolved person and prove the right to perform the given act.¹⁷

At the end of the house search, a transcript of the search is made which includes the details. A copy of the transcript shall then be delivered to the person concerned immediately or no later than within 24 hours, together with a written confirmation of the result of the act as well as the inventory of items that have been handed over or seized.¹⁸

Unlawful procedure of performing a house search

One of the relatively common procedural errors that can be encountered in the course of implementation in practice during an ongoing investigation with an emphasis on evidentiary process, especially in connection with the performance of house search, is that law enforcement authorities don't inform the involved persons about their right to be present during a house search or they come into the dwelling violently without previous a prior call. In this context, it is possible to refer to the decision of the Supreme Court of the Slovak Republic adopted in 2015. In the subject of the decision, M. Ž. was by a decision of the District Court in Ružomberok convicted of the crime of illicit production of narcotic and psychotropic substances, poisons or precursors, their possession and trafficking in them pursuant to section 172 subsection 1 paragraph c, paragraph d, Criminal Code, while keeping the illicit substance in a room on the ground floor in a family house until a house search was carried out by police officers, when the substance was seized.¹⁹

For this fact, the district court sentenced him to a 6-year, 6-month and 1-day unconditional imprisonment. The accused filed an appeal, which was rejected by a decision of the Regional Court in Žilina. Subsequently he filed, with a solicitor, an appellate review, in which, according to the discretion of the Supreme Court of the Slovak Republic, he referred to, among others, the reason in section 371 subsection 1 paragraph g; the decision is based on evidence, which was not lawfully performed by the court.²⁰

In the appellate review, the accused emphasized the fact that the house search of the family house of his parents, who are also its owners, was not carried out in accordance with the provisions of section 99, et seq., Criminal Procedural Code. It was mainly the fact

¹⁶ Provision, section 104 subsection 2, Criminal Procedural Code

¹⁷ Provision of section 105 subsection 1, subsection 2, Criminal Procedural Code

¹⁸ Provision of section 105 subsection 5, Criminal Procedural Code

¹⁹ Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

²⁰ Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

that his parents were not informed about the right to participate in the sense of section 105, Criminal Procedural Code; also they were not permitted, even though they were present.²¹ On this factual basis, the accused demanded a remedy for the violation of section 2 subsection 1, Criminal Procedural Code and thus, anyone shall be prosecuted for legitimate reasons and in a manner stipulated by this Act, and a violation of this principle is a significant error in the evidentiary process, with the causal consequence that such evidence is absolutely ineffective and cannot be taken into account in proceedings and decisions. The accused also noted that in the room, where the drugs were found together with the digital scale, he was not present and, moreover, there was no non-participating person whose presence was stated in the transcript on the house search. At the end of the appellate review, he proposed a motion demanding the court to decide about the violation of the law against him, revoke the decision of the regional court, also revoke the decision of the district court, and order the regional court to reconsider and decide the matter to the necessary extent.²²

The Supreme Court stated that the transcript from the house search made by the order of the judge for the preliminary hearing of the District Court in Ružomberok does not prove that the owners of the family house had been instructed before the house search in terms of their right to participate in the search, which had not been allowed with reference to section 105 subsection 1, Criminal Procedural Code and the transcript of this act was not even signed.

There is no doubt that the investigator, as the person entrusted with the execution of the judge's house search warrant, did not proceed in a lawful manner because the homeowners were not informed about their right to participate in the search, the person did not find out whether this right should be exercised, and the house search was carried out without the participation of the homeowners.

Another procedure of the investigator, which can be described as *non lege artis*, was the method of entering the building. In the sense of the above and at the same time according to section 106 subsection 2, Criminal Procedural Code, the investigator did not even perform a prior call to the concerned individuals so that they would voluntarily release the item in question, and violently came into the house.²³

As a result of this unlawful practice, the fundamental human rights and freedoms of the persons have been violated and the necessary extent to achieve the purpose of criminal proceedings has been exceeded, with an impact on the dignity and privacy of persons in the residence at that time.

From the above, it is unmistakable that the house search was conducted unlawfully and, in the house, drugs and digital scale were unlawfully seized, which is in line with the theory of the fruits of the poisonous tree. The content of the theory is based on a legal doctrine, through which legal issues concerning evidence in criminal proceedings are

²¹ Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

²² Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

²³ Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

resolved on the basis that if primary evidence is deemed unlawful, not only is it impossible to use this primary evidence, but also the secondary evidence, which was obtained on the basis of the primary evidence, in court proceedings. In this case, we could state that if the entrance to the house itself was not lawful, even the evidence, which was subsequently found and secured, is not considered lawful.²⁴

The Supreme Court of the Slovak Republic decided on the violation of the law in section 319, Criminal Procedural Code, and section 172 subsection 1 paragraph c, paragraph d, Criminal Code, to the detriment of the accused, revoked the contested decision of the Court of Appeals and the previous decision of the District Court in Ružomberok, and issued an order, as the Court of First Instance, to discuss and decide again.²⁵

It is worth noting that the procedure of law enforcement authorities, the supervisory activities of both investigators and prosecutors showed several procedural errors during performing house searches, for example, they failed to inform the residing persons, moreover, they forcibly intruded into the house without a prior call, which resulted in providing unlawful evidence, and the decisions about guilt and punishment of the accused were, together with the subsequent decisions, revoked.

Conclusion

The evidentiary process and the ensuing criminal procedure institutes are quite often the subject to proactive controversy in connection with the process of obtaining evidence and their subsequent admission in criminal proceedings. There is a noticeable effort by legal experts in the field of criminal law and case law of both national courts and the European Court of Human Rights to define the conditions for the use of individual evidence, which may be affected by procedural defects, which are already mentioned in the previous sentences. However, the amount of evidence is increasing by improving technology (videoconferencing call in the field of interrogation or information technology in interception) and it is, therefore, impossible to define the conditions and draft the legislation of Criminal Procedural Code and related legal rules so that the legislator can assume application problems that may arise in the context of the use of means of proof and subsequent evidence. For this reason, too, the issue of evidentiary process in criminal law is still urgent and current.

The legal closeness of both the Slovak and the Czech regulations of Criminal Procedural Code cannot be neglected. In numerous cases, it is precisely the Czech case law that help the Slovak judges in justifying decisions. In a recent decision of the Supreme Court of the Czech Republic, we have been presented a legal opinion that brought a

²⁴ Despite the Slovak Republic, as a legal entity, adheres to the European / Continental legal culture, the features of the Anglo-American legal culture cannot be denied to it. The principles, the application of which we encounter, are based on Appendix No. IV of the Constitution of the United States of America, provide a protection for both personal and domestic freedom from unauthorized searches in criminal proceedings.

²⁵ Decision of Supreme Court of Slovak Republic, File Reference No. 6 Tdo 75/2015

breakthrough to the issue of procedural errors as such, distinguishing the distinctive feature of procedural error from the crime of abuse of power by a public official in the form of intent.

The Supreme Court distinguished the procedural errors in terms of culpableness and procedural errors negligent, although there is a violation of the rights of defence of the accused, but the authorities involved in criminal proceedings caused that error unconsciously, and procedural errors deliberately, the *dolus* (intent) in this case reflects the criminal activity committed by the law enforcement authorities in criminal proceedings in the form of the criminal offense of abuse of power by a public figure according to section 326, Criminal Code, in other words, the violation of the rights of the defence is addressed in this case.²⁶

In the report of the Prosecutor General of the Slovak Republic on the activities of the Prosecutor's Office in 2018 and the findings of the Prosecutor's Office on the state of legality in the Slovak Republic, it can be observed, there is an upward trend in the procedural errors of police officers, which mainly consist of the violation the rights of the accused or the victims, the failure to comply with the instructions of the Prosecutor, the shortcomings in the final study of the documents after the completion of the investigation, the failure to interrogate witnesses and victims even after the indictment, the insufficient factual findings or the frequent violations of the provisions on the prosecution of juveniles. In relation to the topic, it has been noted, the authorised members of the Police Force who cannot carry out summary investigation independently and proactively²⁷ in the evidentiary process, gained an especially critical perception.

There is a curiosity, it is the fact that in 2018 there was a noticeable upward trend of procedural errors in the activities of police officers, which also corresponds to returning the matter back to the police officers for the completion of the investigation, the intensification of prosecutor supervision would be appropriate, particularly in the area of evidentiary process. Nevertheless, according the 2019 report, the number of the verification of files or the supervision activities of prosecutors concerning respect for legality in criminal matters²⁸ decreased.

One of the major attributes, which the Slovak Republic tend to boast of, is the rule of law, among other things, the respect for legislation, in relation to our topic we may specify that mainly in criminal proceedings. Procedural errors and their occurrence in the criminal proceedings have a significant impact on the decision of courts on the guilt and punishment of the accused.

For this reason, the public may often be the witness of an exemption of a potential offender, which may reflect a certain degree of injustice, there is a particular attention to

²⁶ Decision of Supreme Court of Czech Republic File Reference No. N7 Tdo 1121/2018-40

²⁷ Report of the Prosecutor General of the Slovak Republic on the activities of the Prosecutor's Office in 2018 and the findings of the Prosecutor's Office on the state of legality in the Slovak Republic

²⁸ Report of the Prosecutor General of the Slovak Republic on the activities of the Prosecutor's Office in 2019 and the findings of the Prosecutor's Office on the state of legality in the Slovak Republic

the victims of criminal acts. And therefore, it is appropriate to consent to the opinion of Oliver Wendell Holmes Jr., a former member of the US Supreme Court, „ *this is court of law, young man, not a court of justice.*”

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Human Rights, Freedoms and the Limits of Their Limitation in a Time of Pandemic

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Abstract

There can be no doubt that the coronavirus pandemic has had an impact on all countries and regions all over the world, as well as on all aspects of human life. In a crisis situation of such a type, not only human health is endangered, but also civil and democratic rights are restricted by means of “temporary” measures taken by executive or legislative power, which may restrict human rights excessively or by “failing” to take suitable measures, the interference with human rights may be suppressed. Although both international law and national legal systems allow restriction of these rights to certain extent with the aim to protect public health, many regimes abuse the pandemic to obscure their systematic restrictions going beyond the frame of the current situation. The aim of the presented article is to provide a factual view of the current situation in our territory, which in our opinion is not legally and socially sustainable in the long time. We will legally substantiate our views and express them as we see fit, based on the principles of democratic establishment of our society.

Keywords: democratic society, pandemic, human rights, emergency situation

Introduction

As Brumlik (2020) states, the ideas related to human rights and liberty and their protection has been undergoing many changes. The ideas have developed from the past to their current form based on general principles of the development of the society and the behaviour of individuals. They appeared mostly where the human rights and liberties were being violated.

The same view is shared by Brown (2016), who mentions that the development of the issue of human rights and liberties has gone a long and often dramatic way. According to Ismailee (2019), these concepts are currently encountered almost every day and practically everywhere. Each undue interference in these fundamental rights thus results in immediate condemnation either by people or by state. To prevent the violation of fundamental human rights and liberties or at least to limit it as much as possible, it was and it still is necessary to establish these rights, to characterize them and enshrine them in relevant documents, based on which it will be possible to monitor the compliance with these rights (Ife, 2012).

Sneh (2011) claims that mainly after the Second World War, all the inhabitants of the globe realized the meaning of the word peace. They wanted to live in peace, without fear, and therefore they were aware of the need to create a set of rules that would apply to all states and belong to all the people of the world. According to McFarland (2017), this set of rights, which presupposes a dignified life, is called the Universal Declaration of Human Rights, which has thirty articles. The Declaration adopted by the General Assembly of the United Nations, 10 December 1948 in Paris, although not a binding document, ie does not have the force of a treaty or law, is a political text that expresses values associated with respect for and protection of human dignity. Kuzelewska and Tomaszuk (2020) state that it is the best known and most cited document on human rights in the world. All the lists of human rights contained in international and national documents adopted after 1948 have their origins in it. Human rights are the rights of every human being, regardless of their race, religion, nationality or skin color. They are non-removable, inalienable, non-expiring and irrevocable (Maia and Pontin 2018). According to Zandy (2019), democracy has not worked / does not work in totalitarianism, and this fact is known to us from the recent past. It is the government of one person, group or political party that has suppressed / suppresses human rights in order to usurp such a position. We have the best chance of respecting human rights directly in a democracy. Here, it might seem that there is a general understanding in the world of what human rights are, how they need to be respected, protected, supported and promoted. Perhaps we could afford to think that the representatives we have elected know the meanings of the words freedom, equality, dignity and solidarity – principles of value that should form the basis of human rights. A healthy and prosperous state operates on democratic principles. Unfortunately, I dare to question whether this is the case in the current situation. As Riccardi (2019) states, only since the Enlightenment revolution in the 18th century equality and freedom of all people began to be seen as a fundamental and necessary element of the rule of law. From the 20th century the demand for freedom and equality has also begun to be enforced in international documents. Why do I mention that? Because the Slovak Republic is, in the sense of the Constitution of the Slovak Republic, a democratic and legal state that is not bound by any ideology. It is necessary to realize that even the most perfect rule of law interferes with the fundamental rights and freedoms of its citizens. We do not dwell on the restriction in the form of stopping at a red light at a traffic light or not parking in places reserved for the severely disabled if I do not have such a right. The state regulates me, but

I accept it as a general rule for the good of me but also for society. But what has happened in recent months, when even the most obedient of the obedient refuse to obey orders?

Methods and Data

Emergency vs. emergency situation

As we know, in Slovakia, an emergency situation was first declared in accordance with the provisions of § 3 par. 1 of Act no. 42/1994 Coll. on Civil Protection of the Population as amended (hereinafter referred to as the "**Civil Protection of the Population Act**") "*This is a period of threat or period of impact of an emergency on life, health or property, which is declared under the Civil Protection Act; during an emergency, measures are taken to save lives, health or property, to reduce the risks of danger or to the activities necessary to prevent the spread and effects of the emergency*". An emergency situation is the result of an emergency event. An extraordinary event is, for example, a natural disaster, an accident, but also a threat to public health II. degree. Only for the sake of complexity, we add that the Government of the Slovak Republic on March 12, 2020 due to the threat of public health of the 2nd degree according to § 48 par. 2 letter a) of the Public Health Protection Act, in connection with the occurrence of a communicable disease above the expected level and the need to take measures pursuant to § 6 and § 9 of the Civil Protection Act, declared an emergency situation in the Slovak Republic pursuant to § 8 of the Civil Protection Act population (Government Resolution no. 111/2020). An extraordinary situation is declared and revoked by the Government of the Slovak Republic if the extent of the endangered or affected area exceeds the territorial district of the region.

Subsequently, in a few days, the Government of the Slovak Republic declared a state of emergency, specifically on 16.03.2020, and it ended on the 90th day, i.e. 13.06.2020. However, it remains an indisputable fact that the extraordinary situation persists, as in the sense of the Civil Protection Act, an unlimited period of course can last, of course, under the conditions of compliance with § 3 par. 1 of the Act in question. *De iure*, therefore, from June 14, 2020, we had "only" an extraordinary situation in Slovakia, during which the legal regulation of the Civil Protection Act was to be followed.

Subsequently, a state of emergency was again declared in the entire territory of our republic, from 1.10.2020 for 45 days, ie until 14.11.2020. As we all know at the time of writing, the state of emergency was again extended for another 45 days, i. from 15.11.2020 to 29.12.2020.

The first and most important is the fact of the legitimacy of the declaration of a state of emergency. According to Art. 5 par. 1 of the Constitutional Act no. 227/2002 Coll. on State Security in Time of War, State of War, State of Emergency: (hereinafter referred to as the "**State Security Act**") "*The Government may declare a state of emergency only on condition that the life and health of persons has been or is imminent, even in a causal connection with the occurrence of a pandemic, the environment or the threat to significant property values as a result of a natural disaster, catastrophe, industrial, transport or other operational*

accident; a state of emergency may be declared only in the affected or in imminent territory.
"

It is important to fulfill the two characters that are contained in this sentence and are key to us. The first sign is the condition of an immediate threat to the life or health of persons in connection with the occurrence of a pandemic. However, it must not be forgotten that the last part of the paragraph in question, namely that 'a state of emergency may be declared only in the affected area or in the immediately endangered area'. It must be admitted here that a fundamental problem comes to the fore, which the Government of the Slovak Republic does not respect and in which the principle of proportionality is violated, because in the current situation the public interest in protecting life and health decides, I dare say does not exceed the individual rights of individuals.

According to Art. 5 par. 2 of the Constitutional Act in question, it is possible to "*Declare a state of emergency to the necessary extent and for the necessary time, for a maximum of 90 days*". Since the fact is that the requirement of necessity is not defined anywhere, it is naturally necessary to proceed from the usual interpretation of that word¹. Therefore, if something is to fulfill the attribute of necessity, the absolute need of the given state or restriction must apply. Looking at the headless prolongation of the state of emergency in the entire territory of the Slovak Republic, the fulfilled aspect of necessity does not come to me. I agree with the opinion of experts who have repeatedly called for the illegality of nationwide restrictions and have proposed the application of strict restrictions to those territories that fulfill the attribute of necessity. Thus, if the outbreak is concentrated in only one district, the requirement of necessity means that the government should declare a state of emergency not for the entire territory of the republic, but only for this particular district. If the virus and its consequences could be removed in a month, it would run counter to the need for the emergency to last for two months.

What scares me, as a lawyer, is the apparent bending of the law that we are witnessing, and in which everyone, even those with a degree from law university, pretends that it does not exist. The most professional, who, as guardians of justice and justice, should pay attention to the observance of the constitution and laws, either hide their heads in the sand or, in the worst case, instead of correcting the situation *de lege lata*, propose changes to laws and the constitution itself.

On the other hand, it is necessary to admit a certain leniency, because at stake it is the most valuable thing we have. No one counted the situation regarding the coronavirus pandemic. No one knew how to fight it, how best to protect the lives and health of the population with the lowest possible devastation consequences. But shouldn't the just as difficult period that we are currently going through not just us, but the whole world, a reason to postpone all conflicts and hate speech? I firmly believe that the majority will agree with me. On the other hand, how to achieve this? It is not easy to be at the head of a

¹According to the synonymous dictionary, the meaning of the word necessary means, such) 1) which must be absolutely necessary, necessary, such, 2) which cannot be avoided, which must become, inevitable.

company in a situation like this. People are angry, passions are escalating and the situation is becoming socially unsustainable.

Breaking the gate, breaking interpretations, throwing cobblestones or public wording are not acceptable in a democratic society to express legitimate disagreement. I do not agree with the situation we witnessed a few weeks ago. So let's realize that aggression is not the way out of problems.

I dare say that due to the result of comprehensive testing² that we had in Slovakia, the situation is not such that we can legally meet the conditions of Article 5 para. 2 of the State Security Act in time of war, state of war, state of emergency and state of emergency. I unequivocally consider that the government does not respect the constitutional law in question and thus restricts people to their personal freedom. My view is in line with the analyzes of leading constitutional lawyers. I will quote former vice-president of the Constitutional Court of the Slovak Republic Eduard Barány, who said the following about the current situation: "*The claim that widespread coronavirus testing will be voluntary and at the same time force people who cannot be tested to remain in domestic quarantine is a propaganda lie. It is a fraud*". Constitutional lawyer Peter Kresák also described the government's sanctions as a "*constitutional problem*". He expressed the belief that if this sanction remained there, it would be challenged very quickly in the Constitutional Court. Is it possible that so few people perceive this enormous injustice? Is it possible that so few people realize that intimidation and threats are not the right way out of the crisis?

Since the beginning of the coronavirus pandemic, we have had limited rights and freedoms under this law, with the government declaring a state of emergency. At present, however, I do not share the view of our executive power, and I argue that there are no legal and legitimate reasons for the state of emergency to continue throughout the territory of our republic. I boldly argue that in the proportionality test, such a state of emergency for all spheres of social life and declared throughout the territory of the Slovak Republic would not pass.

Results

Legality of anti-epidemiological measures, yes or no?

One of the other aspects with which the legal community in particular should have a problem is the legality of anti-epidemiological measures issued by the Chief Hygienist of the Slovak Republic. We are faced with another doubt whether the person is entitled by law to issue such measures in the form of decrees, resp. if so, who has given such strong power into the hands of one man?

² Within the area testing carried out on 31 October 2020 and 1 November 2020, out of the number of 3,625,332 tested citizens of the Slovak Republic, 38,359 citizens were evaluated as positive for COVID-19. This is 1.06 percent of positively tested citizens who are in quarantine (in the 2nd round on 7-8 November 2020 in 13 districts, out of 2,044,855 people tested, 13,509 were positive, which represents 0.66 percent).

Throughout this situation, I have not allowed myself to disparage the need for increased protection of public life and human health. I'm just used to it and it comes natural to me to ask questions and look for adequate answers. If we are to have limited basic human rights and freedoms, guaranteed not only by the Constitution of the Slovak Republic but also by international documents superior to it, I want to know who and on what basis restricts those rights, whether he has a legal right to the restriction and if he has it, or the legitimacy of the monitored the goal cannot be achieved even by less serious intervention. You may have just said to yourself that I am asking myself unnecessarily many questions, that I should simply give in and "walk with the crowd", but this is contrary to my convictions. I think that it is definitely necessary to discuss the situation, look for the closest possible intersections with the law and other legal regulations. It is necessary to listen to experts, follow their recommendations and not testify their work.

One of the most acute problems seems to me to be the lack of competence of the authority issuing a large part of anti-epidemiological measures. As I have said several times, and what needs to be constantly remembered, the Slovak Republic is a democratic and legal state. A well-governed state and a well-governed society are based on two basic building blocks, namely democracy and expertise. We agree with Drgonec, who argues that a democratic state is a well-organized and governed state based on a balance of democracy and expertise (Drgonec, 2015, p. 217). The state is the guarantor of respect for human rights, their application and enforcement, if it adopts laws protecting and promoting human rights, if its representatives themselves observe the law and respect the constitution.

Here we must always proceed from the basic rule stated in the Constitution of the Slovak Republic, which in Art. 2 par. 2 states that state bodies may act only on the basis of the Constitution, within its limits and to the extent and in the manner provided by law. Therefore, we must always examine which authority issued the decision and according to which law. It is the law that can give us an answer as to whether or not it has the authority to do so. Article 17 of the Constitution of the Slovak Republic stipulates that personal liberty is guaranteed and no one may be deprived of his liberty other than for reasons and in the manner provided by law.

Paradoxically, the situation for me is when decrees issued by the Public Health Office of the Slovak Republic (hereinafter "**PHO SR**") are built to the legal level, without any legal justification, I dare say, wrong. Is it not a violation of the law to issue decisions of state bodies in which the competences of the given issuing body and the procedural procedure itself are circumvented? Does the Chief Hygienist, as a representative of the Public Health Office, have a mandate to issue generally binding legal regulations? I base my opinion again on the legal situation in our country.

Decrees of the PHO SR, which restrict the fundamental rights and freedoms of individuals, are ordered by the PHO SR on the basis of § 59b par. 1 (If it is necessary to order measures pursuant to § 12 or § 48 par. 4 in the whole territory of the Slovak Republic, a certain part of its territory or for a group of persons other than individually designated persons, shall

be ordered by the Ministry of Health [§ 4 par. 1 letter g)], the Public Health Office [§ 5 par. 4 letter k)] or the regional public health office [§ 6 par. 3 letter e)] by generally binding legal regulation.) z. no. 355/2007 Coll. on the Protection, Promotion and Development of Public Health and on the Amendment of Certain Acts (hereinafter referred to as the "**Public Health Act**"). Here we see that the Ministry of Health of the Slovak Republic, PHO SR and the regional public health office may issue generally binding legal regulations if necessary, in the form of measures called decrees, which enter into force on the day of their promulgation in the Government Gazette. There would be nothing illegal about this fact if the Ministry of Health of the Slovak Republic itself amended the Act on Public Health, specifically the amendment to Act no. 69/2020 Coll. on interim measures in relation to the spread of dangerous diseases of human illness COVID-19 in the field of health care and which amends and supplements certain laws (hereinafter referred to as the "**Act on Extraordinary Measures Related to the Dissemination COVID-19**"). , The Ministry of Health of the Slovak Republic is given the opportunity to order measures. "

But let's turn all this information into small pieces. The provision of § 48 par. 4 of the Public Health Act determines the scope of the PHO SR power to issue measures during the so-called threats to public health. At the same time, the Public Health Act does not specify what is specifically considered to be a threat to public health. However, distinguishes between the threat to public health and the threat to public health II. degree. Public health hazards II. degree is definitely more important for the state, which is reflected in the Public Health Act in ust. § 48 par. 5, which fulfills and at the same time orders the PHO SR to, in the event of a threat to the public health II. degree submitted a proposal for the declaration of an extraordinary situation under the Act on Civil Protection of the Population. But we have had an extraordinary situation here since March 12, 2020, and it continues. The following logically follows from this fact. PHO SR did not have to submit a proposal for a declaration of an emergency situation, because it already existed in our territory. But at the same time, with regard to the fact that the extraordinary situation persists, the government of the Slovak Republic and the Ministry of Health were to take over the management measures during the extraordinary situation. as a central body of state administration in the field of health care, under which PHO SR operates as a budgetary organization of the ministry. In view of this, the question is to what extent (and if at all) the PHO SR was (and still is) entitled to issue measures It is during a temporary situation.

Discussion

By a logical interpretation, I would like to argue that the PHO SR can issue measures in the form of decrees only in the event of a threat to public health of the 1st degree, as in the case of a threat to public health of the 2nd degree this power passes into the hands of the Ministry of Health. There is also a certain withdrawal of competencies of state administration bodies in the field of those from the importance of public health hazards, which has its own economic logic. In the event that there is a risk to public health, it is not

yet II. level, its tasks are competent to perform directly PHO SR according to § 48 par. 4 Public Health Act. In the event that the threat to public health reaches II. degree, PHO SR should have its finances according to § 48 par. 5 to the extent that it submits a proposal for the promulgation of an extraordinary situation, and thus fulfills its complex and further, it should be followed according to the Code of Civil Protection, as it also follows from the legal adjustment reports.³ This at the same time emphasizes the important competencies in the dependence of the lot from the seriousness of the situation, which confirms it is my partial belief that the Public Health Office is not entitled to issue the PHO SR Measures to the extent that it can issue them during the intermittent situation of health education. The Constitution of the Slovak Republic in Art. 123 also refers to such a situation when it claims that all other executive bodies may issue a secondary legal act only if the law explicitly states which public authority and to what extent regulates the issue which is the subject of the statutory regulation. We have such a law here. Specifically, the above-mentioned Act no. 69/2020 Coll., Which was granted this authority to the Ministry of Health of the Slovak Republic. So why isn't this legal option, this legitimate right, being used, but are we involved in exceeding legal competences?

We will remain with anti-epidemiological measures for a while. As we have been overwhelmed by them since the beginning of the pandemic, it is necessary to adequately express the legal opinion on their legality and thus define or draw attention to possible legal shortcomings.

We have already talked about the state of emergency above. In principle, it is declared by the Government of the Slovak Republic on the condition that it has occurred or there is an imminent risk that the The number and health of persons, among other things, also in the causal connection with the emergence of pandemic.

The procedure for the authorities of public power during the emergency status is replaced by Act no. 387/2002 Coll. on the Management State in Crisis Situations Outside the Time of the War and the Military Status (hereinafter referred to as the "**Crisis Act**"). It regulates, inter alia, the powers of public authorities in the management of the state in crisis situations outside the time of war and military status, the rights and obligations of legal entities and natural persons in preparing for crisis situations outside the time of war and military status and their resolution and sanctions for breaches of obligations by law. The Act further regulates crisis management bodies including the Government of the Slovak Republic, the Security Council of the Slovak Republic, ministries and other central state administration bodies, the National Bank of Slovakia, the Regional Security Council, the District Office, the District Security Council and the municipality. The Office of Public Health among these bodies, I think that everyone recognizes, is not and now is not even the body of the crisis management, this is, after all, the Ministry of Health and, of course, the government of the Slovak Republic.

³ Reasonable report to Act no. 69/2020 Coll. on interim measures in relation to the spread of dangerous human diseases COVID-19 in the field of health care and which amends and supplements some laws.

We believe that the legislator has logically defined the hierarchy of state administration bodies and thus strengthened the function of their competence. *A priori*, we do not see the importance of the Government of the Slovak Republic and the Ministry of Health issuing measures in times of emergency and emergency situation if this competence could be performed on their behalf by the Public Health Office. We would also like to emphasize the fact that in the event of a declaration of a state of emergency, it seems to us justified that the Government of the Slovak Republic and the Ministry of Health have strengthened powers.

It is therefore up to each of us to deal with the above, but we are of the opinion that the legality and legitimacy of the PHO SR measures are contrary to constitutional principles and conflict with respect for fundamental rights and freedoms, division of power and, last but not least, the principle of rule of law. Perhaps many will ask themselves whether it is important to deal with what the PHO SR has already issued and declared, to which the citizens of our republic have already submitted, either voluntarily or by force. However, I unequivocally argue that it is precisely in the time and situation in which we find ourselves that the proportional restriction of fundamental rights and freedoms and, in particular, the precise definition of the competence of which body entitled to such principles into human rights is extremely important. Unfortunately, last but not least, we see that the situation with COVID-19 remains serious and therefore our position could at least be stimulating for the future.

Conclusion

In summary of the above, we would like to state that we do not seek to question the actions of state authorities, but rather to point out that even in such difficult times, state authorities should strictly abide by the law and lead by example. For natural and legal persons, the presumption of knowledge of legal regulations applies (everyone knows the law), the more the competent representatives of these citizens should know it. It is not that the authorities cannot order certain measures, but if they do, let them ensure that the law is observed. Failure to do so will only cause further problems⁴.

In conclusion, we dare to say that in the current situation, when society is struggling with economic as well as social problems, it is necessary to follow the expert opinions and recommendations of scientists and qualified people from the fields of medicine, biology and epidemiology. Undoubtedly one of such are the members of the Slovak Medical Chamber. We should not witness the dishonesty of the scientific leaders⁵, because such a direction could lead us to a society-wide rebellion.

⁴ An example of one of these problems is France, where the prosecutor's office is already prosecuting the Prime Minister and the Minister of Health for failing to cope with a pandemic during the first wave of coronavirus.

⁵ An example is Professor Jaroslav Flegr, who is ranked among experts of European format in the field of parasitology and ecology, who often spoke about the Covid-19 pandemic.

The principles of democracy and human rights are not enforced automatically, and we are no longer saying that simply. As we can see, it is not enough to "just" anchor them in the constitution. They must be constantly renewed, enforced and discussed by the right people (competent politicians, constitutional officials, judges, elected representatives at all levels of power). Respect for human rights is a necessary condition for the functioning of democracy and the rule of law, it is a prerequisite for a dignified life for its people.

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