Varazdin Development and Entrepreneurship Agency and **University North**
in cooperation with
Faculty of Management University of Warsaw
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat
Polytechnic of Medimurje in Cakovec

Economic and Social Development

59th International Scientific Conference on Economic and Social Development

Book of Proceedings

Editors:
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CONTENTS

DETERMINANTS OF THE DEVELOPMENT OF LOGISTICS IN SMES IN POLAND, ESPECIALLY IN THE LODZ VOIVODESHIP IN THE YEARS 2019-2020

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ABSTRACT

In Poland the population of enterprises increases every year contributing increasingly bigger share of the GDP. The SME sector made up of economic operators employing not more than 250 people represents ca. 98.9% of all enterprises in Poland (PAED, 2019, p.15). Nowadays, we know advantages and benefits of logistics operations pursued by companies from the SME sector as well as by large enterprises. In accordance with the definition of logistics proposed by the Council of Logistics Management through… adequate planning, implementation, and control over the effectiveness and economic efficiency of the flow of raw materials, unfinished production, finished goods, and related information from their place of origin to the place of consumption to meet customer requirements, one may shorten the time and minimise costs of such flows retaining the quality of service expected by customers (A. Łupicka, 2005, p. 2). However, from the point of view of the scale of SME operations, these firms may face many barriers to development on the way. For example, the lack of capital and co-financing possibilities for logistics development in SME, on the other hand, one can observe significant increase in demand for logistic services for SME. This is why the goal of this paper is to discuss motives and barriers to logistics development in SME in Poland using the Lodz voivodeship as an example (situated in the central region of the country and having Lodz as its voivodeship capital). The first part of the paper introduces theoretical aspects connected with the competitiveness of the environment that are considered in the strategy of logistics services rendered by the SME. The second part of the paper presents results of questionnaire-based studies conducted in SME in Poland over the years 2019-2020.

Keywords: *logistics, SMEs, transport*

1. INTRODUCTION

In Poland, every year the number of SMEs is being increasing, in particular the number of micro enterprises (which employ fewer than 9 people). The Report of the Polish Agency for Enterprise Development (PAED) on SME in Poland based on statistical data of the Statistics Poland (Polish abbr. GUS) informs that in 2017 the population of SME sector was 2.08 mio of non-financial enterprises operating in Poland, being by 3.5% bigger compared to 2016 and by 16% than in 2018. Following from this, we can learn from the PAED Report that:

- on average, two out of three businesses from the SME sector survive the first year of operations. In 2017 there were 271, 813 start-ups while in 2018 this group shrank to 180, 123 businesses,
- SME sector continues increasing its contribution into the GDP (with the exception of micro-businesses). The growing trend was reported in the period 2004-2016 for firms employing fewer than 50 people (from 7.6% to 8.5%) and medium-sized enterprises which employ not more than 250 people (from 10.0% to 11.1%). The share of micro-firms in GDP dropped from 31.0% to 30.2%,
- in the SME sector, service companies make up the biggest group (52.3%). (PARP pp. 5, 6, 17)

The PAED Report of 2019 also assesses the economic situation in Poland which is less favourable than over the period 2017-2018. In these studies, economic situation in Poland was assessed positively by 27% of respondents compared to 2018 when the same opinion about economic situation was expressed by 48% of respondents (PARP, 2019, p. 88). Economic situation is one of many conditions of business development. The paper aims to discuss selected determinants of SME development using the logistics, one of the fastest developing sectors of the Polish economy, as an example and paying special attention to the Lodz voivodeship (which hosted 126, 602 SME in 2017, accounting for 16 % of all SME in Poland), (GUS, 2019, p. 9). The studies take account of the fact that the opinion about the development of SME logistics depends on firms who are logistics service providers and firms to whom logistics strategy is often one of the major components of their strategy and market competitiveness.

2. COMPETITIVENESS OF THE ENVIRONMENT IN WHICH LOGISTICS SERVICES DEVELOP IN SME SECTOR

Strategy of any company considers different areas of business operations, such as, e.g.: supplies, production, marketing, finance, and logistics. The growth of international business forced out changes in supplies of goods and services to the consumer market, (E. Gołembska, 2006 r., p. 17). That is why firms increasingly more often look at how the logistics strategy understood as *…the set of guiding principles, driving forces, and ingrained attitudes that help to coordinate goals, plans, and policies and which are reinforced through conscious and subconscious behaviour within and between partners across the network* (*A. Harrison, R. van Hoek, 2010r.,* p. 58) is drafted. When logistics strategy is put in place in a company, the competitiveness of the latter grows, both when logistics services are rendered by firms manufacturing goods and services, as well as when such services are bought from external service-providers from the transport-shipping-logistics (TSL) industry. As a result, when developing their supply chains, businesses should consider a number of aspects, such as, e.g.:

- offering a unique logistics service which can distinguish them from what is offered by the competitors,
- ability to make alternative choices as to supply chain management within the company,
- integrating logistics processes to ensure smooth flow of goods to the end-recipient, i.e., the customer,
- continuous improvement of logistics processes in the firm, (*A. Harrison, R. van Hoek,* 2010 r., p. 62).

The above presented components of a smooth and well-performing flow of goods and services will be decisive for the success or failure of SME undertaking. Competitiveness and success of their operations depends also on motivation and barriers emerging in the environment. Such information is crucial for start-ups but also to existing market players. Having this knowledge, firms can exploit, e.g., market niches to expand their operations or protect themselves against risks resulting from events and occurrences taking place in the competitive environment. External environment is a critical factor which impacts how a firm manufactures goods or renders services. External environment may consist of components, such: economic, technological, political and legal, international, and socio-cultural contexts (I. Pisz, T. Sęk, W. Zielecki, 2013, p. 25) that have huge impact on economic situation. According to data provided by GUS in February 2018, economic situation in the transport and warehousing industry was positive reaching +15.5, the highest compared to Februaries over past fifteen years. (GUS, February 2018, p. 23) In February 2019, the overall assessment of investment climate was plus 3.7 and was influenced by, among others: growing payment delays in the service sector and expected price rises within forthcoming 3 months (GUS, February 2019, p.21). The management theory knows the notion of 'internal environment' which, however, raises many

doubts since it is equated with the organisation and consists in controlling internal assets of a firm (M. Matejun, M. Nowicki, 2013, pp.152-153). Yet, the dynamics of external environment is definitely much higher than that of the internal environment of a firm. This is why it is important to take a closer look at selected determinants in firms using the example of the development of logistics in SME. Finally, factors from the SME environment that will be decisive for the success in business and factors restricting their business growth will be presented together with findings of questionnaire-based studies discussed in the second part of the paper.

3. RESULTS OF QUESTIONNAIRE-BASED STUDIES

Questionnaire-based studies devoted to the development of logistics in SME sector in Poland paying special attention to the Lodz voivodeship were conducted between February 2019 and February 2020. Research methodology was based on an original questionnaire distributed among 33 firms out of which 32 qualified for the study. Most interviews were conducted in the Lodz voivodeship (26 firms), a region situated in the central part of Poland (Table 1). Only 3 out of 28 firms were based in Lodz (the capital city of the region, hosting its authorities, with 690, 422 residents), (uml.lodz.pl). The remaining firms are based in towns and villages inhabited by fewer than 71, 455 people, i.e., below the size of population reported for Piotrkow Trybunalski, the second biggest town (immediately after Lodz) (www.piotrkow.pl, 2020 r. p. 5). The studies were conducted in 4 firms from the SME sector based in the following voivodeships: mazowieckie (2 firms), opolskie (1 firm), and śląskie (1 firm) voivodeships. Firms from the SME sector which participated in the studies exhibited the following characteristics:

- half of firms from the SME sector (16) offer TSL services while the second half were engaged in manufacturing and services not related with the TSL;
- when it comes to firms' age, it was distributed evenly across last three decades: 11 firms were launched between 1990 and 2000, 10 over the period 2001-2010, and 11 in 2010-2019;
- the biggest number of firms, 14, were micro-enterprises, 13 small enterprises, and 5 medium-sized enterprises;
- most firms from the SME sector rendering TSL services operate at the international level (13 firms) while manufacturing enterprises and other service providers operate mainly at national level (9 firms).
- when answering the question: how important is logistics compared to other processes taking place in your company assuming that *…logistics is a concept of integrated management of sequences of logistics flows, processing and activities connected with handling – from suppliers to end-customers – indispensable to manufacture a product or service in effective and efficient way* (J.J.Coyle, E.J.Bardi, C.J.Langley Jr, 2007, p.30),

Table following on the next page

Industry	Transport-shipment-logistics			Other industries that consider logistics in their strategies		
Size of firms from the SME sector	Micro-enterprises	Small-enterprises	Medium-sized enterprises	Micro-enterprises	Small-enterprises	Medium-sized enterprises
Based in	Lodz; Wolborz, Tomaszow Mazowiecki (2), Opoczno; BrudzewiceKolonia, Piotrkow Trybunalski, Opole	Piotrkow Trybunalski, Nowe Chrusty, Tomaszow Mazowiecki (3), Zdunska Wola, Swierczow	Toma-szow Mazo-wiecki	Tomaszow Mazowiecki (2); Lodz, Koluszki, Inowlodz; Galkowek	Opoczno, Toma-szow Mazo-wiecki; Wolborz; Lodz, Skiernie-wice, Aleksan-drow Lodzki	Ujazd; Opoczno; Dabrowka Nowa, Teresin
Date of launching operations: 1990-2000 2001-2010 2010-2019	 1 7	 1 6	 1	 2 4	 5 1	 2 2
Business profile	Transportation services (2); Road transport (1); transport-shipment (3); Transport-logistics (1), transport-services (1).	Transportation services (3); Road transport (3); Transport-shipment (1)	Trans-port-shipment(1)	Cosmetics services (1); Produkcja wyrobów tartacznych (1); Innovation, electric energy distribution (1); trade (1); carpentry services (1); electric industry (1)	Trade (2); Disposal (1); Wholesale trade (1); Advertising (1); Textiles (1)	Agricultural and construction services (1); Manufacturing advertising expositions (1), Exports of fruit and vegetables (1), manufacturing of packaging and man-made plastic (1)
Total	8	7	1	6	6	4
	32					

Table 1: Characteristics of SMEs involved in questionnaire-based studies (Source: author's own compilation based on questionnaire-based studies)

Most firms from outside of the TSL industry decided that the development of logistics was very important to them (50% of responses). In turn, to 38% of investigated firms logistics was important. Determinants of the development of logistics in the SME sector for questionnaire-based studies were selected based on the subject-matter literature and discussions during classes

with 2nd and 3rd year part-time students of 1st degree programme in *Management studies* at the University of Lodz Branch in Tomaszów Mazowiecki in the academic years 2018/2019 and 2019/2020 who chose *Logistics* as their major. Most part-time students work in TSL-related businesses or in manufacturing or service firms to which logistics is part of their strategies, which is why when discussing the issue at classes they drew attention mainly to external factors which pose huge challenge for the growth and sometimes even for the survival of companies in the market. Figure 1 shows results of questionnaire-based studies from the point of view of factors motivating the growth of logistics in the SME sector.

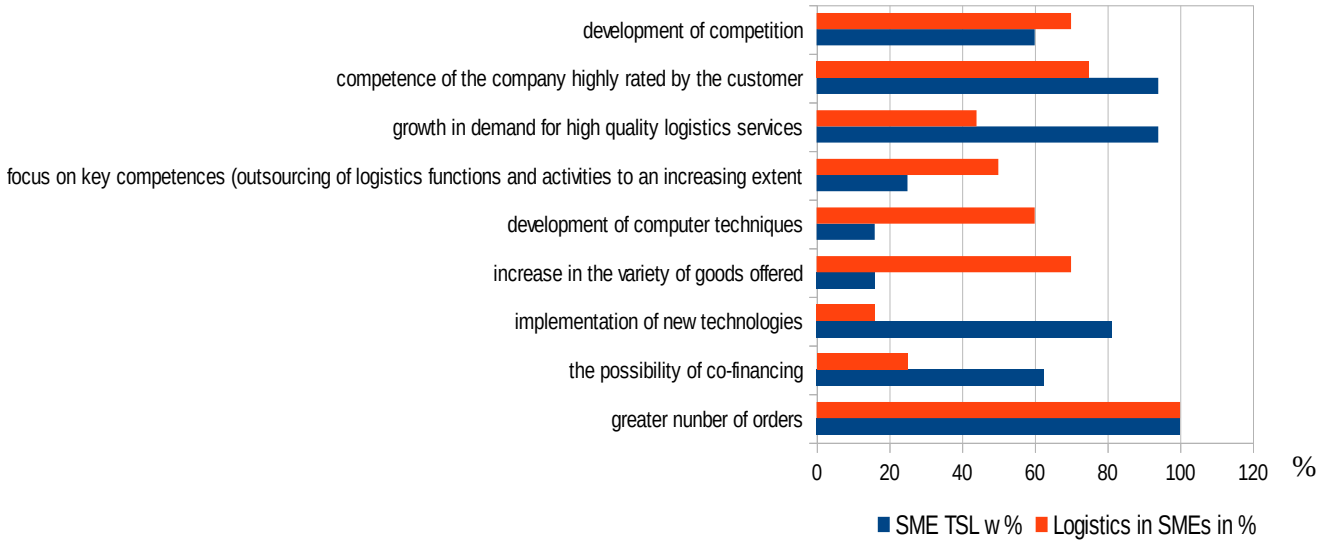

Figure 1: Motivation behind the growth of logistics in the SME sector in Poland between February 2019 and February 2020 in %.
(Source: author's own compilation based on questionnaire-based studies)

The first group of motives that impact the growth of logistics includes: bigger number of orders, enterprise competences (according to A. De. Chiara: tangible resources, e.g., financial, human resources and intangible resources, such as, e.g., corporate culture, competences) highly rated by customers, (R. Matwiejczuk, 2014, p. 69), and the development of competition. More than 50% of interviewed firms gave positive answers, both these rendering TSL services, as well as manufacturing, and service (other than in logistics) firms, amounting respectively to: 100% and 100%, 94% and 75%, and 60% and 70%. In further stages of the studies, the importance of factors that impact the development of logistics differs depending on business profile of a company. To firms from the TSL industry which render services to companies from other industries such factors include: growth in demand for high quality logistics services (94%), implementation of new technologies which speed up the automation of purchase processes (81%), and the possibility of co-financing (62,5%). On the other hand, the major motives for the development of logistics in companies, to which logistics is a component of their strategies are: increase in the variety of offered goods (70%), development of IT techniques (60%), and focusing on key competences for their business and increasingly bigger outsourcing of logistics functions and operations (50%). When analysing reasons behind the development of logistics in SME, attention should be paid to the fact that they may exert a significant impact upon restricting or enhancing barriers to such development. For example, using logistics outsourcing in SME may boost the flexibility and efficiency of business operations or access to specialist technology. The absence of outsourcing closes access to specialist technologies used in supply chain management in the company and may undermine the quality of customer service.

Hence, a question may be raised about barriers that most frequently hamper the development of logistics services of the SME sector. Results from questionnaire-based studies on the issue are presented in Fig. 2.

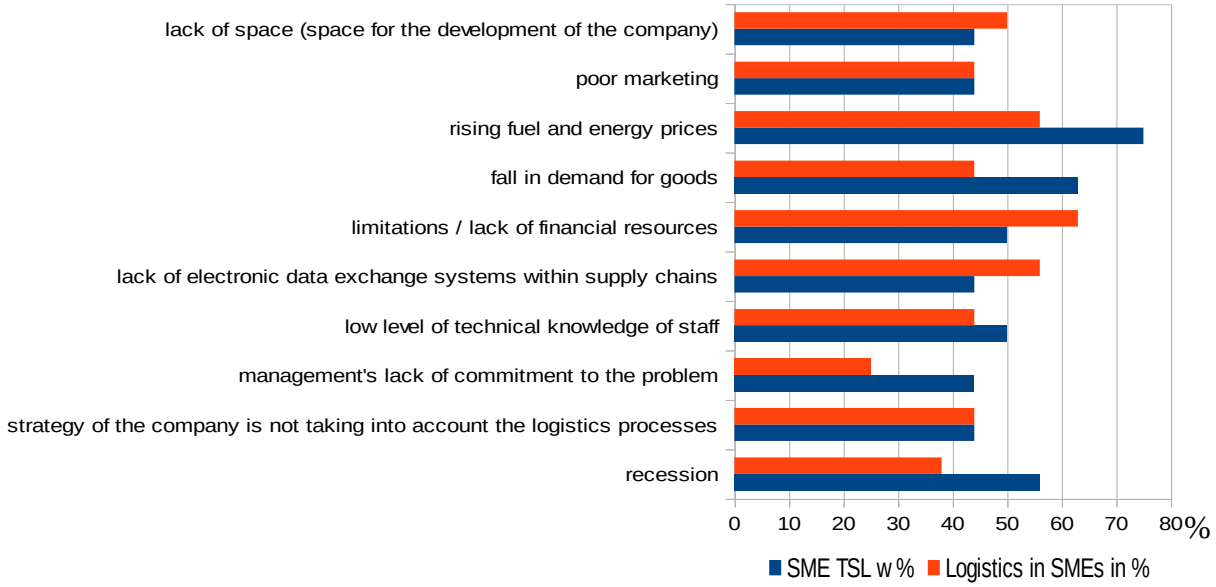

Figure 2: Barriers to the development of logistics in the SME sector in Poland between February 2019 and February 2020 in %.
(Source: author's own compilation based on questionnaire-based studies)

Asked about the biggest impediment to the growth in sales of products and services, the SME list: rising fuel and energy prices as well as limited/or non-existent financial resources which forces out improvements in the company. More than half of entrepreneurs believe that financial barriers connected with high costs of business connected with rendering logistics services or, where logistics is an important component of smooth flow of goods and services in the SME sector, they may reduce their competitiveness, mainly vis-à-vis big companies. These firms gave the same number of responses to questions (i.e., 44%) for the following factors: poor marketing (which restricts the creation of value added for the company through logistics) and disregarding logistics processes in strategy, which may exert adverse effect on customer service when, e.g., the execution of an order requires more time. Firms from the SME sector operating in TSL industries mention also the following as barriers to logistics development: recession (56%), low level of technical knowledge of staff (resulting from the absence of training for staff and, more frequently, from financial and material possibilities of firms), (50%), drop in demand for goods (63%) implying drop in demand for logistics services. Manufacturing and service firms from outside of logistics industry, drew attention to the absence of electronic data exchange systems within supply chains (56%), and the lack of space for the development of a company (50%).

4. CONCLUSIONS

SME in Poland exert significant impact on the market by manufacturing goods and rendering services and provide impulse for the growth of the local economy. Logistics is nowadays one of the major industries of the global economy. More and more manufacturing and service SMEs focus on the development of logistics in their firms to create a competitive advantage in the market and thus improve the quality of customer service. This is the reason why the paper attempts to examine selected determinants of the development of logistics in the SME sector from the point of view of logistics development, mainly in the Lodz voivodeship.

One needs to note that to SMS that render services in the TSL area, manufacturing SMEs and service firms (from outside of the logistics industry) three groups of motives and barriers can be distinguished which impact the development of logistics in companies or may restrict it. In accordance with questionnaire-based studies discussed in the paper, the major motives for the development of logistics in SMEs include, e.g.: bigger number of orders or competences of the company highly rated by consumers. The most frequently identified restrictions in business development include determinants connected with financial barriers. Factors for which the biggest differences in responses were reported between the two groups of firms include, on the side of motives: co-financing possibilities and implementation of new technologies while on the side of barriers: management lack of commitment to the problem, drop in demand for goods, and rapidly rising prices of fuels and energy. Determinants of the development of logistics discussed in the paper reveal the essence of motives which contribute to the increased share of firms in the market or create barriers that reduce the value added by, for example, poor marketing. Future studies on determinants of growth for the SME sector should also cover: the impact of COVID-19 pandemic on the development of industries, including logistics, in firms in many countries. A reliable analysis will surely provide answer to this question.

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A BIBLIOMETRIC NETWORK ON CORPORATE PERFORMANCE AND SUSTAINABILITY IN THE ENERGY SECTOR

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ABSTRACT

This paper aims to build up a framework for the topic related to corporate performance and sustainability in the energy sector. Our research focuses on discovering some of the best academic papers, assisting our future research on corporate performance and sustainability, which will be sistematised following the best examples from the bibliometric networks obtained. Through the VOSviewer software we studied the topic of corporate performance, sustainability and energy, in terms of keywords, terms and co-authorship. After observing 189 papers indexed in Web of Science (WoS), we found that "industry", "development", "approach" (related to design methodology approach), "strategy" and "practice" are the most relevant terms for this topic, while "corporate social-responsibility", "data envelopment analysis", "environmental performance", "sustainable development", or "energy efficiency" are the most common keywords mentioned in the academic papers, along with the three specific concepts (sustainability, performance, energy), with more than 15 occurrences. This study also evidences the authors with the most significant research in the field, based on the citations of their papers. More specifically, T. Sueyoshi published 14 papers indexed WoS on the subject of corporate performance, sustainability and energy, with 417 citations, followed by Y. Yuan with six papers and 182 citations and S. Schaltegger with three papers and 135 citations. The highest number of papers were published in the United States, China and Australia, but the highest citation ratios per papers were achieved in the USA, England and China.

Keywords: *bibliometric mapping, corporate performance, energy, sustainability, VOSviewer*

1. INTRODUCTION

Nowadays, the economic globalisation increased the risks and uncertainties, and the climate change. Through the fact that countries became more interconnected, the risks related to the natural resource deficiencies, gas emissions, or other threats that have an impact on the climate change, need to be dealt with consistently. Businesses also tackle problems related to climate change, gender inequality, or poverty, and based on a good strategy they can improve their markets and supply chains, ensuring their future development. These aspects became specific to corporate social responsibility (CSR), which is a mean for companies to deal with major risks (Lu et al., 2019). The energy industry has been facing constant challenges over the past decades, and its development over the long run is permanently considering the environmental, social, health and safety risks. The shift to renewable resources is growing by the year, and it is expected by 2050 that renewables will provide approximately 80% of the worldwide power supply, having a great impact on reducing greenhouse gas emissions (Brozyna et al., 2017). Accordingly, renewables stimulate the energy technologies, so that companies operating in this industry have a crucial role in obtaining sustainable energy development through CSR policies integrated into their strategies and an increase in the usage of renewable sources (Streimikiene et al., 2009). Our study contributes to the literature by providing a bibliometric analysis of the academic papers published on the topic of corporate performance, sustainability and energy, evidencing the key concepts specific to previous research, and also the main researchers and the countries who are most interested in this topic.

This review of literature will help us in our future research on performance and sustainable practices, as it emphasises the most important studies in the field in terms of their citations, but also specific terms and keywords.

2. KEY ASPECTS FROM THE LITERATURE OF CORPORATE PERFORMANCE AND SUSTAINABILITY

There is a vast literature on the relationship between corporate performance and sustainability, but our focus is on companies that operate in the energy sectors. This associates the topic with the CSR policies and strategies, as these companies' strategic objectives are more related to the business frameworks that undertake the decision-making processes. One of the basic concepts included in the topics related to companies and sustainability is CSR. Accordingly, there are three targets permanently reviewed by countries or companies that are concerned about the development of sustainable energy: an increase in the energy efficiency, the use of renewables, and the reduction in greenhouse emission gas (Lu et al., 2019). Nowadays, there are high social expectations related to the energy companies and their business frameworks, as they need to prevent potential risks and take measures to reduce the effects on the climate change (Bhattacharyya, 2007; Pegg, 2012). Given this context, the international agreements considered the Sustainable Development Goals (SDG) framework, to safeguard and to form an index for these companies, facilitating a ranking between them and ensuring a competitive environment, which also considers the corporate culture and means to attract talented human resource (Bolton et al., 2011; Dong & Xu, 2016; Raman, 2018). According to Elkington (1997), the concept of sustainability refers to environmental concerns as well as social and economic aspects. These three pillars are referred to as the triple bottom line. Nowadays, the sustainable development goes beyond, considering that sustainability focuses on the wellbeing of the society, incorporating the limits of nature and environment, and also the values for the decision making process. Transferring the sustainable development to corporate sustainability, the role of companies in society emerges, as environmental, social and economic objectives become part of the business strategy. Accordingly, investments in socio-environmental projects should be viewed by companies as something more than simple costs, as they become an opportunity for innovation and increased competitiveness (Porter & Kramer, 2006; Crittenden et al., 2011). CSR practices promoted by companies operating in energy sectors are undertaken to overcome corruption risks, competition, reputation or consumers' loyalty. Recent studies evidenced that CSR standards are based on performance focus more than on responding to protecting the environment because consumers' trust shifted towards renewable energy sources and pro-social, pro-environmental, and service-oriented investments (Przepoirka & Horne, 2018).

3. METHODOLOGY AND RESULTS

The vast and complex literature on sustainability and corporate performance, and the citizens increased interest on environmentally friendly ways of living, and concern on protecting the natural resources through more use of renewable energy sources, made us consider a bibliometric analysis as a starting point for the future research on sustainable policies promoted by the companies and their impact on performance. Through VOSviewer we were able to organise the papers developed on this topic, based on the occurrences of keywords and certain terms in the literature, and also on the authorship characteristics, by identifying the main authors and the collaboration in certain countries. In the first figure, we illustrate the stages considered in extracting the academic papers analysed for the bibliometric relationships. In the Web of Science database, we search the following three concepts: "corporate performance", "sustainability" and "energy", and for the types of documents recorded we selected the following options: "article", "proceedings paper", and "book chapter". The publication period considered was 1975-2018, but 1998 was the first year when they published a paper with these

three concepts in it. The Web of Science returned 189 results, and their records and references were downloaded in a .txt file, which was analysed through the VOSviewer software in the following stage.

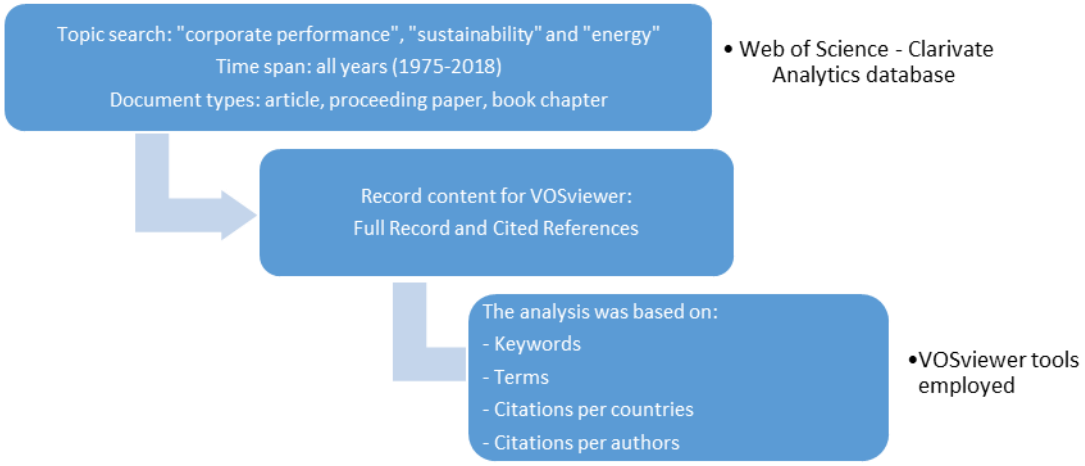

Figure 1: Stages completed before realising the VOSviewer analysis
(Source: Author's process after Mihit et al., 2019)

3.1. The "Keywords" analysis

The keywords analysis allows us to quantify the distribution of the most common keywords. By common we refer to the fact that they are occurring in the articles overviewed most often. According to the network returned by the VOSviewer, besides the three concepts consisting in the initial topic search (corporate performance, sustainability and energy), the top keywords are CSR (with 52 occurrences), management (with 31 occurrences), data envelopment analysis and dea (with 30 occurrences), environmental performance and sustainable development (both with 19 occurrences).

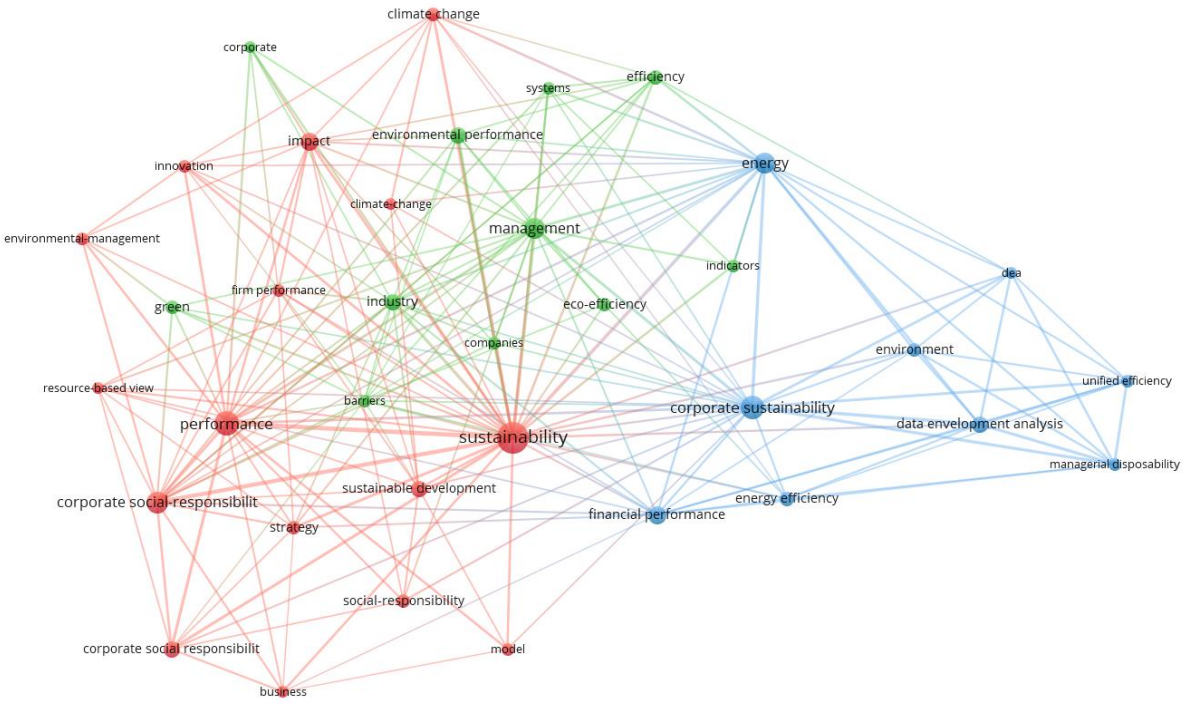

Figure 2: The network of keywords
(Source: Author's computation through VOSviewer)

The networks constructed in VOSviewer have several common features: the bigger the dots, the higher the occurrence of the keywords or terms, the thicker the line, the more often for that pair of keywords or terms to be in the same paper. From figure 2 we can also observe three clusters, which are in strong relationships between each other. The biggest is the red one, centered by sustainability, performance, CSR, sustainable development, impact or climate change. The second is the green one, focused on management, industry, environmental performance, efficiency, eco-efficiency, and barriers. The blue cluster is interlinked by corporate sustainability, financial performance, energy, energy efficiency, and data envelopment analysis. As our analysis counted for keywords with at least ten occurrences, the complete clusters are detailed in table 1.

	Cluster 1 (red)	**Cluster 2** (green)	**Cluster 3** (blue)
1	Business	Barriers	Corporate sustainability
2	Climate change	Companies	Data envelopment analysis
3	CSR	Corporate	DEA
4	Environmental-management	Eco-efficiency	Energy
5	Firm performance	Efficiency	Energy efficiency
6	Impact	Environmental performance	Environment
7	Innovation	Green	Financial performance
8	Model	Indicators	Managerial disposability
9	Performance	Industry	Unified efficiency
10	Resource-based view	Management	
11	Social-responsibility	Systems	
12	Strategy		
13	Sustainability		
14	Sustainable development		

Table 1: Clusters of keywords
(Source: Author's computation through VOSviewer)

According to these clusters, we understand that the red cluster is characterised by the microeconomic level: corporate performance, CSR and business strategies, especially those related to the environment. The green cluster is more related to the external environment of the companies: efficiency, environmental performance, industry, and systems. The third cluster is related to the methodology of reviewing the relationship between corporate sustainability and performance, through data envelopment analysis (DEA), with a focus on energy efficiency.

3.2. The "Terms" analysis

The analysis of the most common terms in the literature of corporate performance, sustainability and energy, emphasises that these three concepts are the most common, followed by industry (67 occurrences), development (63 occurrences), or strategy, practice, analysis, and approach (with more than 53 occurrences), and implication (42 occurrences). From figure 3 we can observe again three clusters. However, compared to the keywords map, the terms clusters are in an even stronger relationship between each other. The biggest cluster is the red one, and compare to the other two clusters, the terms forming it have similar sizes of dots. Considering the number of occurrences, the cluster has a focus on implication, practice, environment, and firms. The second cluster is green and centered on performance, industry, approach, and analysis. The blue cluster is interlinked by sustainability, energy, strategy, process, indicator, and environmental performance. As our analysis counted for terms with at least 15 occurrences in the overall sample of 189 papers, the complete clusters are detailed in the second table.

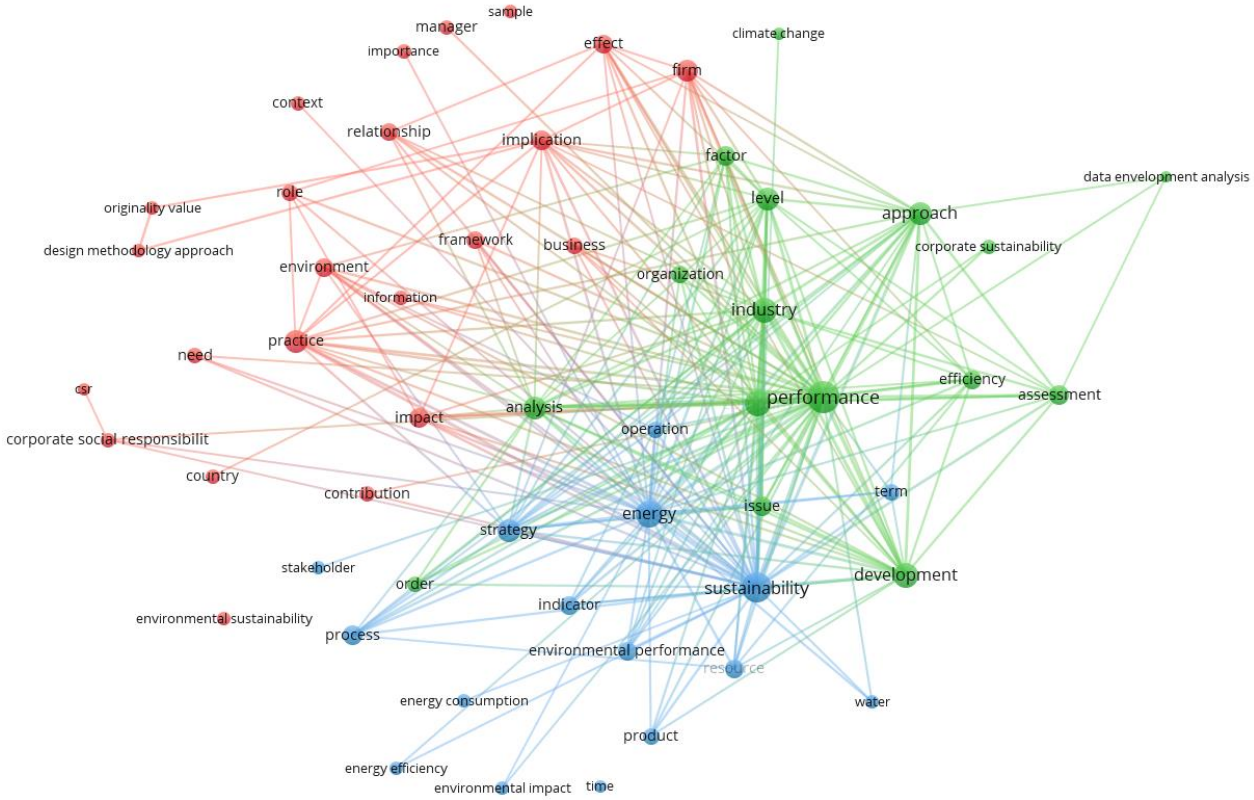

Figure 3: The network of terms
(Source: Author's computation through VOSviewer)

Based on the lists included in the second table, we will describe in a few words each one of the clusters presented for the network of terms. The first cluster is associated more to practice and referring especially to the business and environment relationship through the following concepts: CSR, environment, practice, implication, framework. The second cluster is related to the methodological aspects, focusing on performance, industry, efficiency, development, factors, and assessment. The third cluster is more specific to the external business environment, including among the 16 terms returned by VOSviewer, the following concepts: energy, efficiency, sustainability, resources, process, and operation.

Table following on the next page

	Cluster 1 (red)	**Cluster 2** (green)	**Cluster 3** (blue)
1	Business	Analysis	Energy
2	Context	Approach	Energy consumption
3	Contribution	Assessment	Energy efficiency
4	Corporate social responsibility	Climate change	Environmental impact
5	Country	Company	Environmental performance
6	CSR	Corporate sustainability	Indicator
7	Design methodology approach	Data envelopment analysis	Operation
8	Effect	Development	Process
9	Environment	Efficiency	Product
10	Environmental sustainability	Factor	Resource
11	Firm	Industry	Stakeholder
12	Framework	Issue	Strategy
13	Impact	Level	Sustainability
14	Implication	Order	Term
15	Importance	Organization	Time
16	Information	Performance	Water
17	Manager		
18	Need		
19	Originality value		
20	Practice		
21	Relationship		
22	Role		
23	Sample		

Table 2: Clusters of terms
(Source: Author's computation through VOSviewer)

3.3. The "co-authorship" analysis in terms of the number of papers, citations, and countries

This first co-citation network for the papers focused on the three concepts (corporate performance, sustainability and energy) considered only authors who published at least three papers indexed in Web of Science. Figure 4 evidences, once again, three clusters for the network of authors. The VOSviewer returned the following results for the top-cited authors: Sueyoshi T. with 14 papers and 417 citations, Yuan Y. with six papers and 182 citations, Wang D. with five papers and 127 citations; Goto M. has 4 papers with 113 citations, McCreanor P.T. and Zhou J. have both published four papers and have 9 citations each, and the rest of the author included in the map presented in figure 4 have three papers each (Schaltegger S. recorded 135 citations for these papers, Qian W. has 37 citations, and Erdal Z.K. and Montalto F. have 6 citations each). Details on the number of papers and citations are included in table 3.

Figure following on the next page

Figure 4: The network of co-authors, based on the number of papers per authors (Source: Author's computation through VOSviewer)

Cluster 1 (green)	Doc. / Cit.	Link strength	**Cluster 2** (red)	Doc. / Cit.	Link strength	**Cluster 3** (blue)	Doc. / Cit.	Link strength
Goto M.	4 / 113	4	Erdal Z.K.	3 / 6	9	Qian W.	3 / 37	2
Sueyoshi T.	14 / 417	14	McCreanor P.T.	4 / 9	10	Schaltegger S.	3 / 135	2
Wang D.	5 / 127	4	Montalto F.	3 / 6	9			
Yuan Y.	6 / 182	6	Zhou J.	4 / 9	10			

Table 3: Clusters of papers and citations per author (Source: Author's computation through VOSviewer)

The green cluster is consisting of the highly cited researchers (with at least four papers published on the topic of corporate performance, sustainability and energy, and more than 113 citations). In this cluster, Sueyoshi T. is the center, as the researcher has the most papers published and more than 400 citations, and the other three cited this researcher's papers. The red cluster is consisting of the authors with less than ten citations, and the blue cluster has two authors, with three papers (the minimum number applied in this VOSviewer analysis) but with 37 and 135 citations. The final part of our analysis reviews the network of the sample of 189 papers, under the country co-authorship perspective. This map reflects the communication between countries, evidencing the most influential countries in the field of corporate performance, sustainability and energy. Based on the map illustrated in figure 5, there are several colours evidenced and there are lower discrepancies between the nods; accordingly, Australia, USA, China and Canada are the most influential countries listed, as their nods are a little bigger than the rest. Based on the distance between the nods and the thickness of their lines, there is a consistent group of countries (we are referring to Italy, Spain, the Netherlands, Brazil, and England) with important collaboration for the topic of performance, sustainability and energy. From the location of the rest of the countries, higher collaboration is indicated between USA and Japan, between Australia and Germany, China and Sweden, and also between Canada, Finland and France.

Figure following on the next page

Figure 5: The network of co-authors, based on the countries where the papers were published (Source: Author's computation through VOSviewer)

Cluster 1 (red)	Doc. / Cit.	Link strength	**Cluster 2** (green)	Doc. / Cit.	Link strength	**Cluster 3** (blue)	Doc. / Cit.	Link strength
Brazil	9 / 98	3	Canada	12 / 215	10	Australia	16 / 274	8
England	9 / 533	3	Finland	6 / 186	3	Germany	9 / 175	3
Italy	7 / 169	2	France	7 / 85	4	**Cluster 4** (yellow)	Doc. / Cit.	Link strength
Netherlands	10 / 204	2				China	20 / 429	9
Spain	8 / 172	2				Sweden	5 / 162	1
						Cluster 3 (purple)	Doc. / Cit.	Link strength
						Japan	5 / 119	4
						USA	49 / 928	16

Table 4: Clusters of papers per country (Source: Author's computation through VOSviewer)

According to the details overviewed in Table 4, the highest number of papers on corporate performance, sustainability and energy was published in the USA (49 papers), followed by China (20 papers), Australia (16 papers), and Canada (12 papers). Although the highest cited papers were also the ones from America (928 citations), the top citations were registered from papers published in England (533 citations), China (429 citations), and Australia (274 citations).

4. CONCLUSION

To sum up, the analysis of keywords, terms, authors, and countries for the papers studying the relationship between corporate performance, sustainability and energy, the literature on this topic is focused on the following concepts: "corporate social responsibility", "data envelopment analysis", "environmental performance", "sustainable development", or "energy efficiency", but also on simple notions such as "industry", "development", "strategy" and "practice". The previous list refers to both, the most occurrent keywords and terms from the papers selected for our analysis. From the 189 papers indexed Web of Science until 2018, a quarter of them were published in the United States and were the highest cited papers from all, raising about twice as much as the paper published in England, which are the next in the highly cited papers top. Journals from Australia, China and the Netherlands are also interested in the topic of performance and sustainability in the energy sector, ensuring a large number of citations after publication. The most cited author for the papers overviewed was Sueyoshi, who published 14 papers on corporate performance, sustainability and energy, and received more than 400 citations. Considering that the second in the authors' top is Yuan, the latter researcher published six papers, being rewarded with a little more than 180 citations on them. This proves that the proportion is quite equal between the two authors, both collecting between 25 and 30 citations per paper. The same proportion is computable for the researchers Goto and Wang. The only researcher who gained an even higher number of citations per paper was Schaltegger, whose work on sustainability, corporate performance and energy was recognised, in average, with 45

citations per paper. According to the analysis employed, the topic related to the relationship of corporate performance and sustainability in the context of energy is very popular and raises constant interest among researchers, especially in the current context, in which companies need to develop their strategies by considering CSR policies and ensure operations with high energy efficiency, but minimal risks to the environment.

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THE BALANCED SCORECARD – A PARTICULAR FORM OF MANAGEMENT THINKING AND CONTROL

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ABSTRACT
The Balanced Scorecard (BSC) is a practical tool to help organizations implement their business strategy. Strategic objectives, criteria and action plans are formulated for each perspective. The continuous process of development of the balanced scorecard is focused on the reconciliation of those perspectives. The card directs the organization's efforts on the critical analysis of the future and its association with the content of the ideal.
Keywords: *Balanced Scorecard, Management, Control, Organization, Strategic management*

1. INTRODUCTION

One of the features of recent decades is the rapid development of concepts, models and technologies for corporate governance. Particular attention is paid to strategic management. The analysis of the activity of large and medium-size economic units operating without strategic management is a very risky venture. Research in this area has evoked the emergence of new paradigms, concepts and tools. Undoubtedly, assessment is a valuable management practice. One of the roles of measurement, especially in the form of balanced schemes, is to facilitate the verification of the course of action on events in the organization. The starting point of the balance methods is the understanding that reliance on the financial indicators in the assessment of the achievement of the set goals in the organizations is incorrect. Adapting balance-to-performance analysis to new conditions, apart from paying attention to traditional measures, complements them with new indicators of expected status and development in the future. The basis for this type of analysis is the validation of the Balanced Scorecard (BSC) presented in the early 1990s. The Balanced Scorecard (BSC) is a practical tool to help organizations implement their business strategy (Fig. 1). Strategic objectives, criteria and action plans are formulated for each perspective. The continuous process of development of the balanced scorecard is focused on the reconciliation of those perspectives. The card directs the organization's efforts on the critical analysis of the future and its association with the content of the ideal. The process of introducing BSC into the practice of each organization predisposes establishement and regulation by certain cycles and principles (Kaplan, Norton, 1993). Through the language of goals and incentives, a connection is created between all hierarchical levels of effective communication. BSC is distinguished by a logically bound and easy to understand architectonics for the essential expression of the adopted strategy. The emphasis in the overall analysis of the BSC model is on the logic of combining different criteria. It also has a retrospective character, because it illustrates the history of the organizational strategy (Georgiev, 2019-a; Georgiev, 2017).

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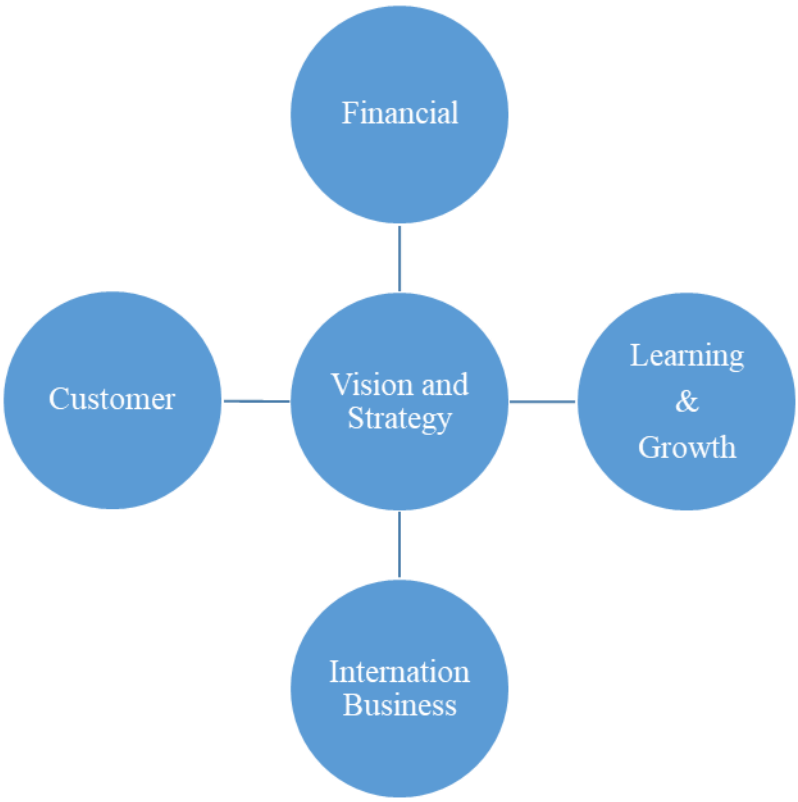

Figure 1: The Balanced Scorecard Framework

2. THE BALANCED SCORECARD – A PARTICULAR FORM OF MANAGEMENT THINKING AND CONTROL

The Balanced Scorecard is a particular form of management thinking and control, implemented through a series of actions. This individuality and uniqueness is predetermined by two components - on the one hand the uniqueness of each organization and its strategy, and on the other specific, specific solutions for management and controlling through certain initiatives and events. Each organization sets out perspectives, timelines and indicators according to these characteristics when introducing the BSC as a management and a control tool (Dimitrovski, Pushova, Georgiev, 2017a-b):

- Perspectives - due to the opportunity of covering different perspectives, analyzing and fixing their weight against strategic goals, emphasizing in this process the strategic success factors;
- Timeframe - due to the opportunity of organizing the strategic actions in a concrete sequence, by putting strategic factors in time in the realization of the process;
- Indicators - due to the opportunity of indicating and encompassing the logical and temporary interrelationships between the strategic factors, which are at the same time reconstructed as a complex of attention zones. In its original form, the BSC model covers four main areas. The first includes finance - it consists of parameters such as: growth, yield, turnover, shareholder value, etc.

The second concerns the users - in this segment are introduced measures that provide information about customer satisfaction. The third area concerns internal processes - identifying those processes that maximize added value. And the fourth area is tied to the continuous addition of knowledge and development to the organization. Today's managers recognize the impact of the criteria on work and strategies. Resulting evaluation should be an integral part of the management process.

The Balanced Scorecard gives the administrative staff a detailed structure that transforms the company's strategic goals into a clear set of benchmarks. It is more than an assessment exercise, it is a management system that can motivate serious improvements in such critical areas as product, process, customer and market development. The BSC gives the managers different perspectives from which to choose criteria. It complements the usual financial metrics with work, customer, internal processes, and refining and optimization activities. These criteria differ from traditional ones. It is clear that many companies already have a sufficiently large set of physical and operational criteria for their activities. But these criteria are directed downwards from the strategy to the particular operation and are tailored to the specifics of these processes. On the other hand, the criteria of the BSC are set in the strategic goals and competitive needs of the organization. By driving managers to select a limited number of critical metrics from any perspective, the BSC accelerates the ability to specify strategy, mission and vision. Moreover, while traditional financial criteria show what happened over the past period, without showing how managers can improve their performance over the next, the BSC is also a cornerstone of the company's current and future success. Furthermore, unlike conventional measures, information from perspectives provides a balance between external criteria such as operating income and internal criteria such as developing a new product. This balanced set of criteria reveals that the replacements that managers have already made between the activity criteria encourage them to achieve their goals in the future without replacing key success factors. The BSC is the language, the control point of the background, on which all new projects and types of business are evaluated. It is not a template that can be applied to a variety of business or industry. Different market situations, product strategies and competitive environment require the use of appropriate specimens. The success story of is in its transparency, allowing the observer to understand the chosen competitive strategy through a criterion system (Terziev, Stoyanov, Georgiev, 2017c-f). The above discussion is a good reason to make the following considerations:

- The model of the BSC, compared to the management models that were prevalent in the early 1990s, changes the logic in structuring organizational performance indicators. In this respect, it is heavily influenced by stakeholder theory, which postulates the organization's drive to meet the requirements of key agents in its environment. As a result, the BSC model defines several key measurement and management perspectives in which these requirements - finance, users, internal business processes, training and staff development - are expressed. In this respect, the model creates better than the existing conditions for achieving the unity of the organizations' potential with the characteristics of the environment in a strategic aspect;
- The BSC model also takes into account the dominant role of value-for-money theory in business organizations and the prospect of finance. Fundamental importance for structuring the model for each organization is the study of causal relationships and dependencies between indicators from other perspectives and those from the perspective of finances. Unlike previous management models, however, the model of the BSC includes in these relationships a considerably wider range, mostly intangible indicators. Thus, the model upbuilds primarily on financial models and reveals the success factors;
- The model of the BSC fundamentally resolves the issue of creating prerequisites for the implementation of the strategy. Its design implies operationalizing the strategy in a limited range of key causality-related dependencies, which facilitates the presentation of strategic thinking among broad circles of performers. This makes the strategy transparent and simplifies management processes;
- The coverage of a wide range of non-material factors of organizational success requires the introduction of new types of systems to measure intangible parameters essential to the functioning of organizations in management practices.

Towards the end of the last century, this stimulated the active development and implementation of modern methods to measure the satisfaction and loyalty of clients and staff, the development and evaluation of intellectual capital;

- The BSC model is very much built naturally and organically over existing management systems, including those for budget management. The requirement to define initiatives to achieve strategic goals on the implications of the indicators included in the model creates favorable prerequisites for strategic budgets, considered as an indicative framework for operational and tactical budgeting.

3. THE BALANCED SCORECARD AS A TOOL FOR STRATEGIC MANAGEMENT AND CONTROL

The very first reflections on the concept of the BSC prove that the organization can be seen from concrete perspectives, as the BSC model achieves the most tight link between the short-term operational control and the long-term strategy. In this way, the company focuses on a set of critical key ratios that reflect the state and trends in certain planned areas. In other words, the company is forced to control and analyze day-to-day operations as they affect the long-term development, including its strategic prospects. Consequently, the concept of the BSC contains three time dimensions, analyzing registered results, regulating current activity and focusing in the future. The BSC is a method of reaching agreement and realizing control over where an organization follows its strategy. In business and the public sector, key indicators can be found in abundance. The difference is in focusing on a deliberately chosen set of criteria - little enough to be observed - and on their use to achieve and share a common view of the organization's strategy for its future development. The agreed set of criteria, formed on the basis of a necessary, reasonable balance, reflects the strategic choice of the organization. The selected criteria can be seen as a complement to financial control and as a means to reduce the risk of a harmful short-term approach, while giving a clear idea to the employees of the organization about their work, and expectations about the company's future. Some scientists talk about changing the approach from financial to strategic control, i.e. from a specific direction in the management, to change the focus of attention to the overall organizational strategy. The question really concerns the essence of the economy more than the monetary method. A good economy means good resource management. Modern organizations are much more than a skillful investment of capital. It is important for each leading manager how to manage talent, market position and accumulated knowledge. The perfection of a simple concept predetermines the universal nature of the BSC model and its wide perimeter of application, promptly demonstrating the tangible and intangible benefits of reconciling financial and nonfinancial criteria. In most organizations, processes of strategic planning and operational funding exist independently of each other and involve separate organizational structures. The process of strategic planning is permanent, defining long-term plans, goals and strategic initiatives, usually taking place by deepening substantial trends registered on an annual basis. On the same basis, it is endorsed by senior management and the organization's budget. It consists almost entirely of numerical financial indicators, which usually mark the link between the strategic plan and the organizational goals. If an organization wants to establish a link between its actions and strategy, strategic and planning should be linked to operational funding. Strategic targeting processes express the business unit's drive to achieve excellent results on strategic indicators of the prospects shaping its BSC. Resources are being used and initiatives are being implemented to ignore the differences between the current state and indirect goals for a prolonged future period. One of the most significant alternatives for genuinely controlling the validity of strategies and the effectiveness of strategic planning is the formulation of specific short-term goals on the parameters that form the BSC. The intermediate controls in question are a real expression of the senior executive's performance on the pace and outcomes of ongoing

programs and strategic indicators initiatives. Such detailed short-term financial planning is important, but the budgeting process should also include expected performance from other areas involved in structuring the BSC. This means that the executive management should provide, as part of integrated planning and budgeting, short-term monthly or quarterly performance and performance indicators for its users, innovative and operational processes, and the process of synchronization between employees, systems and organization . These key milestones in the planning for the next year express the expectations for short-term achievements over the long-term road to realizing the strategy chosen by the organization. If the long-term plan definition process is properly implemented, the short-term budgeting process will consist of bringing the first year of the multiannual plan into current budgets for the objectives and indicators across all BSC lines (Terziev, Georgiev, 2017g). Considering the necessary strategic / budget reference, a new direction is emerging to improve the BSC model. In this process, two management problems are simultaneously implemented:

- Increase operational-tactical efficiency and related budgets;
- Realizing successful strategic development through reasonable strategic planning.

The combination of the two decisions defines the new content and functionality of the BSC as a tool for managing and controlling the strategy. In this line of thought, the relationship between strategy and budget, strategic planning and budgeting is a procedure underlying the effective analysis and detailing to implement the smooth transition from a high-level strategy to the creation of a budget for the implementation of the current activity. The strategy sets the organizational development line for the 3-5 year period in its implementation, while the annual budget provides the first year of this process and marks the links between current and strategic goals. The current and effective management and control model of BSC has identified certain gaps and problems, the solution of which is the path to its improvement and enrichment in a meaningful and functional aspect. Is it possible to formulate model strategic goals of the organization, control strategic and development, engage all personnel and all that leads to success and stable development? BSC is the modern management and control model through which this task can be realized. Along with the Balanced Scorecard, it is possible to conduct flexible and effective management and strategic controls using not many but relevant indicators. As a starting point for effective governance and control, there is a balanced reconciliation of various indicators necessary to reflect the organization's activity and the construction of a logical system such as BSC based on proven causality. The realization of this process and its specificity are accompanied by specific issues, whose analysis and solutions are an alternative for improving the BSC as a model for real control. Everyone who knows the life of the organization knows that there are a number of control systems that affect its day-to-day operations. However, there is no systematic understanding of why and how these systems are used as a means of achieving certain programs. By organizing their management system based on the structure of the BSC, managers can achieve their most important objective - bringing the strategy into operation and controlling it. When organizations make the crucial transition to turning their strategic vision into action, they realize the true upsurge and take real advantage of developing and implementing strategically BSCs. The results of the initially developed BSC always lead to a series of management processes that mobilize and reorient organizational efforts. The development of the original BSC in an organization is achieved on the basis of systematic consensus-building processes and clarifying how the mission and strategy can be brought into a system of working objectives and indicators.

4. CONCLUSION

As a result of an in-depth study of good practice among organizations that have embedded and using BSCs, there could be drawn a model of five principles that organizations could follow in

transforming their strategy into concrete actions and implementing real, strategic control (Terziev, Nichev, Stoyanov, Georgiev, 2017h). The first principle claims that change should begin at the highest level. The idea is that senior management initiates the implementation of the strategy, firstly fixing the organization's vision and goals, demonstrating personal interest and engaging staff awareness with the upcoming change. The second principle considers that the strategy needs to be translated, that is, detailed, bound by deadlines and operational plans. BSCs are being modeled at this stage to analyze the links between the different elements of the strategy, to formulate objectives and their measures, and to identify strategic initiatives. The third principle is justified by the need for the organization to be able to implement and implement the corporate strategy. At this point, it is imperative to develop BSCs with indicators for lower business units /departments, workshops, to identify opportunities for synergy in order to achieve maximum added value. The fourth principle identifies the need for the strategy to become an essential part of the work of each employee in the organization. This is a difficult process due to the fact that it is related to the development of individual BSCs that contain individual goals and consider the relationship between each employee's personal contribution to implementing the company's strategy. Here, it should be noted that the practical application of BSCs as a form of individual development and control makes sense and a logical explanation especially for key individual positions (consultants, representatives, etc.) where their activities have a significant impact on organizational efficiency, which causes the application of BSC to be financially secured and objectively necessary. An essential point here is to find the intersection between individual and corporate values. Success at this stage is crucial because, although the strategy is formulated by the management, its implementation depends on the staff working in the organization. By aligning and consolidating goals and incentives at an individual level with those of the organization, effective communications transparency and maximum management and control performance are achieved. The fifth principle has a generalizing character, imperiously pointing out that the strategy must become a continuous and permanently improving process. It is at this point that different practices are being developed in relation to resource management, the process of training organization, and the updating of initiatives and control measures.

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IMPACT OF AGGRESSIVE POLICY TO THE ECONOMY OF ARMENIA

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ABSTRACT
In modern times, the growing economic and trade relations between the countries of the world are clearly observed. Over the last decade, these relations have manifested themselves in various projects implemented on the basis of mutual partnership. Thus, as a result of such projects, economic relations between the partner countries are further strengthened, and all partner countries participating in the implemented projects gain a certain amount of profit. In the late 20th and early 21st centuries, such relations were also important for the South Caucasian region. For the newly independent countries of the region, the implementation of such projects in the form of mutual partnership was of great strategic importance for both the region and the countries in the region. However, if there is an opportunity to take advantage of such an opportunity, the region has lost the opportunity to take advantage of such opportunities as a result of the conflicts created by the Armenian state in the region and its aggressive policy. This fact is negative for both the region and the countries in the region. As a result, that period was marked as a period of economic stagnation and even decline for the countries of the region. Despite all the things happening around the world, Azerbaijan quickly regained its economic power, turned the staggering economic condition for its signed and partnered world famous projects into growth. As a result, there is an Azerbaijan that turns all the negative events of the late twentieth and early twenty-first centuries into a positive one for itself and the region as a whole, and an Armenia that is almost deprived of these chances as a result of the conflicts it has created and continues.
Keywords: *Economic power, Economic relation, Economic stagnation, Mutual partnership, South Caucasian region*

1. INTRODUCTION

There was a single, centralized system under Soviet rule, which extended to major matters, such as economic planning, governance and means of production among others. The individual republics within the geography of the Soviet Union had to cooperate in economic, political and other areas under this system, but even the persistence of these factors did not discourage Armenia from living out separatist ends against neighboring Soviet countries. The repeated Armenian aggression started to assume wider scope, flaring up again in the late 1980s.

The forced expulsion of 250,000 Azerbaijanis from their historical homelands from 1987 to 1989 ignited these events in the first place. Furthermore, Armenia started to make unfounded land claims on Azerbaijan and Georgia. In addition, at that time, they made separatist claims to annex Azerbaijan's Nagorno-Karabakh Autonomous Region and Georgia's Javakheti Region to Armenia. On 20 February 1988, a separatist group sent from Armenia initiated protests in Nagorno-Karabakh urging annexation to the Armenian SSR. On 22 February 1988, the Armenians opened fire on a peaceful demonstration staged by the Azerbaijanis near the town of Asgaran to protest against the decision of the Soviet of People's Deputies of Nagorno-Karabakh. Two Azerbaijani youths lost their lives in this incident to become the first victims of the conflict. Another unfounded idea was the unprecedented resolution "On the unification of the Armenian SSR and Nagorno-Karabakh" adopted by the Supreme Soviet of the Armenian SSR on 1 December 1989. On 10 January 1990, the Presidium of the USSR Supreme Soviet adopted a resolution "On the nonconformity with the USSR Constitution of the resolution on Nagorno-Karabakh. The Armenian ideologists' fever dream to revive the once 'great Armenia', as well as their separatist views on Azerbaijan's historical soil of Nagorno-Karabakh have led to the extension of the Armenia-Azerbaijan Nagorno-Karabakh conflict since then. The occupation of the town of Khankendi on December 26, 1991 was the beginning of Armenia's aggressive policy in the Nagorno-Karabakh region. Armenia`s military aggression resulted in the occupation by the Armenian armed forces of 20 percent of the territory of the Republic of Azerbaijan – the former Nagorno-Karabakh Autonomous Region and seven adjacent districts, including Khojaly, Shusha, Lachyn, Khojavand, Kalbajar, Aghdam, Fuzuli, Jabrayil, Gubadly and Zangilan. On April 30, July 29, October 14, and November 11, 1993, the United Nations Security Council adopted resolutions (822, 853, 874 and 884) in response to the occupation of the territories of Azerbaijan. However, these resolutions remain unimplemented. The Bishkek Protocol, signed on May 8, 1994 and entered into force on May 12, 1994, resulted in the signing of a cease-fire agreement between the two countries [1].

2. COMPARATIVE ANALYSIS

The re-gaining of independence amid difficult conditions, especially the loss of 20% of the territory in the aftermath of a painful war had a negative impact on the nation as a whole. Many reasons, including the sudden breakdown of economic ties, the sharp decline in production, and the fundamentally changed governing structure, to name a few, did aggravate the overall situation across Azerbaijan, with unemployment and inflation reaching a record high. Plus, investing the bulk of export revenues into the military had led to a significant decline in living standards. With a deal dubbed "the Contract of the Century", signed on September 20, 1994, the economic depression caused by war gradually began to recede. For a country suffering from the protracted war, the signing of such a contract that secured a large amount of capital into the country's economy gave impetus to the revival of the already damaged economic environment. Large investment flows into Azerbaijan's oil sector under the deal led to the development of other sectors of the economy [8]. This deal, signed with seven major world economies, was important not only in terms of investment, but also in terms of promoting economic and trade relations among these countries. The second important factor influencing the economic trade development was the shift of Azerbaijan's Soviet-style centralized trade to a free trade system. With its new trade system, Azerbaijan expanded its trade relations causing a rise in trade turnover. Thanks to the capital investment and economic reforms, Azerbaijan's trade turnover saw a 9.4% increase in 1993/94 edging up by 49.03% from 1994 to 2000. As can be seen from statistical data for the period from 1990 to the present, Azerbaijan's export potential as a whole exceeds the import potential. Looking at figures since 1991, the export and import values, respectively, were US$ 2,121 million and US$ 1,881.2 million, with a trade balance of US$ 239.8 million [26].

During these years, Azerbaijan's exports were dominated by oil, while imports by food and agricultural products. Independent Azerbaijan's first years were marked with some problems facing its oil exports. Since a deterioration in the terms of trade led to sharp reductions in oil exports. In the following years, this collapse also strongly affected the whole economy, when Azerbaijan experienced one of the worst cases of inflation ever (1,783%) and unemployment rate in the period [11]. By adopting a new trade regime, Azerbaijan expanded its trade relations, which helped boost trade turnover. Armenia, which went to war and, was hit hard with economy, actually did more damage to itself. Statistical data show that both countries had faced the poorest performance in their economic history, when Armenia recorded high inflation rate at 5,000 percent, and had to grapple with unemployment because of the war [9]. The damage inflicted by the war was reflected not only in Armenia's economic indicators, but also in demographic ones. In those years, a large part of the Armenian population migrated to other countries against the background of the economic challenges and the war. One of the main facts indicating the weakening of Armenia's economy is the change in GDP volume in those years. In 1993, the total GDP value was equal to 47% of the 1990 figure. In general, reforms and measures targeting economic development in Armenia since the 1990s yielded results in 2008, when average GDP growth had reached the highest level since independence. In 2008, Armenia's GDP was US$ 11.7 billion, but on the other hand, Azerbaijan's GDP was US$ 44.85 billion in the same year. Given to these figures, Azerbaijan's GDP in 2008 was nearly four times higher than Armenia's [18]. The economic crisis, which lasted until the last quarter of 1994, began to recover once Azerbaijan signed the Contract of the Century with seven countries. In 1994, the export of agricultural products came in at US$ 40.957 thousand, while their imports totaled US$ 147,531.933. A spike in agriculture was recorded in 2000, when exports reached US$ 47,972.9 thousand. In the same year, the import of agricultural products was US$ 189,565.9 thousand as a result of already developed economic relations. In 2000, Azerbaijan exported crude oil, its major export product, worth US$ 985,436.9 thousand. Economic reforms and state programs implemented after 2000 were of critical importance to the agriculture, and that as a result, the share of agricultural products in exports increased to US$ 790,978.8 thousand in 2014. Accordingly, the import of agricultural products stood at US$ 843,147.9. In 2014, the value of exported oil, which of special importance for the country amounted to US$ 18,404,936.6 thousand [26]. These indicators show that Azerbaijan's economy is expanding year by year because of certain adjustments, laws, as well as expanding economic ties. The growth in the share of exports and imports in recent years stems from growing trade and economic relations among the countries. According to statistics, the share of total imports in Azerbaijan's economy in 2018 was US$ 11,465.0 million, and that of exports was US$ 19,458.6 million. Due to the expansion of economic ties, the number of export and import partners is growing every day [26].

Table 1: Non-oil products account for the bulk of Azerbaijan's imports. Azerbaijan's main non-oil import partners are Russia, Turkey and other countries.

Countries	Value of imports of main commodities, thousand USD
Russia	1885164.6
Turkey	1576864.6
China	1196673.5
Germany	659912.8
United States	527168.9
Switzerland	512947.9
Iran	414801.0
Georgia	94090.0

Source: State Statistical Committee of the Republic of Azerbaijan (https://www.stat.gov.az/)

Table 2: Gas, oil and oil products account for the bulk of Azerbaijan's exports. Azerbaijan's main export partners are Italy, Israel, Turkey and other countries.

Countries	Value of exports of main commodities, thousand USD
Italy	5 879775,3
Israel	1 310 824,5
Turkey	1 825 981,5
Germany	780 847,4
Russia	665741,4
Iran	31 231,7
Georgia	485350.0

Source: State Statistical Committee of the Republic of Azerbaijan (https://www.stat.gov.az/)

Table 3: Consumer goods items account for the bulk of Azerbaijan's imports.

Imported commodities	Value, thousand USD
Fresh fruits	96660,2
Wheat	20.596,7
Vegetable oil	109.445,5
Medicaments	254.073,5
Passenger cars	407.634,8

Source: State Statistical Committee of the Republic of Azerbaijan (https://www.stat.gov.az/)

Table 4: Azerbaijan's exports are dominated by gas, oil and oil products.

Exported commodities	Value, thousand USD
Crude oil	163.455.2,0
Natural gas	170.566.8,6
Heavy distillates or gas oils for other purposes	329.670,8

Source: State Statistical Committee of the Republic of Azerbaijan (https://www.stat.gov.az/)

Table 5: Oil and oil products account for the bulk of Armenia's imports.

Imported commodities	Value, thousand USD
Meat and its additional products	68,321.612
Wheat	83,512.391
Oil and oil products	677,940.086
Tobacco	79,370.652

Source: State Statistical Committee of the Republic of Armenia (https://www.armstat.am/)

Table 6: Armenia's exports are dominated by ores, spirits and beverages.

Exported commodities	Value, thousand USD
Fruits	79,370.652
Spirits and beverages	229,703.874
Ores	557,086.292
Aluminum and articles thereof	96,066.161

Source: State Statistical Committee of the Republic of Armenia (https://www.armstat.am/)

As can be seen from the tables above, the two neighboring economies have enough potential to promote their economic relations. However, as a result of the broken economic and political ties over the conflict, Armenia has lost the chance to import from Azerbaijan commodities worth billions every year, which a loss for both Armenia's population and budget. Trade in goods between countries usually has a positive effect on both sides.

It is apparent from experiences worldwide that trade promotes to expand the country's economy, to achieve specialization in products, and to diversify commodities in the country. Beyond that, trade favors an inflow of foreign currency into the country's budget, which is an important factor in the global trend. Globally, Azerbaijan has proven itself as a reliable trading partner in both oil and non-oil sectors. This is evidenced by statistical data for individual countries. Of course, there is a reason why Azerbaijan, which is an important partner for all countries, both in the South Caucasus region and in the international market, has no economic relations with Armenia. Armenia's acts of aggression over the Karabakh conflict make it impossible for Azerbaijan to maintain relations with Armenia. The lack of any trade ties between the two neighboring countries in the region is a negative factor, both for regional and international trade. Of course, the economies of both countries were extremely precarious due to the effects of the war, but against the background of Azerbaijan's development, which is currently expanding its foreign relations, there is Armenia, which has not given up on its aggression, thus losing an important partner like Azerbaijan. The statistics of both countries clearly show this picture. Like the non-oil sectors, Azerbaijan's oil sector statistics show that Azerbaijan has become more specialized in this area. The achievements in oil and gas sector Azerbaijan has gained in recent years further strengthened its position in the world market. In 2019, the country ranked 24th in the world for producing 833,538 barrels of oil per day. Thus, the largest projects implemented in the region in recent years are related to Azerbaijan's oil and gas sector. The Trans-Anatolian Natural Gas Pipeline (TANAP), a significant energy project jointly accomplished by Turkey and Azerbaijan; the Trans-Adriatic Pipeline (TAP); as well as the Baku-Tbilisi-Ceyhan (BTC), Baku-Supsa oil pipelines, and the Baku-Tbilisi-Erzurum (BTE) gas pipeline, that move oil and gas from Azerbaijan's offshore and onshore oil and gas fields to European markets, are an indicator of how Azerbaijan is a strategic factor in the region and a strong partner in the world market [10]. The BTC pipeline, spanning Azerbaijan, Georgia and Turkey and carrying oil to the European market from the Azeri-Chirag-Guneshli (ACG) oil field in the Azerbaijan sector of the Caspian Sea, is an important economic factor for the three countries and the region as a whole. The BTC pipeline of 1,760 km in total length, valued at $ 2.9 billion, transports one million barrels of crude oil per day. This pipeline is an additional source of revenue not only for Azerbaijan, but also for Turkey and Georgia it spans [23]. Thus, Georgia, as a transit country, earns $62.5 million a year. At the same time, Turkey, which expected to earn $200 million a year, currently earns $290 million in transit revenues. At the same time, construction works for the pipeline generated 10,000 temporary jobs, 7,700 of which had been created in the areas across Georgia and Turkey, impacted by the pipeline, and the people living in those areas were recruited for these jobs. In addition, 750 permanent jobs were created in Georgia and Turkey, giving them a 40-year chance to work on the project [12]. Under this project, the unemployment rate in the areas impacted by the pipeline decreased to some extent, and these areas achieved economic growth. The improvement of economic conditions persuaded other local companies to run business in these areas, and consequently, new employment facilities were opened and the region saw further economic prosperity. Armenia has not spared the disruptions of political and economic relations due to the conflict on this economic platform either. Since if the political and economic relations between the two countries had not been broken because of the conflict, this project would have had a positive impact on the Armenian economy. That is, if the Baku-Tbilisi-Ceyhan oil pipeline passed through Armenia, which is in a more favorable position, all the revenues Georgia earns would go to the Armenian economy and become an important source of public revenues for its economy. As mentioned above, given the $62.5 million in BTC revenues Georgia has been earning every year, and declining unemployment due to new jobs generated in the regions impacted by the pipeline, it is clear that the construction of the pipeline through the territory of Armenia would bring the same or even greater benefits to its economy.

For a country with an unemployment rate at 17.9%, this project would reduce unemployment due to new jobs in the areas the pipeline would span, temporarily improve employment conditions in those areas, as well as bring additional revenues to its annual budget, the same national budget revenue received by Georgia. As in Turkey and Georgia, the economic rebound in the BTC-impacted areas and its benefits to local companies, as well as its positive impact on their expansion could help Armenia's local companies flourish. We conclude that the biggest loser in the Baku-Tbilisi-Ceyhan project is the Armenian economy [12]. Although global attention has recently been focused on our region thanks to TANAP and TAP, among the world's largest gas projects, Armenia, one of the countries in the region, has been neglected and remained uninvolved in the project due to the conflict. These projects, which has shifted the global gas map to the South Caucasus, play a major role in supporting the economies of the countries impacted by them [19]. With the focus of global attention on the region, the investment flowing into the countries the gas pipeline spans has also surged. For example, Turkey, one of the countries the pipeline spans, has seen $17 billion in investment alone into its economy. As in the case of the BTC project, these projects have a positive impact not only unilaterally, but also comprehensively on the economies of the countries affected by these projects. Given gas volumes to increase over time, we can expect that these projects will generate more economic income for these countries. However, not only these countries will benefit materially, but also will be able to fully secure their energy resources in the event of any energy supply problem in years to come [5], [13], [24], [25]. Economic activity and development seem to be relatively high in the areas where the projects are being implemented, as the communities, which have gained employment under the projects, receive a monthly income. Increased purchasing power due to the income has improved the material well-being of the population living in these areas. The economic growth that has resulted from the project, like the BTC project, has increased the interest of local companies in these areas. As has been observed, this fact has a positive impact on the economy of countries in various ways. The South Caucasus region, which is an important part of Eurasia, plays a crucial role in the world today due to its location. Thus, the favorable economic and geographical position, rich natural resources and, most importantly, its location in the center of the transport hub connecting Europe with Asia, increase the importance of this region. Especially in terms of transport, the main transit routes connecting the region with the east, west, north and south, passing through the countries of this region, more closely connect their economies to the world economy in some way. Thus, if we look at the statistics of the countries through which these transit routes pass, it is observed that these countries favorably benefit from their geographical location and gain billions of dollars implementing the global projects. The fact that these trade routes first pass through Azerbaijan creates favorable conditions for its participation in such proven projects as a party. Looking at the large-scale transport projects implemented in the region recently, Azerbaijan seems to have received large sums of revenues by participating in all the projects. At the same time, companies interested in supplying their products to global markets via these transport routes are investing in Azerbaijan and creating their affiliates here. This, in turn, implies new employment, the inflow of investment into the country, which is one of the most important factors in the modern economy. Although Georgia, another economy in the region, in turn, gets significant benefits, the same cannot be said about Armenia. As in cases of the oil and gas projects, Armenia has not been involve in transport projects as a country in the region. The transport modes (land (road, rail, and pipelines) and water (shipping)) along the corridors, spanning Azerbaijan and connecting East-West, North-South routes are successfully being implemented. If we look at these modes separately, Baku Sea Port is the first port on the Caspian Sea where cargoes from Central Asia, crossing the sea by ferry, are transported to Europe via Azerbaijan. The freight delivered by ferry is first unloaded in the new Port of Baku, a transportation hub located in the Alat Free Economic Zone, and then exported to Europe.

According to statistics, in 2018, Azerbaijan transshipped a total of 8236.1 thousand tons of cargo by water transport and earned USD 100334.1 thousand from this transportation. The development of pipeline transport is understandable against the background of Azerbaijan's being a major of oil and gas exporter. In 2018, revenues from transporting 69564 million tons through the pipelines amounted to US$ 1336794.2 thousand [26]. The Silk Road that passes through Azerbaijan and Georgia has had a positive impact on road transport and the economy of these countries as a whole. This type of transport carries both freight and passengers. Due to the development of other modes of freight transportation, passenger transportation is more prevalent in this mode of transport. Statistical data show that this transportation means carried 347,954 passengers in 2008, ensuring US$ 86881.8 thousand in revenue [26]. Railways, which is another type of transport system, mostly transport freight, in contrast to road transport. In 2018, some 13,142,000 tons of cargo and 192,000 passengers were carried by rail, with a total of US$ 179276.1 thousand in revenue [26]. One of the main freight and passenger transportation projects implemented in recent years is the Baku-Tbilisi-Kars (BTK) railway, with a total length of 838.6 km. This line, which connects Azerbaijan, Georgia and Turkey, creates great prospects for the countries to become a transit country in large-scale cargo transportation, along with passenger transportation in years into the future [21]. This rail, which will connect China to Europe, is a great opportunity for Azerbaijan. Thus, BTK is designed to transport Chinese products to Europe within 15 days. Previously, only routes passing through Russia were used for this transportation, yet the prospects of this railway have increased even more, given some of the embargoes imposed on Russia in 2014. Thus, European countries needed a new Silk Road that could head to China, and BTK easily assumed this role. At the same time, this project, which serves as an alternative and convenient way for the Central Asian countries to enter global markets, has reunited Asian countries [7]. The role of the Alat Free Economic Zone in making the project more robust is also significant, as freight to be shipped from China and other Asian countries can be loaded here. Azerbaijan's revenue from this railway alone is $170 million. If we take into account other factors and future prospects, we can see that the project will generate billions of dollars for Azerbaijan. Neither the European Union, nor the World Bank, had invested in the project due to Armenia's non-participation in this project, but each country financed the part of its territory from its budget [3]. At that time, SOFAZ provided financial support to Georgia, which shows that Azerbaijan is already investing in projects of regional importance in the region. The reason for the non-participation of the other state in the region, i.e. of Armenia, in this project is unequivocally the conflict it has put Azerbaijan into and the policy of aggression it pursues [16]. The reason for Armenia's exclusion from regional transportation hubs is the complete severance of ties with Azerbaijan and Turkey's closure of the Kars-Gumri railway with Armenia in 1993 due to the conflict. Thus, Armenia’s economy loses $ 570-720 million a year. The non-participation in the Baku-Tbilisi-Kars railway line was a major blow to the Armenian economy. According to the World Bank, if the borders open, the Armenian economy will grow by 35%, transport costs will plummet by 30-50%, and Armenia will get a total of US$ 320.3-395.8 million in profit [30]. However, Armenia continues to pursue its aggressive policy, depriving its budget and the Armenian people of these opportunities. Looking at the transport sector as a whole, Armenia seems to have given up all the opportunities that its location could favor it. Looking at the transport system from a different perspective, it is clear that Azerbaijan's revenue from the transport system plays an important role in the country's infrastructure. Proceeds from this are used for the development and reconstruction of this area, thereby improving the quality of transit and national roads. According to the 2019 Global Competitiveness Report, Azerbaijan ranks 27th out of 141 countries in the ' Road Quality Infrastructure' indicator. In the same report, Georgia ranks 81st, recently increasing the quality of its road infrastructure, with some of the revenue from transit roads passing through its territory.

Failure to participate in such transport projects, Armenia has lost the potential to further develop its infrastructure in this area as well. In other words, according to the report, it could have ranked above 91st [14]. The South Caucasus is one of the regions of great natural beauty in the world. The growing flow of tourists to the region every year shows how the region's tourism has developed in recent years. According to recent data, the region welcomed 9041782 visitors in 2018, as compared to 8018,179 in 2017 [17], [26], [27]. As in other sectors of the economy, tourism in the region has not developed steadily. Under Soviet rule, the foreign relations of the countries were limited, which at that time hindered the development of the tourism sector on a global scale. As a result of the conflict launched by Armenia against Azerbaijan in the region after 1987, the tourism sector had almost completely declined then. In 1990, international tourist routes to Azerbaijan and Armenia, two of the countries in the region, came to a complete halt. Beyond that, the resettlement of war-displaced people in tourism facilities is one of the factors that led to a desperate situation in the tourism sector. Georgia's tourism sector, which has been less affected by the instability in the region and has maintained its stability, has not suffered from this conflict. Azerbaijan and Armenia, whose tourism sector collapsed as a result of the conflict, faced the lowest rates in tourism history during that period. Georgia, which could maintain its stability and continued to promote the tourism sector during the conflict, is currently the leading country in the region in this sector [6]. According to the 2018 statistics on the tourism sector, the number of hotels in Georgia alone is higher than that of hotels in Azerbaijan and Armenia. Thus, while there are 2,390 hotels in Georgia, while 563 in Azerbaijan and 540 in Armenia. The same trend is reflected in the number of people traveling to these countries. 7203,350 arrivals in 2018, clearly put Georgia ahead of these countries. In the same year, Azerbaijan welcomed 2849600 visitors and Armenia 1651782 visitors [17], [26], [27]. One of the main reasons for this is that at a time when Georgia was developing its tourism sector, Azerbaijan was engaged in compensating for the damage caused to the tourism sector as a result of the war. Consequently, Azerbaijan is currently the second leading country in the region in terms of tourism. In general, as a result of the war, the unity of the countries in the region was disrupted, and the conflict did not therefore pass unnoticed in economic terms. Azerbaijan and Armenia spent the bulk of their revenues on the military, which could have been spent on their economic development. In the following period, Armenia's non-participation in a regional project was one of the factors that barred Armenia from developing its economy. Amid the rapid development of all sectors of Azerbaijan's economy thanks to proper management of project revenues and investments in various sectors of the economy, Armenia's economy, which is outside the largest projects in the region, was moving at a slower pace. One of the factors that can have a positive impact on a poorly developed economy is transport, and the country's exclusion from major transit projects hinders the development potential of its transport system. Armenia's exclusion from major transit routes has made it dependent on Georgia in its export operations, which could jeopardize Armenia's export operations in the event of any instability within Georgia. Thus, as a result of the problem on the border between Georgia and Russia in 2008, the Armenian economy suffered a loss of $ 600-700 million [18]. One of the main sectors of the economy is the tourism industry, in which the negative effects of the war are obvious. At a time when the tourist sector of Azerbaijan and Armenia had been almost destroyed during the war, the development of the tourism sector in Georgia, which secured stability, made it a top regional economy in this sector. In recent years, Azerbaijan is reported to have come a long way to boost tourism, injecting large sums of money into this sector. Statistical data show that Armenian clearly lags behind in the number of inbound arrivals. On the other hand, the fact that Azerbaijan ranks first in the number of people traveling to Georgia in 2018 and has remained one of the top five countries for many years show that Azerbaijan significantly contribute to the tourism of its neighbors [29].

This factor can be assessed as the loss of Armenia's tourism sector and its economy as a whole as a result of the war.

3. CONCLUSION

The fact that Azerbaijan had remained part of the USSR for many years after the ADR government was overthrown by the Bolsheviks prevented it to achieve the rapid development of its economy. Although the main advantage in the Soviet period was agriculture, there was some progress in the oil and gas industry, but this was not very noticeable, because all revenues were channeled to a single center. The post-independence conflict had further weakened the already stagnant economy. The allocation of funds for military spending during that period created great difficulties in coping with a decline in living standards, inflation and unemployment, which reached the highest level ever. The signing of the 'Contract of the Century' on September 20, 1994 was the beginning of a new era for the Azerbaijani economy. That is really when Azerbaijan experienced the highest growth among the post-Soviet countries. At the pace of accelerated economic development, economic relations with the region and the world had strengthened [4]. Convenience of economic and geographical location and strategically important transit routes spanning Azerbaijan did play a supporting role with regard to building partnerships with other countries. At the same time, Azerbaijan strengthened its domestic infrastructure thanks to transit revenues, ranking 27th in the world in terms of road quality in the Global Competitiveness Report. Looking at the economic landscape of the region, on the one hand, Azerbaijan, which implements world-famous projects with the region and the world, and as a result provides comprehensive benefits to the economies of both its and partner countries, on the other hand, we can see Armenia deprived of these economic ties. Examples of what Armenia has lost include investments in the region, new jobs in Azerbaijan and neighboring countries, close economic ties with many countries and international companies, and rising employment in the project areas. As a result of growing economic and trade relations, Azerbaijan became known in the world market not only for oil and gas products, but also for other industrial and agricultural products [15]. One of the countries that has benefited the most from growing economic and trade ties is Georgia, whose role as a transit country in most projects has earned Georgia millions of dollars a year. At the same time, Georgia has further improved its pace of economic development by investing the proceeds of the projects in the country's economy. Georgia, like other leading countries in the region, has attracted the attention of both European and world powers, strengthening its domestic economy and improving its infrastructure with the revenues it earns as a transit country, which has resulted in a large inflow of investment into Georgia. Armenia has been deprived of the opportunity to play the role of a transit country in these large-scale projects created as a result of the ongoing conflict and to use all the opportunities available to Georgia to revive its economy, which is not doing well. One of the most important sectors of the economy is the tourism sector, which has attracted attention in the region by further developing its tourism potential as a result of investments and measures taken in recent years. Georgia is the most developed country in the region in terms of tourism, the main reason for which is to stay out of the conflict in the region. Also, the existence of tourist ties with both countries has a positive impact on Georgian tourism. According to Georgia's 2018 statistics, Azerbaijan ranks first in terms of the number of foreigners visiting Georgia with 1,424,610 people (21.2%), while Armenia ranks third in this statistic with 1,268,886 people (18.9%) people [2], [28]. As a result, Georgia's income from relations with both countries can be assessed as the potential income that these countries lost as a result of the war. Finally, one of the important facts is that the inflow of investment to any war-torn country is very low due to the disarray in the economy. This fact is confirmed by the Armenian economy. The ongoing conflict it has created and its exclusion from projects on a global scale have reduced the flow of investment to Armenia.

The exact opposite is true for Azerbaijan, which as result of the successful policy it pursued after regaining independence, is the most advanced country in the region in this regard as well [22].

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OUTWARD FOREIGN DIRECT INVESTMENT FROM CHINA TO ASEAN

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ABSTRACT

The paper combs the relevant theories of the determinants of foreign direct investment, and then analyzes the current situation of China's FDI in ASEAN from a macro level. The study found that China's FDI in ASEAN is relatively small, the level of investment industry is low, and the country is unevenly distributed. Then, using a gravity model for regression analysis, the determinants of China's FDI in ASEAN were studied. Then , based on previous research and data availability, select relevant variables and use gravity model to establish China's FDI flow to ASEAN and the ASEAN country's market size, exchange rate, inflation rate, labor force, economic openness, infrastructure construction, Confucius Institute, China's interest rate, the number of patents issued and the relationship between government support and the geographic distance between China and ASEAN, using panel data from 2003 to 2018, to test the serial autocorrelation of panel data, and perform regression analysis. Finally, based on the conclusion drawn from the above analysis, this paper puts forward relevant suggestions from both the government and enterprises perspectives on how to better promote foreign direct investment by Chinese enterprises in ASEAN.

Keywords: *FDI, Belt and Road, Gravity Model*

1. INTRODUCTION

Under the wave of economic globalization, the rapid development of China's economy has attracted a large amount of foreign direct investment (FDI) into China. In 2012, China has become one of the world's largest recipients of FDI. However, the flow of capital is a two-way process. While the Chinese government is actively attracting a large number of FDI to "walk in", relying on the "Belt and Road" initiative, China's outward foreign direct investment (OFDI) has also begun to "Going Global". The Chinese government actively advocates the "Belt and Road" initiative, which provides major opportunities for Chinese enterprises to make foreign direct investment. At the end of 2017, China's cumulative investment in country along the "Belt and Road" route was 20.17 billion U.S. Dollars, in 2017, Chinese enterprises carried out 79 M&A (Mergers and Acquisitions) projects in countries along the "Belt and Road", with a total amount of US $10.03 billion, accounting for 13.5% of the total M&A, involving multiple fields and multiple industries. By the end of 2018, Chinese domestic investors had established more than 10,000 overseas enterprises in 63 countries along the "Belt and Road", these countries have increasingly introduced Chinese enterprises' capital, technology, services and facilities. China's foreign direct investment in countries along the "Belt and Road" is a mutually beneficial cooperation for both parties. This paper focuses on the analysis of various factors affecting China's outward direct investment in the ASEAN countries, and selects appropriate variables to measure the impact of various factors on specific investment amounts, and draw relevant conclusions through empirical analysis. In this way, it is not only the accurate measurement and correction of ambiguity in the related research results in the past, but also the in-depth research and development of this problem. The main research purposes is to study the determinants of China's outward direct investment in ASEAN.

2. LITERATURE REVIEW

Risk is the core issue of an enterprise's foreign investment. Compared with economic risk, non-economic risk is not only harmful, but also more difficult to predict and prevent, especially for developing country companies that lack comparative advantages. Institutional theory holds that the good institutional quality of the host country can effectively reduce the external uncertainty of foreign companies, reduce transaction costs and risks, and is an important factor in attracting foreign investment (Busse and Hefeker, 2007). But the interesting thing is that the results of research on China are not completely consistent with the classical institutional theory (Chi and Fang, 2014). One possible explanation for this is that Chinese companies have been assisted by the proactive protection mechanism of the home government. Wu and Chen (2001) also found that the motivation of China's direct investment is different from those of Europe, Japan, America, and other developed countries. The main body of China's direct investment is state-owned firms, and the government plays a big role in Chinese FDI. Why the Chinese government plays an important role in China's outward FDI? Before China began its process of economic liberalization in 1978 the government had adopted an inward-looking policy with an emphasis on self-reliance and economic independence. At that time, people believed that the existence of Western multinational companies did not bring any benefits to the host country. However, (Chen, 1992, 1996; Cheng&Kwan, 2000) once China began to implement economic liberalization, the Chinese-Foreign Joint Ventures Law was enacted in July 1979, more and more multinational companies and other foreign companies began to produce in China, which will help stimulate economic development. At present, research on China's OFDI has reached similar conclusions, suggesting that cultural differences have a significant hindrance to China's OFDI. Buckley (2007) and Quer (2012) found that the number of ethnic Chinese in the host country helps reduce the negative impact of cultural differences between the two countries on China's OFDI. Xi Liu (2017) stated that political interaction and cultural exchanges have played a positive role in increasing political mutual trust between the two countries and reducing investment risks, which has helped promote the development of OFDI in China. Liu Wei (2010) pointed out that the Confucius Institute internally favors the traditional culture of salty fish, and has built a platform for the spread of Chinese culture to the outside world. As a language and education communication method, it is conducive to the inheritance and spread of Chinese culture. Wu (2015) selected panel data of China's direct investment in 22 host countries from 2001 to 2012, and used the gravity model of trade and investment to incorporate the number of Confucius Institutes into the core explanatory variables. The empirical results show that the impact of the establishment of the Confucius Institute on China's trade exports is not significant, but it has a more significant impact on China's FDI.

3. ANALYSIS OF FDI DETERMINANTS: DATA AND METHODOLOGY

To explain the factors affecting China's outward foreign direct investment, each choice variable is considered independently. The simplified form of the relevant selection variable is as follows:

$$OFDI = f(GDPP, GGDP, EXCH, INF, INTERATE, LAB, OPEN, PATENT, DIS, FINANCE, CI) \quad (1)$$

where, $OFDI$ is outward foreign direct investment, $GDPP$ is gross domestic product per capita, $GGDP$ is growth domestic product growth rate, $EXCH$ is exchange rate, INF is inflation rate, $INTERATE$ is interest rate, LAB is labor force participation rate, $OPEN$ is openness of economy, $PATENT$ is technological patent, DIS is geographic distance, $INFRA$ is infrastructure, $FINANCE$ is finance policy support, CI is Confucius Institute.

For the purposes of this study, the equation (2) of logistic linear form of the extended gravity equation for China's outward FDI flows is as follows:

$$\ln OFDI_{it} = \alpha_i + \beta_1 \ln GDPP_{it} + \beta_2 GGDP_{it} + \beta_3 EXCH_{it} + \beta_4 INF_{it} + \beta_5 INTERATE_t + \beta_6 \ln LAB_{it} + \beta_7 \ln OPEN_{it} + \beta_8 \ln PATENT_t + \beta_9 \ln DIS_i + \beta_{10} \ln INFRA_{it} + \beta_{11} \ln FINANCE_t + \beta_{12} CI_i + \varepsilon_{it} \quad (2)$$

where, $OFDI_{it}$ represents the flow of outward Foreign Direct Investment from China to host country *i* in year *t*, $GDPP_{it}$ is the gross domestic product per capita of host country *i* in year *t*, $GGDP_{it}$ is the growth rate of gross domestic product of host country *i* in year *t*, $EXCH_{it}$ represents the exchange rate of the host country *i* in year *t* against the US Dollar, INF_{it} is host country *i*'s inflation rate in year *t*, $INTERATE_t$ is China's interest rate in year *t*, LAB_{it} is labor force participation rate of host country *i* in year *t*, $OPEN_{it}$ is openness of economy of host country *i* in year *t*, $PATENT_t$ is technological patents of China in year *t*, DIS_i is the geographic distance between China to host country *i*, $INFRA_{it}$ is the state of the infrastructure of host country *i* in year *t*, which is represented here by mobile cellular subscriptions per 100 people, $FINANCE_t$ is the balance of RMB loans issued by financial institutions as a percentage of GDP. in year *t*, CI_i is dummy variable which represent the host country *i* establish Confucius Institute or not, ε_{it} is an error term.

The table 1 summarizes the expected signs of parameter estimates on the explanatory variables used in modeling the gravity model equation, a positive sign (+) indicates an expected positive impact on FDI, a negative sign (-) indicates an expected negative impact on FDI.

Table 1: Variables Measurement and Expected Signs

Variable	Measurenment	Expected Sign
GDP per capita	Host country GDP per capita	+
GDP growth rate	Host country GDP growth rate	+
Exchange rate	The exchange rate of host country against the US Dollar	-
Inflation rate	Host country consumer price index	-
Interest rate	Interest rate of China	-
Labor Force	The labor force participation rate (% of total population ages 15-64) of host country	+
Openness of economy	The economy openness (the ratio of the export plus import divided by GDP) of host country	+
Technological patent	The number of technological patents registed in China	+
Geographic distance	The geographic distance between China and the host country's capital	-
Infrastructure	The mobile cellular subscriptions (per 100 people) of host country	+
Fiscal support	Balance of RMB loans issued by financial institutions as a percentage of GDP	+
Confucius Institutes	The host country established Confucius Institute or not, CI = 0 represents that China has not established a Confucius Institute in the country, and 1 represents that a Confucius Institute has been established	+

The FDI data used in this study are Outward FDI from China to the 10 host countries from ASEAN, which are Brunei, Cambodia, Thailand, Singapore, Vietnam, Malaysia, Myanmar, Laos, Philippines and Indonesia. For the dependent variable, the study uses the annual FDI outward from 2003 to 2018, collected from World Bank Database. For the independent variables are collected from World Bank Database, The Statistical Bulletin of China's Outward Foreign Direct Investment, International Monetary Fund, UNCTAD Database, China Banking

Regulatory Commission, China Insurance Regulatory Commission, People's Bank of China, China State Administration of Foreign Exchange, the geographic distance are obtained from the website (www.indo.com/distance).

4. ANALYSIS OF FDI DETERMINANTS: EMPIRICAL RESULTS

In order to get a general understanding of the selected variables, this paper first conducts a descriptive analysis of the variables, and the specific results are as follows:

Table 2: Descriptive Analysis of Variables

	Mean	Median	Maximum	Minimum	Std. Dev.
OFDI	576.3893	200.175	10452.48	0.05	1196.076
GDPP	10196.59	2554.545	64581.94	4.09	16070.72
GGDP	5.749063	6.07	14.53	-2.47	3.206629
EXCH	0.202	0.02	0.82	0	0.276783
INF	4.676125	3.385	36.59	-1.26	5.676092
INTERATE	1.694375	1.86	5.53	-2.3	2.369168
LAB	73.46163	72.235	87.21	61.87	7.110614
OPEN	126.9707	109.755	437.33	0.17	94.89769
PATENT	191800.4	153611.5	432147	37154	137271.7
DIS	3580.582	3327.49	5220.88	2330.8	850.9024
INFRA	86.88725	98.105	180.18	0.14	49.91813
FINANCE	119.2681	115.86	151.39	94.95	16.7998
CI	0.5625	1	1	0	0.497636

From the results of the descriptive statistics of the above variables, we can see:

- The mean value of the dependent variable OFDI is 576.39, the median is 200.18. there is a large gap between the two, the maximum value is 10452.48, the minimum value is 0.05, there is a significant gap between the extreme values; it shows that the variable OFDI has certain differences in different countries. The independent variable GDPP has an average value is 10196.59, the median is 2554.545, and there is a large gap between the two; the maximum value is 64581.94 and the minimum value is 4.09, there is also a clear gap between the extreme values. It shows that there is also a large gap in the development status of GDP per capita between countries. Similarly, from the descriptive statistical results of other independent variables, there are large fluctuations in the independent variables, indicating that there is a large gap in the development status of variables in various countries.
- Stability is the basic characteristic variables, in order to avoid the phenomenon of pseudo regression, before performing regression analysis, firstly, unit root test should be performed on the panel data to analyze its stability. There are many methods for unit root testing. In practice, there are commonly used LLC testing methods for the same unit root testing and ADF testing methods for different unit roots. If both tests reject the null hypothesis that unit roots exist (that is, both test values $p < 0.05$), then the variable is stationary, otherwise it is a non-stationary sequence.

This paper tests the above variables separately, the test results are as follows:

Table 3: Unit Root Test of Variables

Variable/Method	LLC		ADF		Stationarity
	t-Statistic	Prob.	t-Statistic	Prob.	
lnOFDI	-4.28317	0.0000	24.1707	0.2350	Non-stationary
D(lnOFDI)	-9.99945	0.0000	98.9972	0.0000	Stationary
lnGDPP	-6.81568	0.0000	38.3024	0.0081	Stationary
D(lnGDPP)	-4.4399	0.0000	41.1954	0.0035	Stationary
GGDP	-3.73172	0.0001	40.2534	0.0046	Stationary
D(GGDP)	-8.45727	0.0000	86.9922	0.0000	Stationary
EXCH	-0.85671	0.1958	5.81142	0.6683	Non-stationary
D(EXCH)	-4.2192	0.0000	24.9925	0.0016	Stationary
INF	-2.64684	0.0041	30.6585	0.0599	Non-stationary
D(INF)	-8.24328	0.0000	95.2178	0.0000	Stationary
INTERATE	-5.30185	0.0000	46.1054	0.0008	Stationary
D(INTERATE)	-11.5742	0.0000	121.613	0.0000	Stationary
lnLAB	0.06327	0.5252	10.0439	0.9674	Non-stationary
D(lnLAB)	-2.41019	0.0080	41.9979	0.0028	Stationary
lnOPEN	-2.08238	0.0187	19.5168	0.4885	Non-stationary
D(lnOPEM)	-4.42576	0.0000	57.5732	0.0000	Stationary
lnPATENT	-2.12676	0.0167	4.124	0.9999	Non-stationary
D(lnPATENT)	-11.7255	0.0000	103.535	0.0000	Stationary
lnDIS	-3.87562	0.0000	1.86784	1.0000	Non-stationary
D(lnDIS)	-5.76537	0.0000	5.7826	0.0000	Stationary
lnINFRA	-6.16994	0.0000	55.3954	0.0000	Stationary
D(lnINFRA)	-4.82297	0.0000	41.7667	0.0030	Stationary
lnFINANCE	3.47048	0.9997	1.61579	1.0000	Non-stationary
D(lnFINANCE)	-7.35204	0.0000	56.2376	0.0000	Stationary
CI	-2.02667	0.0213	17.6881	0.3425	Non-stationary
D(CI)	-5.93438	0.0000	28.7914	0.0254	Stationary

According to the results of the ADF test of the above variables:

- In addition to the above-mentioned variables lnGDPP, GGDP, INTERATE, lnINFRA, the LLC test value and the ADF test probability P value are both significantly less than 0.05, indicating that the above variables lnGDPP, GGDP, INTERATE, lnINFRA are all stationary series. However, the LLC test values of other variables and the P value of ADF test probability are not significantly less than 0.05 at the same time, which means that other variables are non-stationary series.
- In order to avoid the phenomenon of pseudo regression, regression needs to ensure the stability of variables, this paper performs first-order difference processing on the above variables, and again performs stationarity test. According to the test results of the first-order difference of the above variables, after the first-order difference of the variable, the LLC test value and the ADF test probability P value are both significantly less than 0.05, that is, the variable is the same-order stationary sequence after the first-order difference.
- In order to test whether there is a long-term co-integration relationship between variables, this paper adopts the Kao test in the E-G two-step method to conduct a co-integration test on the relationship between variables. The test results are shown in the following table.

Table 4: Cointegration Test for all Variables

t-Statistic	Prob.	Cointegration
-4.889517	0.0000	Cointegration

From the results of the cointegration test between the explanatory variable, the control variable and the explained variable in the sample, we know that the probability P value corresponding to the test value of the model is less than 0.05,so the original hypothesis that there is no cointegration relationship between variables is rejected, indicating that there is a long-term cointegration relationship between variables, and regression analysis can be performed on this basis. The basic regression models for panel data include fixed-effect models and random-effect models. The number of countries studied in this paper is 10, the variable is 13, and the number of samples is greater than the number of variables, which is not suitable for random effect models. And from the above series of tests, it was found that there is a long-term cointegration relationship between variables, so the fixed effect model is selected, as follows is the regression results of the sample.

Table 5: Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnGDPP	0.562092	0.207565	2.708025	0.0076
GGDP	0.008755	0.041625	0.210327	0.8337
EXCH	-0.621586	2.889673	-0.215106	0.83
INF	0.012236	0.020401	0.599756	0.5496
INTERATE	-0.033819	0.038613	-0.875831	0.3826
lnLAB	13.76352	4.712557	2.920606	0.0041
lnOPEN	0.283369	0.170127	1.665635	0.098
lnPATENT	1.541477	0.392052	3.931813	0.0001
lnDIS	-0.83622	0.08472	-9.923104	0
lnINFRA	0.244125	0.22455	1.087174	0.2788
lnFINANCE	0.907877	1.473636	0.616079	0.5388
CI	0.192886	0.297997	0.647275	0.5185
C	-72.83894	21.31059	-3.417969	0.0008
R-squared	0.845287			
Adjusted R-squared	0.823026			
F-statistic	37.97193			
Prob(F-statistic)	0			

From the above model regression results, the R-squared of the model is 0.85, which is significantly greater than 0.5, indicating that the model has a good fit. At the same time, it can be seen that the probability values corresponding to the F statistic of the model are significantly less than 0 and less than 0.05, indicating that the model passes the F test. The specific equation is as follows:

$$lnOFDI = -72.84 + 0.56lnGDPP + 0.01GGDP - 0.62EXCH + 0.01INF - 0.03INTERATE + 13.76lnLAB + 0.28lnOPEN + 1.54lnPATENT - 0.84lnDIS + 0.24INFRA + 0.91lnFINANCE + 0.19CI$$

It can be seen from the regression equation that the regression coefficients of variables lnGDPP, GGDP, INF, lnLAB, lnOPEN, lnPATENT, lnFINANCE and CI are positive number, indicating that the above variables lnGDPP, GGDP, INF, lnLAB, lnOPEN, lnPATENT, lnFINANCE and CI all have a positive promotion effect on the variable lnOFDI.

5. CONCLUSIONS AND IMPLICATION

The overall characteristic of China ’s foreign direct investment in ASEAN countries is that the scale of investment has increased year by year, accounting for about half of China ’s foreign direct investment in countries along the “Belt and Road”. However, compared with the scale of direct investment in ASEAN countries by other advanced economies, China's scale of foreign direct investment is relatively small, indicating that ASEAN countries, as a target market for Chinese companies' foreign direct investment, need to be further developed; the country characteristic of China ’s foreign direct investment in ASEAN countries is the uneven distribution of investment, and many countries ’markets need to be further developed. Half of China's foreign direct investment in ASEAN countries is concentrated in Singapore, and its direct investment flows and stocks are relatively small for China's neighboring Myanmar, Cambodia, Thailand and other countries. The industry characteristic of China's foreign direct investment in ASEAN countries is that the structure of direct investment industry is relatively simple. Except for Singapore, FDI in other ASEAN countries is mainly concentrated in the secondary industry, and most of them are in natural resources. In studying the determinants of China ’s foreign direct investment in ASEAN countries, it is found that factors such as the host country ’s market size (GDPP and GGDP), inflation rate (INF), labor force (LAB), economic openness (OPEN), infrastructure construction (INFRA), Confucius Institute (CI), the number of Chinese enterprises patents issued (PATENT) and the financial support from Chinese government (FINANCE) and China’s interest rate (INTERATE), these factors have a significant impact on China ’s foreign direct investment in ASEAN countries. The coefficient of the host country ’s market size (GDPP and GGDP), inflation rate (INF), labor force (LAB), openness of economy (OPEN), infrastructure construction (INFRA), Confucius Institute (CI), the number of Chinese enterprises patents issued (PATENT) and the financial support from government (FINANCE) are positive, and these factors are positively correlated with China ’s foreign direct investment in ASEAN countries. In the regression results of the proxy variables of these factors. The t-statistical value is greater than the significant level, and R^2 is greater than 80 after adjustment, indicating that the fitting condition is good. The coefficient of the host country ’s exchange rate (EXCH), China ’s interest rate (INTERATE), and the geographic distance between China and the host country (DIS) are negative. These factors are negatively correlated with China ’s direct investment in ASEAN countries. The host country ’s inflation rate (INF) is contrary to expectations, but its positive effect is not significant.

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ASSOCIATION ANALYSIS OF VARIABLES INFLUENCING THE SYSTEM OF EDUCATION OF SELF-GOVERNING REGIONS OFFICES EMPLOYEES IN THE SLOVAK REPUBLIC

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ABSTRACT

Self-governing regions offices play an important role in terms of competencies. They cover areas such as education, health, transport, social assistance, regional development and culture. Their effective functioning is a prerequisite for the development of the whole country. High demands are placed on employees in terms of expertise and skills. The paper deals with the study of variables that significantly affect the system of education of self-governing regions offices employees in the Slovak Republic. The first part is aimed at the study of the dependencies between the job position of employees and their perception of the importance of vocational training during the employment relationship. The gradual electronification of public administration increases the requirements for employees. Electronic public administration requires that public administration employees have a certain level of knowledge in the field of information and communication technologies, great emphasis is placed on digital literacy of employees. In this respect, information and communication technologies training and the development of digital skills are an important element in improving the quality of employees. The second part of the paper is focused on finding out the dependencies between age and the level of computer skills. The aim of the article is to point out the dependence or independence of individual variables as a basis for setting up a suitable system of education in the organisation. Knowing the dependencies between individual variables can help employers more easily create and implement the education system, whether in terms of age, job classification or other variables. Such a training system can effectively target the specific requirements of employees. The research was conducted between the employees of self-governing regions offices in the Slovak Republic.

Keywords: *computer skills, self-government, vocational education*

1. INTRODUCTION

One of the important parts of human resource management is knowledge management and professional development of employees of each organisation. There are no doubts that it is vital for general organisations development and sustainability. Professional development of public sector employees is necessary for developing environment (Voronchuk, Starineca 2014). The role of local and central public administrations in promoting sustainable development and building up a better future for society is essential. In order to fulfil this mission, employees in public administration sector must engage in long-life learning processes, for the purpose of developing skills, such as anticipation, interdisciplinarity, diversity of perspectives, working with incomplete or complex information, participation in sustainable development processes, cooperation, individual decision-making, capacities, empathy, solidarity and self-motivation (Păvăloaia et al. 2019). Human potential can be perceived as unique and dynamic power of an enterprise. Human potential is an enormous range of knowledge, abilities, predictable and unexpected reactions and ways of perception, experience and behaviour.

Identifying, exploiting, motivation and developing human potential involves meaningful and systematic effort, defined today as the management and development of human potential (Blašková 2003). One of the important factors of human capital includes education. Many economists present the results of their research on human capital. According to them, human capital is the key to a nation´s economic accretion and it is even the key to the success of the development (Baharin et al. 2019). Besides financial incentives as a great motivational tool, employees can be motivated by further education and personal growth provided by an employer. Opportunities for personal growth through further education are beneficial for employees and for a company as well. At the same time, education can be perceived as a form of investment in human capital in enterprises (Hitka et al. 2019). The education system can not prepare employees for the entire working life. The skills and knowledge must be periodically improved (Kantane 2015). Education is vital for high quality, competitive, and professional human resources. In addition, the aim of education is to support the nation´s development and maintain the sustainability of the progress in such a competitive and more complex advancement of science and technology. These are the rationales of the importance of education in the current globalized world. In producing high quality of the human resource is required planning. This target can be achieved through education since it is the most efficient and applicable approach for people. It is also possible to produce human resources that are not only knowledgeable but also skilful (Sudirman 2017). Investment in human capital is important in all professions and countries. The fast change of technology is giving opportunity and access to a variety of information and knowledge, that just in recent years it was much difficult to find. For this reason, it is essential to learn how to use the new technologies and to adapt to the changes that are happening (Beqiri, Mazreku 2020). Investing in human capital through education is a prerequisite for the development of organisations and for achieving sustainable competitive advantage. Education is one of the key areas that local governments have to invest in. Raising the educational level of the population can lead to the development of the state economy and increase the competitiveness of the country. Education is a basis for a prosperous society (Šoltés et al. 2017). Education and training labour force as an economic attitude towards human capital is vital for the country´s efficiency and economic success (Pasban, Nojedeh 2016). Also, lifelong learning is an important part of the working life of employees as well it is important for employers, investing in improving working skills through formal and non-formal education helps in enhancing creativity, flexibility and productivity of employees, while for businesses investing in these skills help them to face the challenges of competition in their field (Beqiri, Mazreku 2020). The main purpose of education is to align the goals of the organisation with the goals of its employees. Nowadays, the emphasis in public administration is increasingly on building a new one administrative culture, which is carried out by professionally trained employees who are able to do their assigned tasks so that the citizens are satisfied with the provided one´s services. One of the most important tools for building a new administrative culture in public administration is quality training of employees, which can guarantee and ensure only an effectively functioning system of further education (Koncepcia ďalšieho vzdelávania zamestnancov verejnej správy SR 2017).

2. EDUCATION OF EMPLOYEES IN THE SELF-GOVERNING REGIONS OFFICES

Self-governing regions offices in the Slovak Republic provides their employees with various forms of education, such as professional, language, managerial education, computer skills education or personal development education. Training opportunities are in most cases regulated by collective agreements or rules of employments of individual employers. The employer creates the conditions to enhance the qualifications and proficiency of its employees by participating in training and seminars organized by the employer or other professional institutions.

In order to further deepen knowledge and expertise, the employer may allow employees to visit training sessions, meetings, symposia, congresses, conferences and language courses. It is also possible to provide professional literature, periodical and non-periodical press, as well as other means for training employees.

2.1. Weaknesses of the education system in self-government in Slovakia

The analysis of further education of local government employees, which was carried out under the auspices of the Ministry of the Interior of the Slovak Republic, revealed systemic shortcomings of further education of public service employees, such as underestimation of the importance of further education, the insufficient connection of further education with other human resources management and development tools, absence of systemic approach to education, especially in providing further education for local government employees, the absence of a central database of lectures, insufficient cooperation of state administration bodies in the area of mutual provision of lecturers from among their own employees and insufficient cooperation with departmental institutions (Koncepcia ďalšieho vzdelávania zamestnancov verejnej správy SR 2017).

3. METHODOLOGY

Association analysis was used to process the article. The aim of association analysis is to find interesting relationships in large datasets. Data for the association analysis were obtained from a questionnaire survey, which was conducted among employees of self-governing regions offices in the Slovak Republic. The questionnaire was sent to 824 employees and the number of received and filled in questionnaires was 124 (31 men and 93 women). The sample size was calculated according to the formula no 1 and 2.

$$n = \frac{N * t^2_{1-\frac{\alpha}{2}} * \sigma^2}{(N-1) * \Delta^2 + t^2_{1-\frac{\alpha}{2}} * \sigma^2} \tag{1}$$

where:

$$\sigma = \sqrt{p * (1-p)} \tag{2}$$

Sign	Characteristics	Values
n	minimum sample size (minimum number of respondents)	**123**
$t_{1-\alpha/2}$	reliability of estimation, critical value determined from tables	1.44
σ^2	variance calculated from the standard deviation	0.25
Δ	maximum allowable margin of error	± 0.06
N	base file size	824

Table 1: Sample size calculation
(Source: own processing)

In the association analysis, it is necessary to establish a null and an alternative hypothesis. A hypothesis is a statement whose veracity cannot be confirmed or refuted without further examination.

The statistical hypothesis is a statement about an unknown value of a basic set parameter, which is verified on the basis of a parameter estimate (Rimančík 2007). Verifying the accuracy of these statements is called testing statistical hypotheses. When testing, two contradictory hypotheses are set against each other. A hypothesis whose validity is verified is called a tested or null hypothesis. The null hypothesis expresses the independence of variables. An alternative hypothesis is put against the tested hypothesis (Markechová et al. 2011). The comparison of actually found and theoretical frequencies is the basic idea of the null hypothesis test (Pacáková et al 2003). The level of significance was determined, which represents the probability of a type I. error in rejecting the null hypothesis and the test statistic chi-square was calculated. The chi-square test of independence from 1904 is based on a contingency table. The test verifies the null hypothesis that two nominal variables are independent. Rejecting the null hypothesis means that the difference between the actual and expected frequencies in the table is so large that it cannot be merely random, so there is a relationship between the variables (Rimančík 2007). When calculating the chi-square, it was at first necessary to calculate the expected numbers as follows:

$$e_{ij=}\frac{n_{i0}*n_{0j}}{n_{00}} \tag{3}$$

where:
n_{i0} = the frequency of occurrence of the i-th value of the character A (i = 1, 2, ..., r),
n_{0j} = the frequency of occurrence of the J-th value of the character B (j = 1, 2, ..., s),
n_{00} = file number

The calculated values are then arranged in a table and the individual chi-square values are calculated:

$$x_{ij}^2 = \frac{\left(n_{ij} - e_{ij}\right)^2}{e_{ij}} \tag{4}$$

The total value of chi-square x^2 is calculated according to the formula no 5:

$$x^2 = \sum_{i=1}^{r}\sum_{j=1}^{s}\frac{\left(n_{ij} - e_{ij}\right)^2}{e_{ij}} \tag{5}$$

where n_{ij} is the observed absolute frequency of the simultaneous occurrence of the i-th value of the sign A and the j-the value of the sign B. The statistics are used to test the hypothesis of the independence of qualitative signs A and B.

A very important indication is the degree of freedom, which was calculated using by formula no. 6. The degree of freedom for a chi-square test of independence is the number of cells in the table that can vary before all the other cells are calculated.

$$v = (r-1)*(s-1) \tag{6}$$

where *r* is the number of rows and *s* is the number of columns.

In the last step, the tested statistic was compared with the tabular critical value for the required level of significance and degree of freedom. If the calculated tested statistic is greater than the critical value, the null hypothesis is rejected. If the tested statistic is equal to or less than the critical value, the null hypothesis is not rejected. If the dependence is confirmed, it is necessary to measure the association in the last step. The measurement of association is based on monitoring whether both phenomena occurred simultaneously and how often only one of them occurs if the other does not occur. The association can take values from the interval (-1;1):

Various methods can be used to measure the association between qualitative traits. In this case, the association measurement using the Pearson coefficient is used as follows:

$$C = \sqrt{\frac{x^2}{n + x^2}} \tag{7}$$

4. RESULTS

In the first part, the dependence between the perception of the importance of vocational training and their job position was identified among employees. Based on the analysis, hypotheses were established:

- ***H_0 The importance of vocational training does not depend on the job position***
- ***H_1 The importance of vocational training depends on the job position***

The answers of the respondents are written in the following table:

B – job position	A – importance of vocational training		sum
	important	unimportant	
officer	76	6	82
specialist	19	1	20
executive	17	5	22
sum	112	12	124

Table 2: Contingency table – job position and importance of vocational training (Source: own processing)

For further processing, it was necessary to calculate the expected frequencies. The calculations are given in the table no 3.

$$e_{76} = \frac{112*82}{124} = 74.065 \qquad e_{6} = \frac{12*82}{124} = 7.935$$

$$e_{19} = \frac{112*20}{124} = 18.065 \qquad e_{1} = \frac{12*20}{124} = 1.935$$

$$e_{17} = \frac{112*17}{124} = 19.871 \qquad e_{5} = \frac{12*22}{124} = 2.129$$

Subsequently, the expected frequencies "eij" were entered in the table. Individual chi-square values were further calculated from the values obtained according to formula 4.

n_{ij}	e_{ij}	$\left(\frac{n_{ij} - e_{ij}}{e_{ij}}\right)^2$
76	74.065	6.826
19	18.065	0.003
17	19.871	0.021
6	7.935	0.059
1	1.935	0.233
5	2.129	1.819
		$\boldsymbol{x^2 = 8.961}$

Table 3: Summary of calculated values and individual chi-square values (Source: own processing)

To determine the tabular critical value for a given level of significance, it is necessary to know the degree of freedom. It is calculated according to formula 6. Degree of freedom is the number of independent values that a statistical analysis can estimate.

$$v = (3 - 1)*(2 - 1)$$

$$\mathbf{v = 2}$$

The association was verified at the significance level $\alpha = 0.05$ and at the degree of freedom 2. In this case, the tabular critical value was 5.991. Subsequently, the calculated value x^2 was compared with the determined table critical value:

8.961 >5.991

In this case, tha calculated value exceeds the tabular critical value, so it is possible to reject the null hypothesis at the significance level $\alpha = 0.05$ and confirm the alternative hypothesis. The analysis showed that there is a statistically significant relationship between the importance of vocational training and the job position of employees. Pearson´s coefficient was used to measure the association according to formula 7.

Pearson´s coefficient

$$C = \sqrt{\frac{8.961}{124+8.961}}$$

$$\mathbf{C = 0.26}$$

The calculation shows that there is a small statistical dependence between the importance of vocational training and the job position of employees, as the observed value ranges from -0.3 to +0.3.

In the second part, the dependence between the age of employees and the level of their computer knowledge was investigated. In the questionnaire survey, respondents answered the question of their level of computer knowledge. The answers to choose from were *pre-intermediate*, *advanced* and *expert.*

Respondents were then categorized by age and by the answer to the question. The data are written in the contingency table:

B - age	A – level of computer skills			sum
	pre-intermediate	advanced	expert	
up to 30	1	10	2	13
up to 40	10	38	4	52
up to 50	10	27	1	38
over 50	5	15	1	21
sum	26	90	8	124

Table 4: Contingency table – computer skills and age
(Source: own processing)

Subsequently, a null and alternative hypothesis was formulated:

- ***H_0 The level of computer skills does not depend on the age of the employee***
- ***H_1 The level of computer skills depends on the age of the employee***

The aim is to find out the veracity of the hypothesis H_0, that there is no association between the characters A and B. The association will be verified at the significance level $\alpha = 0.05$. Subsequently, the theoretical numbers will be calculated according to formula 3, the individual chi-square values according to formula 4 and the total chi-square value according to formula 5.

$$e_{1} = \frac{26*13}{124} = 2.726 \qquad e_{10} = \frac{90*13}{124} = 9.435 \qquad e_{2} = \frac{8*13}{124} = 0.839$$

$$e_{10} = \frac{26*52}{124} = 10.903 \qquad e_{38} = \frac{90*52}{124} = 37.742 \qquad e_{4} = \frac{8*52}{124} = 3.355$$

$$e_{10} = \frac{26*38}{124} = 7.968 \qquad e_{27} = \frac{90*38}{124} = 27.581 \qquad e_{1} = \frac{8*38}{124} = 2.452$$

$$e_{5} = \frac{26*21}{124} = 4.403 \qquad e_{15} = \frac{90*21}{124} = 15.242 \qquad e_{1} = \frac{8*21}{124} = 1.355$$

The calculated values are given in table no. 5.

nij	eij	$\left(\frac{n_{ij} - e_{ij}}{e_{ij}}\right)^2$
1	2.726	1.093
10	10.903	0.075
10	7.968	0.518
5	4.403	0.081
10	9.435	0.034
38	37.742	0.002
27	27.581	0.012
15	15.242	0.004
2	0.839	1.608
4	3.355	0.124
1	2.452	0.860
1	1.355	0.093
		$x^2 = 4.503$

Table 5: Summary of calculated values and individual chi-square values
(Source: own processing)

To determine the tabular critical value for a given level of significance, it is necessary to know the degree of freedom. It is calculated according to formula 6.

$$v = (4 - 1)*(3 - 1)$$

$$\mathbf{v = 6}$$

The association was verified at the significance level $\alpha = 0.05$ and at the degree of freedom 6. In this case, the tabular critical value was 12.59. Subsequently, the calculated value x^2 was compared with the determined table critical value:

$$\mathbf{4.503 < 12.59}$$

In this case, the calculated value does not exceed the critical value, therefore hypothesis H_1 is not accepted at the level of significance and it can, therefore, be stated that there is no dependence between the age of employees and their level of computer skills. In this case, the degree of dependence will not be attested.

5. CONCLUSION

The results found that there is little statistical dependence between the importance of vocational training and the job position of employees, which means that job position partially influences the perception of the importance of further education among the particular employees. Therefore, when creating a system of education in the self-governing region´s offices, employers should also take into account the job position of employees and their specific requirements. In the second case, statistical dependence was not confirmed, which means that there is no statistically significant dependence between the age of employees and their level of computer skills. Similar issues have been dealt with by other authors, for example, Strenitzerová and Achimský realized the research among employees in the postal sector in the Slovak Republic, which used regression and correlation analysis. The research dealt with the correlation between age and satisfaction with the system of education and association between job classification and satisfaction with professional and career growth. The results of this research show that perceived quality (quality of the workplace, quality of communication, quality of relationships, quality of teamwork, quality of education system) affect employee satisfaction in the sector of services. The correlation coefficient between age and satisfaction with the system of education is 0.9397 and it represents a strong correlation. An association between job classification and satisfaction with professional career growth using Cramer´s coefficient is 0.17, which means low dependence. (Strenitzerová, Achimský 2019). The knowledge and knowledge requirements of the person in modern society are constantly changing, and in order to function as a workforce, a person has to continually deepen and broaden their skills and knowledge. The formation of work skills of company employees becomes one of the most important tasks of the company´s personnel work. By educating and creating conditions for the education of employees, the employer positively affects their motivation, satisfaction with the employer, the link to the employer, etc. The company also increases the attractiveness of employment in the company. In particular, this leads to more efficient recruitment and a reduction in employee turnover (Strenitzerová 2015). Knowledge becomes an essential organizational driver and a key factor in value creation. To meet the needs of employers and workers, the education system should also become more flexible by providing people with the competence level that complies with contemporary requirements, on the one hand, and by cost-effective training implementation on the other hand.

In the case of public administration, an effective training system ensures that staff complies with modern requirements and provides public services according to public interests (Petersone et al. 2014).

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GENDER STEREOTYPES IN ENTREPRENEURSHIP PROCESS: EVIDENCE FROM THE CROATIAN ICT INDUSTRY

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ABSTRACT

Set within the context of the Croatian ICT industry, this paper explores the presence of gender stereotypes in entrepreneurship process and the rule of masculine and feminine values in shaping women's entrepreneurial strategies. The study represents a qualitative research by using an interpretative phenomenological inquiry. The primary data were collected through in-depth interviews with seven women entrepreneurs/managers. After empirical material preparation the data were analyzed by using the techniques of open and axial coding. The results show that the Croatian ICT sector is characterized by negative industry-related gender stereotypes, while on the other hand, the responders do not perceive presence of negative entrepreneurship-related gender stereotypes as such. This type of gender stereotypes can evoke feelings of admiration for a woman at the head of the company in a male-dominated industry. The research also suggests that the business strategies of women entrepreneurs are shaped under the influence of both feminine and masculine values. Feminine values (such as caring for others, warmth, compassion, and meticulousness) increase the perceived self-efficacy of women entrepreneurs in customer relationship, employee management, and administrative business operations. Identified masculine values in women (such as self-confidence, ambition, and leadership) enable them to realize traditional entrepreneurial roles. At the same time, the potential weaker expression of masculine values in some women entrepreneurs is successfully compensated through the participation of a male business partner in the management structure of the company.

Keywords: *women's entrepreneurship, gender stereotypes, masculinity, femininity, Croatian ICT industry*

1. INTRODUCTION

The business world in general, and then entrepreneurship, are traditionally described as „male worlds" that are cold and predatory, and thus incompatible with a gentle feminine orientation (Ahl, 2002; Gupta et al., 2009; Jones, 2011; Živoder and Kolega, 2014). This is especially true for entrepreneurial activity within masculine industries, such as the ICT industry, which is characterized by strong competitiveness and rapid growth orientation, and significant dominance of the male population among business owners, managers and employees (Sweida and Reichard, 2013; Kelley et al., 2017; OECD, 2017). Women in the ICT industry are potentially exposed to the dual impact of gender stereotypes. Such impact reinforces the perception of the mismatch between women's own characteristics and those stereotypically associated with ICT entrepreneurship. This discrepancy may discourage women from fulfilling their entrepreneurial potential, both in terms of realizing the entrepreneurial intention of potential entrepreneurs and in the context of implementing certain business strategies of existing ICT companies owned/managed by women (Sweida and Reichard, 2013). This paper presents the results of a qualitative study conducted among women entrepreneurs in the Croatian ICT industry (or more precisely women entrepreneurs pertaining to computer programming activities). The paper deals with the questions of whether and in what way traditional gender stereotypes impact the daily business activities of women entrepreneurs in a typically masculine activity and in what way masculine or feminine values are reflected in their

entrepreneurial strategies. The first part of the paper presents a review of the existing theory and explains the methodological framework of the research. The second part of the paper presents the results of an empirical study and the conclusions and implications of the research.

2. (ICT) ENTREPRENEURSHIP AS A MASCULINE-FRAMED PROCESS

The reliance of entrepreneurship on masculine values (such as leadership, dominance, aggression, competitiveness, and independence) has historically been incorporated into the theory of entrepreneurship (Ahl, 2002; Jones, 2011; Živoder and Kolega, 2014). As early as the beginning of the nineteenth century, Jean-Baptiste Say viewed the entrepreneur as a dominant leader who is characterized by specific personality traits and the ability to access valuable economic and social resources. Alfred Marshall later described the entrepreneur as a „natural" leader. According to Marshall, entrepreneurial skills are a privilege that innately adorns rare individuals. In the same vein, Joseph A. Schumpeter then developed the concept of creative destruction. From his point of view, the entrepreneur is a competitive actor, a creator-warrior, aggressively driven by the urge to prove superiority, create a private „kingdom" and build a high status in society. Finally, there are the contributions of Frank H. Knight and Peter Drucker. The peculiarity of entrepreneurship, they hold, is reflected in the courage to give up existential security in order to realize an entrepreneurial idea driven by the pursuit of economic profit. In this context, the primary function of the entrepreneur is to take risks, which is a masculine quality (Kružić, 2007; Jones, 2011). The historically shaped masculine orientation of the entrepreneurship process is retained in the contemporary entrepreneurship literature (Ahl, 2002; Gupta et al., 2009). For example, Ahl (2002) analyzes entrepreneurial discourse and concludes that a typical recent study in the field of entrepreneurship assumes the differences between women and men in terms of values, attitudes and ambitions, and then in business goals and strategies (Ahl, 2002). Nevertheless, women entrepreneurs continue to be assessed by masculinely colored standards of business success (such as enterprise size, profit, and growth) (Sexton and Bowman, 1985; Ahl, 2002). Additionally, in research discourse, the typical entrepreneur is still perceived as an achievement-oriented, combative, and resolute actor. Such a perception does not fit into feminine tenderness, sensitivity, and caring for others (Ahl, 2002; Živoder and Kolega, 2014). This results in an attitude towards women's entrepreneurship as something different from the „classic" entrepreneurial model and which requires special treatment and support. In this way, the ideas of the secondary nature of women in entrepreneurship and the masculine orientation of entrepreneurs have been reproduced (Ahl, 2002). Gender stereotypes in entrepreneurship produce gender differences in an individual's self-perception of entrepreneurial ability (Wilson, Kickul and Marlino, 2007; Mueller and Dato-On, 2008; Gupta et al., 2009; Živoder and Kolega, 2014; Šmaguc, Kedmenec and Postolov, 2015). In this regard, recent studies address the concept of entrepreneurial self-efficacy (ESE) and point out that ESE is less pronounced in individuals with a stereotypically feminine orientation (Mueller and Dato-On, 2008). Consequently, the authors conclude that feminine-typed individuals compared to masculine-typed individuals are characterized by a lower level of confidence in their own ability to successfully run and manage a company (Wilson, Kickul and Marlino, 2007; Šmaguc, Kedmenec and Postolov, 2015), less propensity to realize entrepreneurial intentions (Zhao, Hills and Seibert, 2005; Gupta et al., 2009), and less pronounced tendency for firm growth (Sweida and Reichard, 2013). The discouragement of women in realizing their entrepreneurial potential is prompted, among other things, by their perception of the need to turn into „steel ladies" - cold businesswomen who are able to tame stereotypically undesirable feminine virtues in entrepreneurship (Ahl, 2002; Živoder and Kolega, 2014). This is especially evident in traditional masculine activities, such as the ICT industry. In this industry, dual gender stereotyping (Sweida and Reichard, 2013) produces additional barriers for women. They are manifested in negative perceptions and discrimination

of women caused by their failure to fit into the profile of a typical ICT expert, assumptions of insufficient competence of women, lack of visible female role models in industry and women's feelings of not belonging to the masculine business community (Graham et al., 2016). As a consequence (and cause) of the mentioned barriers, the ICT industry is characterized by a pronounced underrepresentation of women in the labor force and in entrepreneurship (Sweida and Reichard, 2013; OECD, 2017). For example, in OECD countries in 2014, 5.5% of the total male workforce and only 1.4% of the total female workforce worked as ICT specialists (OECD, 2017). Also, according to the Global Entrepreneurship Monitor's Report on women's entrepreneurship (2018/2019), the gender gap in participation in entrepreneurship is among the largest in the ICT industry. Specifically, women participate in this industry with 1.7% as opposed to men's participation, which is at the level of 4.9% (Elam et al., 2019). Based on the existing theoretical and empirical insights, this paper explores the presence of gender stereotypes in entrepreneurship process and the rule of masculine and feminine values in shaping entrepreneurial strategies of women in the Croatian ICT industry (or more specifically the software industry). Accordingly, from the perspective of women entrepreneurs/managers, the following research questions were examined:

- Are women entrepreneurs in the Croatian software industry exposed to gender stereotypes related to the industry and/or the entrepreneurship process and how are possible gender stereotypes manifested?
- What feminine and masculine values are expressed in women entrepreneurs in the Croatian software industry?
- How do the feminine or masculine values of women entrepreneurs in the Croatian software industry reflect on their business practices?

3. METHODOLOGY

In order to examine the above research questions, a qualitative research based on a phenomenological approach was conducted. Primary data were collected through in-depth interviews with women owners and/or managers of companies registered in Croatia whose main activity belonged to „Software entrepreneurship, consulting and related activities“ (J62.0 in NKD 2007). Interview participants were selected on the principle of mixed purposeful sampling (Patton, 2002). The final sample included seven women entrepreneurs from three regional self-government units in different parts of Croatia. All interviews were conducted face-to-face, in the business premises. In two interviews, in addition to women entrepreneurs, the participants were also their spouses - co-owners/directors/employees of the company. The duration of one interview was between 52 and 94 minutes. Table 1 shows the data on interview participants and their companies. The written transcripts included 153 pages of raw empirical material. After empirical material preparation the data were analyzed by using the techniques of open and axial coding (Strauss and Corbin, 1998; Halmi, 2005; Jeđud, 2007). In the open coding phase, the data were fragmented and the segments of the empirical material were marked with codes – „labels“ that symbolize the meaning of the data set. Then, the identified codes were grouped into subcategories and categories - units characterized by a higher level of abstraction (Halmi, 2005; Jeđud, 2007). In the phase of axial coding, the connections between categories were identified and a model of relations between categories was built (Kletečki Radović and Kregar Orešković, 2005; Jeđud, 2007). Table 2 illustrates an excerpt from open coding and grouping codes into categories.

Table following on the enxt page

Pseudonym	Year of birth	Field of education/formal position	Headquarters/ year established	Number of employees	Revenue 2018 (in millions of kunas)
Sanja	1972	foreign languages/owner and manager	Zagreb/1996	10	1,8
Maja	1987	economics/owner and manager	Zagreb/2013	25	4,4
Ivana	1986	economics/project manager	Osijek/2013	6	-
Antonia	-	economics/manager	Zagreb/2008	5	1,0
Branka	1959	engineering/owner and manager	Rijeka/1996	3	1,3
Vesna	1963	math/owner and manager	Rijeka/1992	3	0,8
Ana	1973	informatics/manager	Zagreb/2001	11	4,2

Table 1: Women entrepreneurs – participants
(Source: own research and the Republic of Croatia, Ministry of Justice, 2020)

Interview excerpt	Open codes	Subcategories	Categories
…So, in fact, the difference [between women and men in the ICT industry], *in my opinion, does not exist and there are more and more women who go to FER* [Faculty of Electrical Engineering and Computing] *etc. However, it takes time for them to mature and realize that they can work the same job as men, right? Specifically, as far as programming is concerned, I just talked to colleagues from Split. They have currently hired female programmers and said they have no problem with that. So, it's just a matter of focus and learning and accepting that a woman can do that, right? But I say, I think it's just a matter of time. … It seems normal to us, but in fact it is not and it is going very slowly, right?* (Sanja)	Absence of real differences between women and men in the ICT industry Gradual growth of women's participation in engineering and informatics studies ..."and a woman can do it"… Attitudes change, but changes are slow	Perception of equal abilities Deep rootedness of gender stereotypes Optimism	**Industry-related gender stereotypes**

Table 2: Excerpt from open coding and grouping codes into categories
(Source: own research)

4. RESULTS

The result of the analysis of qualitative data is a model of the relationship between categories shown in Figure 1. As the figure suggests, several categories have been identified: industry-related gender stereotypes, entrepreneurship-related gender stereotypes, feminine values of women entrepreneurs and involvement of the spouse/male business partner in the entrepreneurship process. The category „industry-related gender stereotypes" refers to the stereotyping of women employed in the ICT industry in general, primarily related to the traditional understanding of ICT as a typically masculine occupation (Bandura et al., 2001; Sweida and Reichard, 2013).

In accordance with the perceptions of our respondents, the underrepresentation of women is one of the basic characteristics of the ICT industry in Croatia. Women employed in this industry most often cover economic and administrative jobs. On the other hand, there are almost no women programmers: *How many women do we have* [employed as programmers]*?… One full-time employee and one student… If we looked at the* [job] *interviews, we did them in the past four years, I don't know, I don't know how many ... maybe five girls passed for the programmers, maybe…if five, of which we hired three…In general, there are no women…* (Maja)

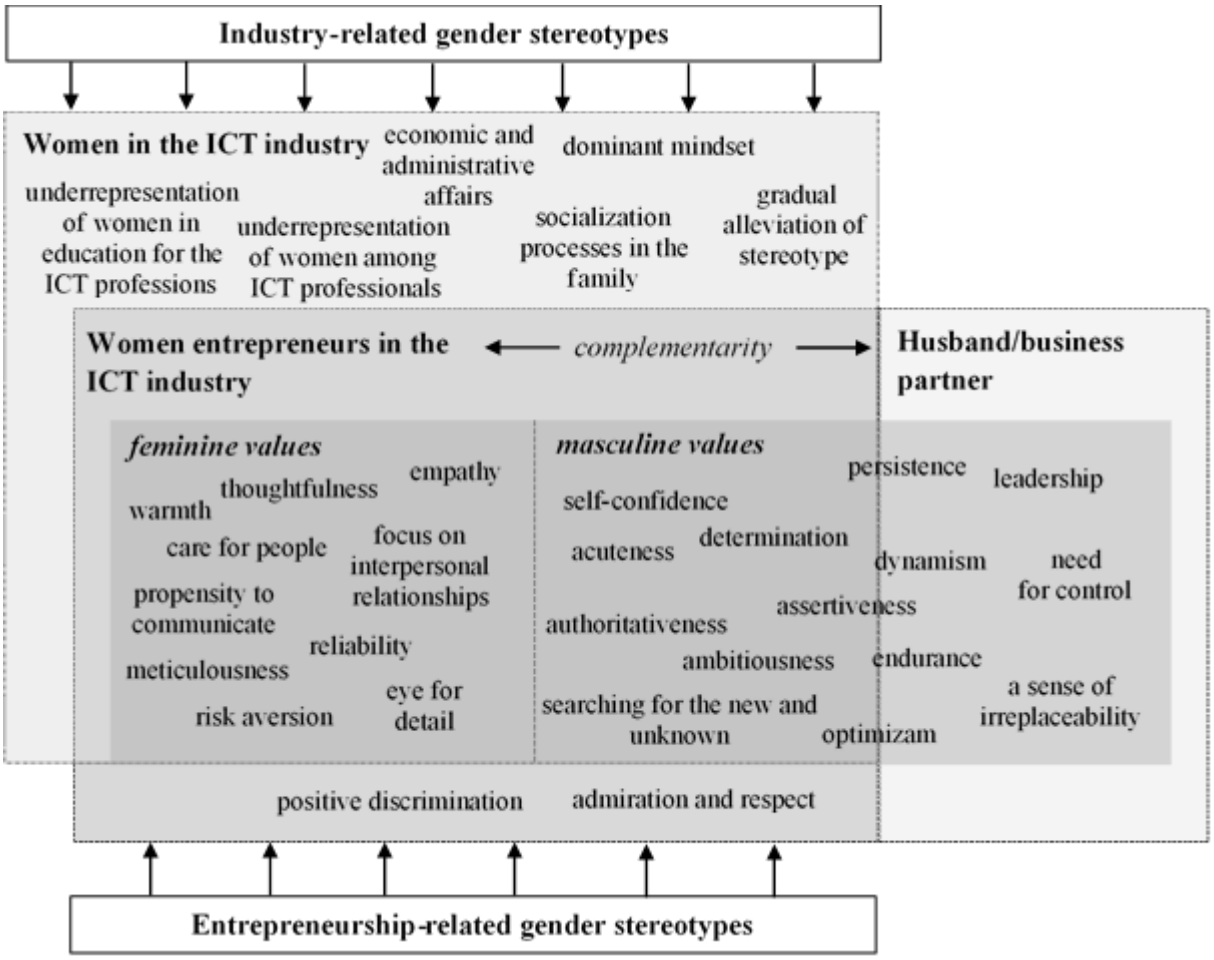

Figure 1: Relationship model between identified categories and related subcategories (Source: own research)

Although female programmers are significantly less than male programmers, most respondents believe that female programmers are no less effective and competent. Moreover, feminine values such as precision, meticulousness, calmness, and eye for detail are common characteristics of female programmers that elevate their work quality. Therefore, female programmers can be even more effective than their male counterparts. The underrepresentation of women in the Croatian ICT industry is a consequence of the fact that significantly fewer women still opt for formal education in technical and information professions. According to the respondents, this is primarily a reflection of deep-rooted prejudices in the wider environment. As Sanja points out, the problem is in the process of socialization within the family, which still directs the girls towards the so-called feminine occupations: *The thing is…in the mindset because… the focus is still on the fact that the woman will be a housewife, a teacher, possibly a doctor or something like that… If you tell your parents you are going to study computer science, I don't know how they will look at you* (Sanja).

Despite the above, our respondents are optimistic as they notice a trend of slight growth in the representation of women in the structure of informatics and electrical engineering students. Also, there are observations according to which Croatian society, although slow, is going through a process of gradual alleviation of this type of gender stereotypes. Further progress in this area is possible through more intensive work on the popularization of ICT professions among the female population. According to women entrepreneurs, the popularization of informatics among women within the educational system will potentially increase their self-efficacy in this area. Consequently, ICT occupations will be more attractive to women and more girls will dare to pursue a career in informatics. „Entrepreneurship-related gender stereotypes" are represented by the second identified category. In this regard, the respondents did not encounter negative discrimination in terms of their entrepreneurial role or it is very mild, almost imperceptible. Moreover, Maja's experience suggests that this type of gender stereotypes, combined with industry-related ones, can evoke feelings of admiration and respect for women - ICT entrepreneurs: *Everyone is quite surprised to see a young woman running a company…and running an IT company. It's like ok to everyone and then some, even attention, caution, respect…I always feel it, which is really nice to me. Nice, nice* (Maja). As Maja adds, other forms of stereotypes are more pronounced in the entrepreneurship process, primarily those related to the age of entrepreneur and the general understanding of entrepreneurship in society. They are reflected through suspicion of young entrepreneurs and prejudices related to the perception of who is and who can be an entrepreneur:… *Entrepreneurship… It is stupid of me to say that it has a negative connotation, for me it has not, but it has a strange connotation. I have a feeling that everyone thinks they can be an entrepreneur, and that there are very few leaders among these entrepreneurs…* (Maja). The category „feminine values of women entrepreneurs" represents the traits of respondents which are traditionally associated with females, and which have been found to directly or indirectly influence business practices. As the graphic presentation suggests (Figure 1), warmth, compassion, attentiveness, orientation towards communication, care for people, and focus on interpersonal relations in general were observed in all interviewed women entrepreneurs. It is therefore not surprising that in companies (where women share ownership and/or management with a male partner), women play a key role in deciding and implementing business activities related to sales and customer relationship, networking and promotion, and employee management. In this regard, Maja pays special attention to her *gentle and warm* „feminine approach" to managing employee relations, and Ivana emphasizes her *orientation towards communication*, which has a key role in managing customer relationships. In addition to the previously mentioned values, feminine qualities such as reliability, meticulousness and an eye for detail also play a significant role in the business of women entrepreneurs. They are important in the segment of operational performance of administrative tasks, such as those related to financial management and accounting, preparation of business documentation, and fulfillment of administrative requirements towards institutional bodies. These jobs in companies, just like those related to sales and human management, are predominantly or exclusively in the domain of women. Finally, all respondents have a pronounced risk aversion associated with financial borrowing of the company, hiring new workers and business growth, which is why they direct their company towards safer business strategies. In this regard, Sanja cites an example of an atypical growth strategy on which her (family) business relies: *…So, you have two options. One option is definitely… take some credit and expand the business for 20-30 people, and option B that we are currently opting for ... there are 10 of us in-house, but we have 4-5 companies with which we work all the time…*(Sanja). Also, Maja points out an example of her values - prudence and thrift that act as neutralizers of too risky business ideas of her visionary business partner:… *I am personally stingy, I am a strictly frugal person and I always have an attitude ... we need to be frugal so we will get some money… and on the other hand I have Ivan who is, uh… he is the*

total opposite .... I actually think that the best is somewhere in the middle (Maja). In addition to feminine qualities, it was observed that most respondents share several traits of opposite orientation. These characteristics are represented by the category „masculine values of women entrepreneurs". Thus, all entrepreneurs, except for one respondent, are quite self-confident, penetrating and determined persons, and most of them show authoritativeness, ambition and assertiveness in their attitudes and behavior. The mentioned values are visible in the articulation of business plans, and are also reflected in the fact that some respondents took a dominant role during the interview. Furthermore, some of the respondents are adorned with typical entrepreneurial qualities such as optimism, perseverance, endurance, striving for dynamism and orientation towards the new and unknown. So Sanja's strategy of finding the first foreign client indicates her extreme perseverance and ingenuity (*…I found* [the first client] *in a foreign market by making a T-shirt with the inscription NET DEVELOPERS…so, black T-shirt with white letters. I went to the conference. There were 2,000 people…So you walk for 2 days, share business cards and, I don't know, people remember you, they talk to you a bit and some call you later…and after 6 months you get your first project*. (Sanja)). Similarly, Branka overcame negative business trends more easily with the help of her optimism, perseverance and endurance (*…we believed we could overcome it because we knew what situation we were in and, uh, we devised a way to solve it...*(Branka)). Also, it is interesting that some of the respondents leave the impression of a pronounced need for control, as well as perceptions of irreplaceability in business. This is illustrated by Sanja's spontaneous reaction to the length of our interview: *…I was supposed to have an internal meeting at 3 o'clock ... so my colleagues will survive without me, I hope ... for 20 minutes* (Sanja). Leadership was also identified as a masculine value of our respondents. As they admit, two entrepreneurs have developed this quality thanks to the nature of their jobs within their previous work experience. Thus, before founding her own company, Maja was the head of an independent project team within a large corporation, while Branka was the head of the software development department in a large company. Finally, it should be mentioned that in all but one of the companies, the position of co-owner and/or formal or informal co-manager is held by one male person. Thus, the companies run by Ivana and Sanja are family businesses in which their spouses are persons with a formal education in the field of informatics and/or have previous work experience in ICT. At the same time, they are introverted and less oriented towards communication and customer relations. Therefore, they predominantly lead the software development process in the company. On the other hand, their wives are adorned with managerial skills and an entrepreneurial personality, and accordingly they play a key role in the management of the company. Therefore, although the entry into the ICT business is motivated by the professional choice of their husbands, it seems that the intra-family realization of entrepreneurial intention is the merit of a woman entrepreneur. As Ivana and Maja's statements suggest, their traits made up for the lack of entrepreneurial traits of their husbands. Thanks to that, they became equal (Ivana) or even dominant (Sanja) players in the joint entrepreneurship process (*…At that time I met a man who wanted to build a career exclusively in programming. I said: „I will sell, you will be a programmer."* (Sanja); *My favorite area is project management because I work with people all the time… and in general, I cover all these office jobs...paperwork, communication with accounting and everything else related to office administration… On the other hand, I have no technical knowledge…So , I don't think* [my husband and I] *could do without each other.* (Ivana)). In companies headed by Maja, Antonia and Vesna, women share management and ownership with male business partners. Male partners are characterized by complementary knowledge and skills. In a way, they replace the less pronounced masculine values of their female business partners. For example, Antonia points out that she does not have leadership skills and admits that the role of leader belongs to the male partner. Similarly, Maja considers her male business partner irreplaceable as he is a visionary and has superior customer service skills.

5. CONCLUSION

The results of the research confirm previous findings (Gupta et al., 2009) according to which occupations related to technology and engineering are still strongly associated with masculine orientation. Such a situation directs women towards diametrically different career aspirations (Bandura et al., 2001) and reproduces negative industry-related gender stereotypes. On the other hand, entrepreneurship-related gender stereotypes from the perspective of women entrepreneurs do not produce negative discrimination against women in the business world. Moreover, combined with industry-related stereotypes, they can evoke feelings of admiration and respect for a woman at the head of the ICT company. According to the results, the business strategies of women entrepreneurs are shaped under the influence of feminine and masculine values. Femine values (such as caring for others, warmth, compassion, and meticulousness) increase the perceived self-efficacy of women entrepreneurs in customer relationship, employee management, and administration. Identified masculine values (such as self-confidence, ambition, and leadership) enable women to realize traditional entrepreneurial roles (Ahl, 2002; Jones, 2011; Živoder and Kolega, 2014). At the same time, the potential weaker expression of masculine values in some entrepreneurs is successfully compensated through the participation of a male business partner in the entrepreneurship process. The results of the research suggest that it is necessary to intensify the popularization of the ICT industry among women, primarily within the education system. Although it is a long-term process, it can contribute to greater perceived self-efficacy of women in the field of informatics (Bandura et al., 2001) which increases women's readiness to build ICT careers. The research also shows that measures to encourage women's entrepreneurship can be improved through the promotion of the entrepreneurship process characterized by the simultaneous involvement of women and men in company management. Gender "mixed" management has advantages as the man compensates for a lack of masculine values in the woman or the woman takes over the dominance in performing the entrepreneurial function due to the lack of entrepreneurial skills of the man. Consequently, gender "mixed" leadership and management may have a positive effect on a company's performance. Nevertheless, it is a topic that requires further consideration in future research on women's entrepreneurship.

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DOES EDUCATION STILL MATTER? - THE CASE OF POLAND

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ABSTRACT

Many parents tell their children that they should gain good education, because it will give them a better profession and, consequently, a higher remuneration. But is it always like that? Poland seems to be an interesting case, because the education system is well-developed and every year many people with university diploma enter the labour market. The purpose of this article is to verify whether a university degree is positively correlated with higher earnings based on Polish Earning Survey. The structure of the article is as follows: first, the general characteristics of the remuneration structure in Poland in 2015 and 2018 is presented. Then, the structure of level of education in Poland in 2015 and 2018 is described. After that the statistical analysis focused on relationship between level of education and structure on remuneration overall and divided into gender of employees is conducted. The elaboration is completed by a summary and the most important conclusions from previous consideration. The applied research methods are literature studies and the analysis of statistical data made available by Sedlak&Sedlak for 2015 and 2018 years.

Keywords: *structure of remuneration, level of education, Poland*

1. INTRODUCTION

In the 18th century, Adam Smith, in his best-known work entitled *Research on the nature and causes of the wealth of nations,* showed the influence of human capital on the occupation performed. Smith emphasized that simple work can be performed by anyone, but the pay for its performance will be lower compared to those requiring appropriate qualifications (Smith, 1954). The level of education may also determine where a person will be in the social hierarchy (Becker, 1964; Solon 1992 or Zimmerman 1992). Over the years, this approach seems to be the same, therefore employees, when investing in their education, generally expect a positive correlation between higher education and higher wages, i.e. that their effort and commitment will pay off in the form of higher wages (Becker, 1964; Mincer, 1974; Mincer, 1997). Obtaining formal education also allows to build the so-called information society and the knowledge economy. This is confirmed by official documents, including the Lisbon Strategy or the Knowledge Education Development Operational Program 2014-2020. However, is there a regularity that a greater number of people with higher education guarantee higher productivity and, therefore, a higher level of their wages? Will it not cause the so-called overeducation (Kiersztyn, 2011, p.8)? Therefore, it seems that, on the one hand, the knowledge-based economy guarantees technological progress, and on the other hand, too many people with higher education, with limited jobs requiring this education, will make candidates apply for jobs that do not require such high levels of education, and therefore their formal education will not guarantee higher earnings. The aim of this article is to answer the research question: is higher education a guarantee of higher salary? The answer to this question is obtained by analysing the level of education and remuneration in Poland. The data cover two years - 2015 and 2018 - and they come from the Polish Earning Survey conducted by Sedlak&Sedlak. The study starts with a short description of the structure of education in Poland based on the Polish Earning Survey of 2015 and 2018. Then, a general description of the level of remuneration in Poland of the same sample is presented.

The next step is the empirical verification of the relationships of the studied variables using a simple regression equation for 2015 and 2018. The presentation of the most important conclusions and directions for further research ends the study.

2. GENERAL CHARACTERISTICS OF THE EDUCATIONAL STRUCTURE IN POLAND IN 2015 AND 2018

Education is defined as the officially certified knowledge that is acquired through graduation (both public and private). In Poland, the criteria for the level of education are defined by two legal acts, i.e. the Education Law and the Law on Higher Education and Science. According to these documents, the following levels of education can be distinguished in Poland: primary, lower secondary, basic vocational, basic industry, secondary industry, secondary and higher. It is worth noting here that, in addition to formal education, an employee may use other forms of training (such as courses, trainings, workshops, conferences, etc.), however, due to the fact that it would be difficult to compare and estimate the effects of such training, the literature usually include analyses based on the effects of officially certified knowledge, which is education (Domański, 2018, p. 14). Taking into account the Polish labour market, in 1990s people with higher education were remunerated much better than people who did not have such an education (Domański, 2018, p. 9). Therefore, it is worth looking at whether this trend continues and whether higher education still guarantees a better position on the labour market. This article uses data from the Polish Earning Survey (OBW). The research has been conducted by the commercial company Sedlak&Sedlak since 2003. The data comes from users of the website https://wynagrodzenia.pl/ and are collected using an online survey (CAWI). The provided questionnaire is free of charge, it can be completed at any time and the answers to the questions contained in it are declarative and individual. The survey is carried out every year on the basis of which the databases are created. This article analyses the databases from 2015 and 2018. The characteristics of the studied sample in terms of the level of education in Poland in the analyse years are presented in Table 1.

Education	2015			2018		
	Women	Men	Total	Women	Men	Total
primary	36	130	166	58	174	232
lower secondary	34	130	164	99	365	464
basic vocational	506	2506	3012	575	2918	3493
secondary	7876	13936	21812	10288	19870	30158
higher	28116	31845	59961	36536	43403	79939
Total	36568	48547	85115	47556	66730	114286

Table 1: Education in Poland based on the Polish Earning Survey in 2015 and 2018 (Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

As mentioned before, there are 5 basic levels of education in Poland, i.e. primary, lower secondary, basic vocational, secondary and higher. In the studied samples, most people had higher education (in 2015 70.45%, in 2018 69.96%), then secondary education (in 2015 25.63%, in 2018 26.39%). The remaining people with primary, lower secondary and basic vocational education accounted for less than 4% of the entire sample, both in 2015 and 2018.
Taking into account the distribution of education levels in terms of gender of the respondents, the distribution is as follows: in each group, the vast majority of respondents have higher education (in 2015 women with higher education accounted for 76.89% of all women, in 2018

76.83%, while in 2015 men with higher education accounted for 65.60%, in 2018 65.04% of all men in the group. The second most frequent level of education in the sample is secondary education. In 2015, women with secondary education accounted for 21.54% of all women in the group, in 2018 21.63%. In turn, men with secondary education in 2015 accounted for 28.71% of all men in the group, in 2018 it was 26.39%. Taking into account other levels of education in the analysed years, in 2015 they accounted for 1.38% for women, 5.16% for men and in 2018 1.21% for women and 4.37% for men. In Poland, one can also observe a significant percentage of people with higher education, which proves that young people invest in obtaining formal education, expecting that this investment will pay off. As a result, there are more university graduates on the Polish labour market than needed by the employers (Wronowska, 2015, p. 125). This may indicate the existence of educational surplus. In order to investigate whether education translates into the level of remuneration, the structure of remuneration in Poland in the same years was analysed.

3. GENERAL CHARACTERISTICS OF THE REMUNERATION STRUCTURE IN POLAND IN 2015 AND 2018

Differentiation in the level of remuneration, similarly to education, was presented on the basis of data from the Polish Earning Survey conducted by Sedlak&Sedlak in 2015 and 2018. Chart 1 presents the differentiation of the level of remuneration by gender and the level of formal education of the respondent in Poland in 2015.

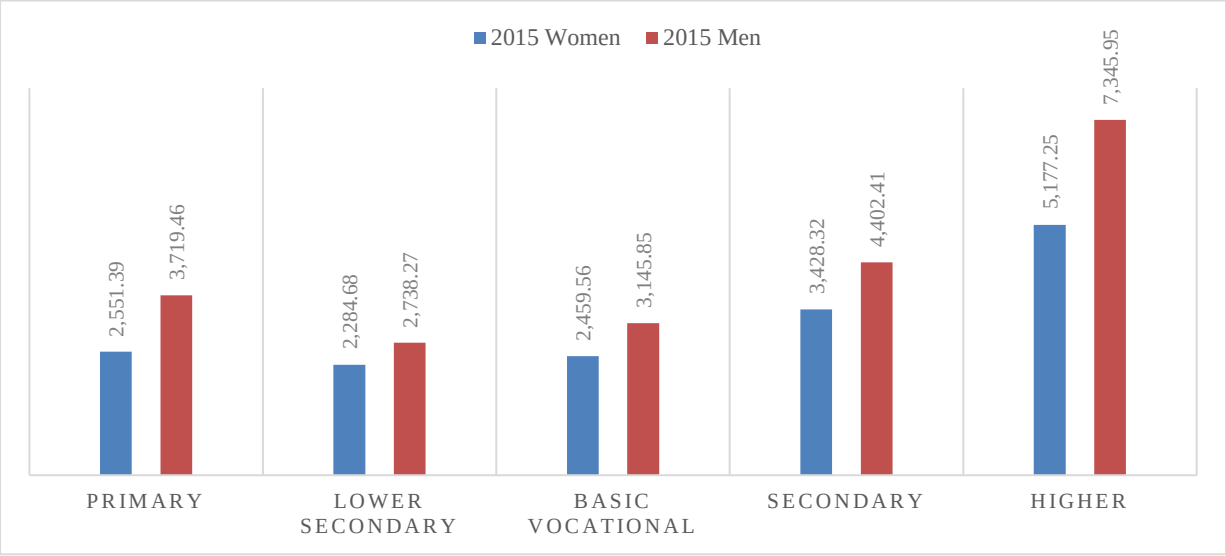

Chart 1: The level of remuneration in Poland by gender in 2015
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

Taking into account the chart presented, it can be seen that:

- the highest level of remuneration in 2015 was received by people with higher education. The remuneration received by this group of people was almost twice as high as the lowest remuneration of wages between the studied groups;
- people with lower secondary education were paid the lowest (women received PLN 2,284.68, and men PLN 2,738.27);
- the average salary in 2015 was 3,725.31;
- in the case of primary education, the difference between the remuneration of women and men was the largest (in 2015 women earned 30% less than men);
- in 2015, the smallest disproportions between employees of different sexes occurred in the group with lower secondary education (17%);

- the average difference between the salaries of women and men in 2015 was 24%;
- it is also worth noting that in the case of women and men, only higher education causes women to earn more than men with lower education, e.g. primary, lower secondary, basic vocational and secondary).

Chart 2 presents the differentiation of the level of remuneration by gender and the level of formal education of the respondent in Poland in 2018.

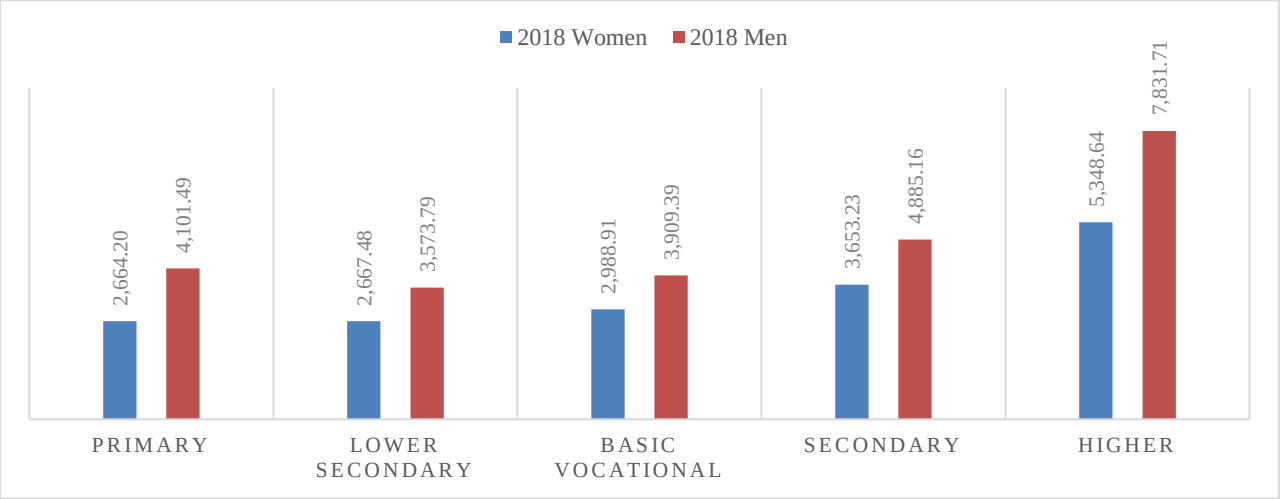

Chart 2: The level of remuneration in Poland by gender in 2018
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

Taking into account the chart presented, it can be seen that:

- the highest level of remuneration in 2018 was received by people with higher education. The remuneration received by this group of people was almost twice as high as the lowest remuneration of wages between the studied groups;
- women with primary education were paid the lowest (PLN 2,664.20);
- in 2018, the average salary was approximately 12% higher than in the sample from 2015 (in 2018 it was PLN 4,162.40, while in 2015 it was PLN 3,725.31);

Comparing the remuneration of women and men in particular years, it can be noticed that there was a significant disproportion between their remuneration. Regardless of their salary, women receive less than men. In the case of primary education, in 2018 the disproportion was approximately 35%). In 2018, the smallest disproportions between employees of different sexes occurred in the group with basic vocational education (23.6%). The average difference between the salaries of women and men in 2018 it was already 28%. It is worth noting that, as in 2015, when women only received higher education, they earn more than men (but with lower education). When analysing the wages of men and women within the same education, women always receive significantly lower wages. It is also worth emphasizing that due to the nature of the database, each year should be analysed separately, therefore the analysis of the relationship between education and salary in Poland will be carried out using two separate equations.

4. ANALYSIS OF THE RELATION BETWEEN EDUCATION AND SALARY IN POLAND

Attempts to analyse the relations between the level of education and the salary received were made in the second half of the 20th century by J. Mincer. In the simplest form, the Mincer equation indicates that the increase in the level of earnings depends on the increase in the

number of years of formal education and work experience measured by working years (Mincer, 1974). The positive relationship between formal education and the level of remuneration in Poland has also been confirmed in other studies on the Polish labour market, including (Majchrowska, Roszkowska, 2013, (the analysis based on data from the Central Statistical Office from 2004-2010), Adamczyk, Jarecki, (research on the rate of return on investment in higher education from 2002-2006); Roszkowska, Rogut 2007, (analysis of the relation between qualifications and the level of remuneration based on the Mincer type of the wage model for the Polish market) or Strawiński, 2005 (analysis of the return on investment in higher education in Poland). The parameters of the equation were estimated using the least squares method separately for the 2015 and 2018 trials. Estimates of the regression equation parameters are provided in the tables below.

l_remuneration	Coef.	Std. Err.	t	P> |t|
n_gender				
men	.2986748	.0038948	76.69	0.000
n_education				
primary	.1378038	.0613074	2.25	0.025
basic vocational	.0979768	.446504	2.19	0.028
secondary	.3820254	.0436493	8.75	0.000
higher	.8083587	.0435534	18.56	0.000
_cons	7.581913	.0435915	173.93	0.000

Table 2: Estimates of the parameters of the regression equation in 2015
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

From the presented estimation results of the regression equation for the 2015 sample, the following conclusions can be drawn:

- the level of education had an impact on wages, as evidenced by the R and R^2 coefficients, i.e. 16% of education influenced the differentiation in the level of wages in the sample;
- men earned on average 30% more than women in the entire sample;
- people with lower secondary education received the lowest remuneration;
- people with higher education were best remunerated.

Then, Table 3 presents the estimates of the regression equation parameters in 2018.

l_remuneration	Coef.	Std. Err.	t	P> |t|
n_gender				
men	.3228109	.0031326	103.05	0.000
n_education				
primary	.0482175	.0415553	1.16	0.246
basic vocational	.0857467	.0255362	3.36	0.001
secondary	.2671853	.0241791	11.05	0.000
higher	.6524762	.0240735	27.10	0.000
_cons	7.797878	.0241181	323.32	0.000

Table 3: Estimates of the regression equation parameters in 2018
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

The following conclusions can be drawn from the presented results of the regression equation estimates for the 2018 sample:

- the level of education explained 17% of the salary of a given person, i.e. it was slightly higher than in the sample from 2015;
- men earned on average 32% more than women in the entire surveyed sample, i.e. the difference between employees of the opposite sex was greater than in the 2015 sample;
- people with lower secondary education received the lowest remuneration, analogically to 2015;
- people with higher education were best remunerated, by analogy to 2015.

Women with higher education in both analysed years constitute a greater share in the whole group than men with higher education. Nevertheless, they receive a lower salary regardless of their level of education. Considering only this dependence, it could be assumed that there is a phenomenon of discrimination here. However, in order to find out whether this negative phenomenon actually occurs, it is necessary to compare people working in the same position (Roszkowska, Majchrowska, 2014, p. 17) and not the differences for the entire sample. It would definitely be necessary to include additional variables in the analysis that would compare women and men in the same position performing analogous activities, which is worth continuing in further research on the phenomenon of the gender pay gap.

5. CONCLUSION

Based on the analysed sample of respondents participating in the Polish Earning Survey in 2015 and 2018, it can be seen that having a university degree ensures a higher level of total remuneration. However, taking into account the relationships between the sexes, it is clearly visible that higher education does not affect the wages of women to the same extent as men. The analysis presented in this study confirms the common opinion that it is profitable to undertake higher education in Poland, especially taking into account men. However, it is worth bearing in mind that if a larger number of people undertake higher education than it results from the demand on the labour market, there may be a situation in which this investment will not bring the expected results. In further analyses, it would be worthwhile to analyse the education of the respondents broken down into the mode of study (full-time/part-time) and state/private in order to verify whether these factors are also important. Another valuable direction for further research would be the analysis of significant differences in wage levels between men and women and the identification of factors that influence these differences.

ACKNOWLEDGEMENT: *The author would like to thank the Sedlak&Sedlak company for providing a database on the structure of remuneration in Poland in 2015 and 2018, without which this article could not be created.*

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APPENDIX

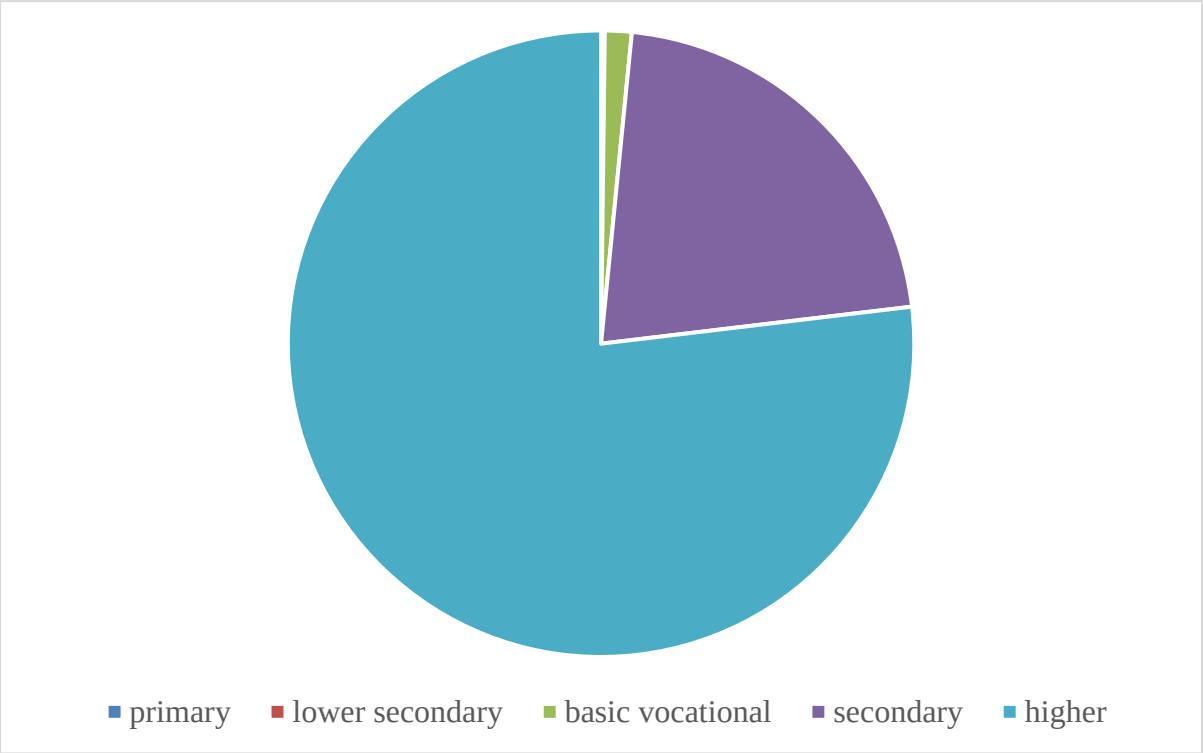

Chart 3: Level of education of women in Poland in 2015.
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/).

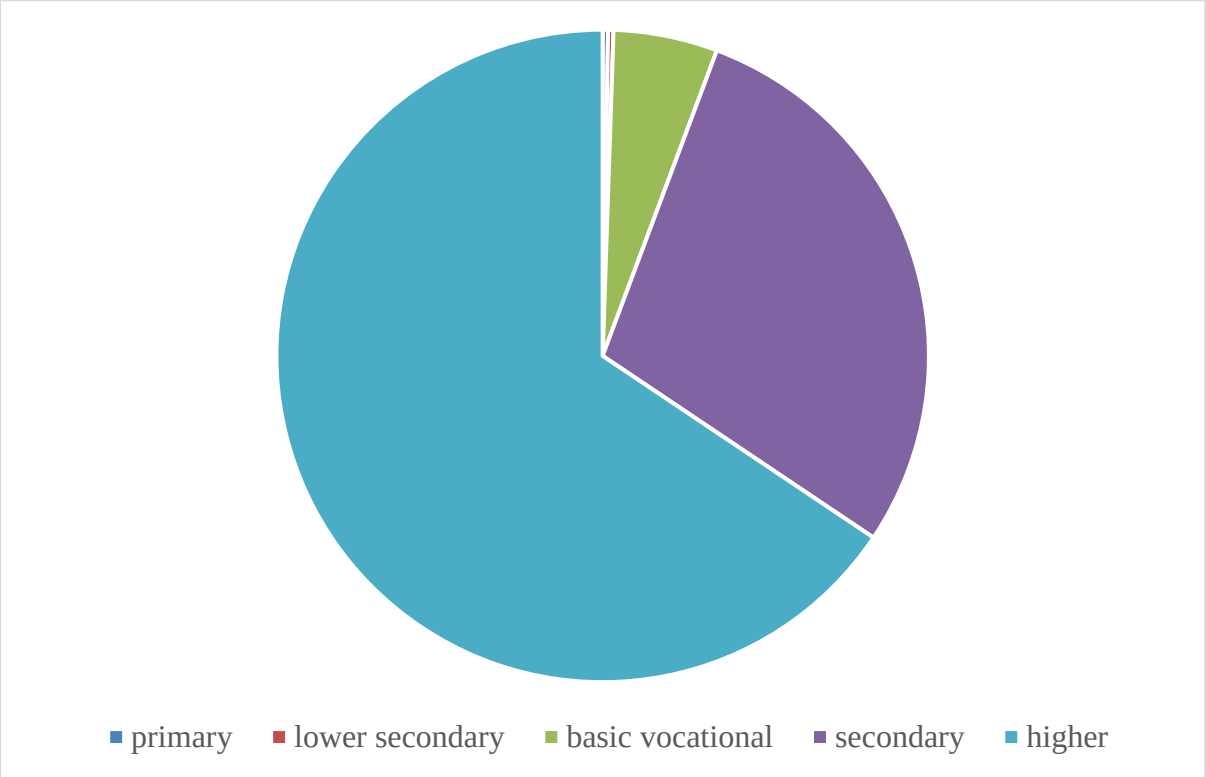

Chart 4: Level of education of men in Poland in 2015
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

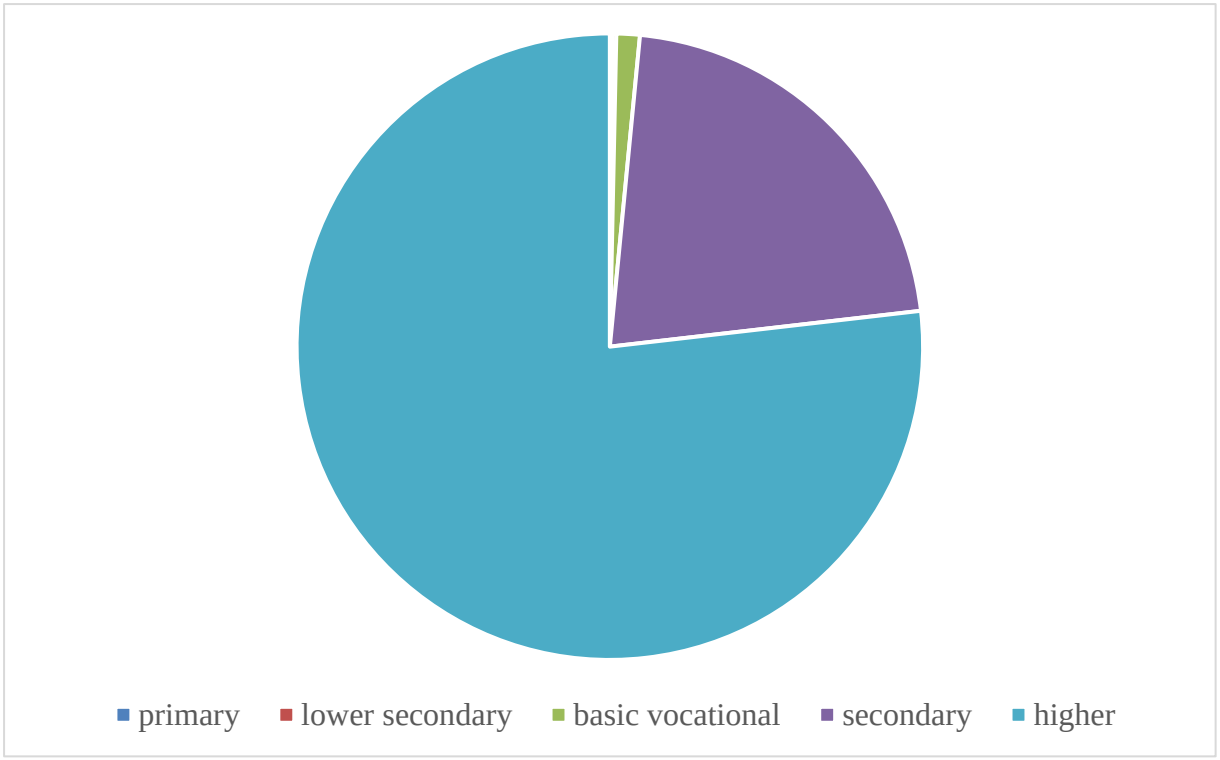

Chart 5: Level of education of women in Poland in 2018
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

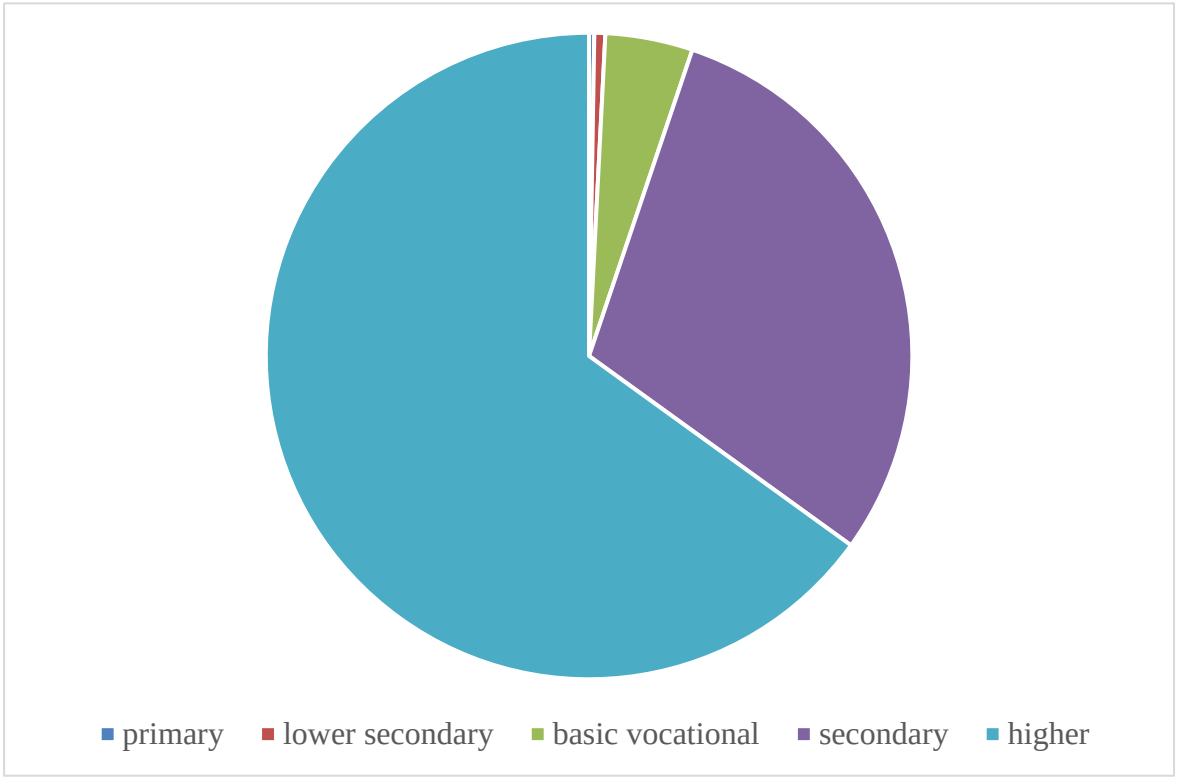

Chart 6: Level of education of men in Poland in 2018
(Source: own study based on the data from Sedlak&Sedlak (https://sedlak.pl/)

THE MODERN MODEL OF EDUCATION AS A DRIVER OF THE DEVELOPMENT OF ENTREPRENEURIAL THINKING AND LEARNING

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ABSTRACT

Entrepreneurship is the joy of creation, a dynamic process of reviving ideas and creative solutions. Education is the foundation of entrepreneurship development, and entrepreneurship is the driver of economic development. Entrepreneurs are the bearers of developed economies, which with their continuous work and innovative solutions contribute the most to economic development and job creation. As education and entrepreneurship today develop in an environment characterized by turbulent and unexpected changes, dynamism, complexity, heterogeneity and uncertainty, but also opportunities and opportunities for development in vocation and science, it is necessary to motivate young people, students and potential entrepreneurs to be innovative and encourage their personality and creativity in the direction of entrepreneurial thinking and learning. They are aware that, in addition to the idea, willingness and enthusiasm, stimulating environment and timely information are also very important. Guided by this, the authors define the research subject of this paper, which is reflected in the fact that it is necessary to create just such an environment that will result not only in personal benefits for students, entrepreneurs, but also for society as a whole. The aim of this paper is to propose a modern model of entrepreneurship education within the existing education system as a stimulus for the development of entrepreneurial thinking and learning. Based on the these assumptions, the authors come to the conclusion about the need to develop a model that would include four basic stages, which would include (1) analysis of classical education methods (2) identification of modern education methods, (3) influence of modern education methods on motivation and inciting entrepreneurial thinking and (4) establishing a model of higher education or activities that would ensure the continuity and sustainability of the incentive approach.

Keywords: *education, economics, information, creativity, motivation*

1. INTRODUCTION

The subject of research as well as the area of interest of the authors of this paper is reflected in the fact that it is necessary to design an environment that will enable young people and students creative, innovative and personal development, which will result not only in personal benefits for students - potential entrepreneurs but also for society as a whole. Education through tertiary education is for many the last formal level of education, and research on the importance of education on entrepreneurship through tertiary education in the Republic of Croatia is not known so far. Therefore, the authors focused on investigating the impact of modern methods of education on the course of entrepreneurship on motivation and entrepreneurial thinking. By its nature, this research will be desk research and a quantitative method will be used through the questionnaire instrument. In the empirical research, the authors conducted research on students who taught themselves, 2nd year students of the University College Aspira in Split. Available data and adequate literature will be studied using general research methods such as induction,

deduction, analysis, synthesis and others. The contribution of the work is reflected in the fact that an appropriate model of entrepreneurial learning is a key foundation for further entrepreneurial activities and it is necessary to make efforts to create a creative climate and support young people and students and provide them with a sustainable and continuous model for developing their personalities and creative approaches. This paper can help detect the basic problems that young people and students encounter during education, and give a real insight into the current situation. It can also be an incentive for teachers, but also for creators of study programs and other leading bodies in higher education as a basis for further research, development of similar models for other courses, curricula, study programs and the like. The paper is divided into 4 basic parts. The first part presents the subject of research and determines the goals, tasks and methods of research. The second part provides an insight into classical and modern methods of education and the connection between education about entrepreneurship and starting economic activities in general. Also, in the second part, the authors present the document of the European Commission - Education and Training Monitor 2019 Croatia Report. The third part presents the results of empirical research. The fourth part presents proposals for supporting activities and a modern learning model and the conclusions reached from the previous analysis.

2. EDUCATION AND ENTREPRENEURSHIP

2.1. Education and creativity - the key to personal and business success

Education (lat. *educatio*) is the process of education, upbringing, transfer of general and work experiences, knowledge, social norms and values from previous generations to younger (from parents to children, educators to pupils), as an achievement of human culture and civilization for development and enrichment human society (Lexicographic Institute Miroslav Krleža). Talents and various human abilities, creativity, throughout history have often been attributed to wonder, cognitive processes, social environment, personal traits, coincidences. According to some, these are traits that people are born with, and according to science, these are skills that can be exposed and learned using various techniques. If we look at creativity as a trait and concept in the psychological literature, it is possible to find more than 60 different definitions of creativity. However, the most widespread conception of creativity in the scientific literature is that creativity is manifested in every creation of a creative work that is both original and useful (http://hr.wikipedia.org/wiki/Kreativnost). It is a mental process that involves the creation of new ideas , concepts, or solutions to problems or new connections between existing ideas or concepts. The results of this process are characterized by originality and appropriateness, colloquially speaking something new. Starting from the assumption that creativity can be learned, adequate techniques of creativity have been developed, of which the three are the most famous, and they are:

- Alex Osborn’s brainstorming (1950)
- Henrikh Altshuller's Theory of Inventive Problem Solving (1950s)
- lateral thinking of Edward de Bono (1960s)

Secondary and higher education institutions today represent a key link between education and economic activities. A lot is required of them, but above all a balanced knowledge is expected in all areas of personal development that will be applicable in practice. The rapid flow of information in everyday life and new demands on the labor market require new teaching strategies and educational programs, but also the fastest, most effective and quality education, which will include innovative and creative teaching methods. Since education is focused primarily on people - human resources, and people are the driving force of any society or organization, the question arises whether the current model of education is appropriate to

existing conditions, or what should look like a modern model of education that would support and encourage young people and students to learn.

2.2. Classical ways and methods of education

Although the basic way of teaching and transferring knowledge, the so-called. classical, traditional or frontal form of teaching today finds a lot of alternative methods, yet this form of teaching through teaching is based predominantly on lectures (Woodlief, 2007) the primary way of transferring knowledge from lecturer to listener. It can be said that the classic way of teaching is teacher-oriented. With the professional knowledge and willingness of the lecturer, conveying "only one truth" and limited written materials as an available source of information, teaching is limited to the frontal form, eliminates intellectual effort and leaves no room for students to find new solutions. Watching, listening and receiving information from lecturers from books or encyclopedic knowledge, as well as examples and behavior of teachers, are activities of the traditional form of teaching that excludes independent activities of students in better mastering of teaching content (Bognar and Matijević, 2002). The classical method of teaching focuses on fulfilling the cognitive goal of learning, the more extensive the acquisition of reproductive knowledge. The role and goal of the listener and recipient of information is clear; remember as much information as possible and reproduce the maximum amount of transmitted information and examples during the evaluation. Understanding and operability of such knowledge is highly debatable, but it is quite certain that it will never reach the level of creativity, which should be the goal of education.

2.3. Modern ways and methods of education

Unlike those traditional methods in which the teacher is more or less a transmitter of knowledge, and students are passive listeners and recipients of this knowledge, modern teaching methods allow active involvement of students in teaching, which expresses their creativity, which is actually the goal of modern teaching (Nelson, 2000). Methods of active teaching - education are:

- dialogic,
- research,
- learning by solving problems,
- simulation,
- game,
- content analysis,
- case study,
- digital learning (Jandrić, 2014).

The dialogic method has an orientation / motivational character, the research method implies independent search for facts, finding relevant connections and relationships between given data, restructuring data, redefining and independently coming to new (unexpected) results. Learning by solving problems - problem-based learning enables a high level of creativity. The simulation method starts from the need for students to show as much inventiveness as possible in working with a computer and to use it in various ways. For students, learning could be realized in the form of a game, and yet each game is also a learning of social, practical and cognitive skills (Matijević and Radovanović, 2011). Today, there are game-based learning programs, where teachers can set their own tasks and learning requirements, thus allowing the game to adapt to different educational contexts. Content analysis involves the systematic counting, evaluation, interpretation, and analysis of material forms of communication between individuals or groups. Case study is an analytical, connected, creative, applied opinion with which we are aware of the existence of a problem.

Most of the educational trends in ICT-enriched teaching enable the realization of student-centered teaching and provide various opportunities for developing skills and feelings for cooperation among students. The application of these trends in teaching increases the level of motivation and involvement of students in the course of the learning process and the achievement of planned educational goals in teaching. "The more we shape technology, the more it shapes us" (McLuhan). Until a few years ago, most education systems functioned using a universal teaching model that "suits everyone." However, it was this model that did not allow many students to achieve the best possible results (Izmestiev, 2012) because the understanding of the class as a homogeneous group of individuals is wrong. Although this majority, which is aimed at a single educational goal, which is regulated by standards of knowledge whose achievement is verified in a unique way at the state level, still prevails, there have been some shifts that take into account the diversity of the student population (Stropnik Kunič, 2012). To begin with, a model of differentiation emerges. Differentiation refers to the division of a larger heterogeneous class into several smaller more homogeneous groups. Groups formed by class differentiation are composed of students who share similar characteristics (Stropnik Kunič, 2012). The best example of a differentiated model of teaching is the division of classes into groups depending on whether individuals achieve below-average, average or above-average results. Accordingly, materials and contents are prepared for each group depending on the possibilities and abilities they have demonstrated (Przemyslaw et al., 2015). Differentiation, therefore, is not a model that refers exclusively to the physical division of the class, but also refers to the differentiation of goals, content, methods and pace of work for a particular group (Stropnik Kunič, 2012). The individualization model emphasizes the different functioning of each individual student and the need to approach each student in an appropriate way (Przemyslaw et al., 2015). Compatible and complementary to differentiation, individualization is a model that requires teachers to discover and respect individual differences between students and to build teaching goals, content and methods of work based on these differences (Stropnik Kunič, 2012). This model changes the teacher-student relationship. The teacher notices and respects students 'potentials, selects tasks according to students' cognitive assessment and abilities, selects content that is a means to successfully achieve educational outcomes, positively directs expectations, more often monitors and evaluates performance and connects material with everyday life experience. Personalized teaching is a new model of teaching in which the student becomes as important a participant in the educational process as the teacher, and refers to the diversity of educational programs, teaching approaches and support strategies selected depending on individual needs and interests of students (The Glossary of Education Reform, 2014). We say that modern teaching is personalized because it is the students who create, edit, realize and modify their own educational process (Przemyslaw et al., 2015). The ability to perceive, analyze, approach and solve the most complex tasks requires competencies acquired through tertiary education, so this puts higher education in the position of the main driving force of all social changes. Therefore, this research aims to point out the need to design a modern - appropriate model of education in order to achieve student competencies for creative professional work and active participation in a democratic society, a positive impact on society as a whole, encouraging economic development and personal needs. It is necessary to make the study accessible and interesting to everyone, in accordance with the individual abilities of the candidates. Higher education institutions in the Republic of Croatia are institutions of special social interest. Hence the need for responsibility for an appropriate model of education.

2.4. Higher education in the Republic of Croatia for 2019

Volume 2 of the 2019 Education and Training Monitor includes 28 individual country reports. It presents and evaluates the most important recent policy measures and those currently being implemented in each EU Member State, based on the most recent quantitative and qualitative

data. It therefore complements other sources of information describing national education and training systems. The key indicators on the topic of Modernization of Higher Education are:

1) A large number of students are enrolled, but graduation is low.
2) There is a large selection of study programs, and the government awards scholarships to study in STEM areas.
3) The level of student mobility is low.
4) The government is committed to equal opportunities for all students.

The results of the analysis of tertiary education in the Republic of Croatia (based on the document of the European Commission - Education and Training Monitor 2019 Croatia Report) also indicate that the goals of education in the Republic of Croatia emphasize the social dimension (equal opportunities for all students, scholarships in STEM areas). and motivations for entrepreneurship and self-employment for the purpose of economic development and sustainability. The low completion rate and the lack of data on the link between entrepreneurship teaching, modern methods of education and the connection with starting new entrepreneurial ventures indicate a weak link between entrepreneurship education, new creative processes and eventually eventual self-employment. Given that the impact of entrepreneurship on the economic development of society as a whole is undeniable, and all scientific research suggests that the development of entrepreneurship in the future will be implied in all social trends, there is an obvious need to include modern methods of entrepreneurial thinking and learning and develop models.

- Encouraging creativity in education in general
- Encouraging entrepreneurial thinking and learning through modern methods

In the continuation of the paper, the authors analyze the obtained results and give model suggestions.

3. EMPIRICAL ANALYSIS OF RESULTS

The survey on the satisfaction of users participating in the course of entrepreneurship was conducted among students of the private college Aspira on a sample of 48 students (of which 75% general and 25% vocational), which were taught in the course Entrepreneurship by the authors. When asked whether students considered the course applicable and necessary within their education program, 95.8% of students answered affirmatively. 79.2% of the surveyed students attended the course. When asked whether the students recognized the differentiated methods used in teaching through the course Entrepreneurship versus other courses 70% answered positively that teaching methods are different from the methods in other courses. Examining the learning methods that students recognized in the Entrepreneurship course, the research shows that there is no listed method that students have not encountered. Most students recognized the lecture (100%), practical example (90%) and discussion (80%) and use of audio-visual content (50%). One of the most important questions of the authors of the paper on the impact of education through the course Entrepreneurship on entrepreneurial thinking received a 100% positive result, all students answered that education through the course Entrepreneurship influenced their entrepreneurial thinking. When asked about the impact of education methods through the course Entrepreneurship on creativity, 90% of respondents confirmed that education through the course Entrepreneurship influenced their creativity.

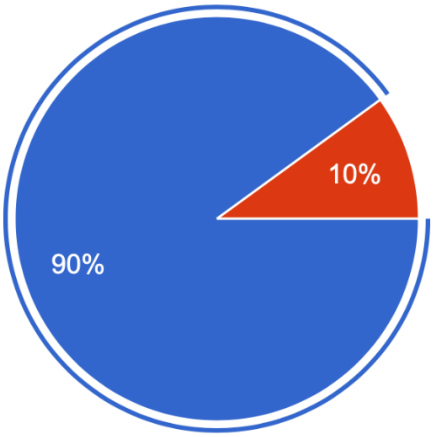

Figure 1: Answers to question "Has education through the Entrepreneurship course influenced your creativity?"

100% of students through the survey confirmed that entrepreneurship education encouraged them to think positively about entrepreneurship and the possibility of becoming an entrepreneur, while none of the respondents the same education did not encourage negative thinking or that it did not encourage them to think about entrepreneurship. Despite encouraging creativity and entrepreneurial thinking, exactly half of the students answered that they came up with their own business idea, while the other half did not. Another answer with 100% of the same answers; students expressed a difference in current attitudes (attitudes at the time of the examination) about entrepreneurship and those before listening to the course. 90% of surveyed students expressed a desire to become an entrepreneur, while 10% did not. One survey question referred to the preferred teaching method where 80% of students recognized the research method as the closest, and 20% the simulation method. The question of whether such learning methods have a stimulating effect on students is supported by the fact that a larger number of surveyed students joined the entrepreneurial club where they actively participate in all activities.

4. CONCLUSION

In order to examine the impact of modern methods on initiating the development of entrepreneurial learning and thinking, data from empirical research and results according to the document of the European Commission - Education and Training Monitor 2019 Croatia Report were used. The research showed that according to empirical research, modern approaches to education encourage students - potential new entrepreneurs to learn and to think like entrepreneurs, while in the report of the European Commission such a connection is not considered. Empirical research also shows that students are more motivated to work in small groups, that most modern methods are necessary for them to be motivated to work, and that a personalized approach to students contributes to a sense of belonging, importance, and ultimately exposes their creativity. In further research, it would be interesting to apply the same or a broader survey questionnaire to other public and private higher education institutions, given that a larger sample of respondents would give more significant conclusions. From the above research, the authors concluded that in addition to the course content, the choice of education model is important and found a clear link between education and encouraging creativity, entrepreneurial thinking and the desire to become an entrepreneur. Entrepreneurship, in addition to labor, natural resources and capital, is cited as a further (fourth) factor of production. At the same time, the institutional environment and modern methods of education as the basis for the development of entrepreneurship are becoming the most important determinant of economic growth and development.

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THE IMPACT OF INTERNATIONAL ECONOMIC ACTIVITY ON CO2 EMISSIONS

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ABSTRACT

The aim of our study is to identify the impact of the international economic activity on the environmental situation in the regions. This research question belongs to the framework of sustainable development and climate issues being especially relevant now, when the world faces the choice of how to resume economic activity after the current health and economic crisis. Based on the data provided by the Russian Federal State Statistical Service and The Unified Interdepartmental Statistical Information System for the years 2002-2018 we draw attention to the contribution of various aspects associated with economic activity to CO_2 emissions in the Russian regions. We find that at present export and foreign direct investment lead to the increase in CO_2 emissions in the Russian regions. As this result is probably linked to specialization of Russia in natural resource extraction, it emphasized the necessity of diversifying the economy. It was also revealed that expenditures on environmental protection and investment into fixed assets, aimed at environmental protection and rational use of natural resources, contribute to decrease in CO_2 emissions. The hypothesis of the environmental Kuznets curve was confirmed. These finding emphasize the need for measures aimed at environmental protection and for various programs aimed at raising energy efficiency, efficiency of public transportation etc., so that CO_2 emissions start decreasing with economic growth. The results can be useful for development of environmental and international trade policy.

Keywords: *CO_2 emissions, openness, trade, export, foreign direct invesment, economic growth, environmental Kuznets curve, Russian regions*

1. INTRODUCTION

At present economic growth is associated with the depletion of natural resources and environmental pollution. One of the problems is destruction of the zone layer due to the increase in the production and release of chlorofluorocarbons and other substances used in the manufacture of refrigerators, air conditioners and aerosols. Furthermore, the main causes of desertification are massive deforestation and overuse of pasture. Industrial emissions of atmospheric sulfur dioxide and nitrogen oxides result into acid rain, damaged forests, lakes, and soil. The issue of greenhouse gas emissions, and particularly of CO_2 emissions, is among the urgent ones nowadays. According to the data of the Russian Federal State Statistical Service, CO_2 emission accounted for 76.71% of total greenhouse gas emissions in Russia in 2017. At present, the anthropogenic load on nature far exceeds its assimilation capabilities. The relationship between society and nature at the present stage is formed in such a way that an increase in the demand for natural resources gradually leads to their depletion and, at the same time, to an increase in the volume of production waste and human impact on the environment.

Meanwhile, environmental degradation leads to higher costs for the extraction of natural resources and environmental remediation. All this results into environmental problems that impede the sustainable development of countries and regions. In this regard, it is particularly important to assess the impact of economic activity on the environment. In our paper we concentrate on estimating the impact of international economic activity on CO_2 emission in the Russian regions, taking into consideration the overall economic activity and measures undertaken for environmental protection. According to the conclusions of the United Nations Environment Program (UNEP), in 2018 greenhouse gas emissions have risen in the world and reached 55.3 gigatonnes of CO_2 equivalent. The UNEP Emissions Gap Report 2019 finds that even in case all unconditional Nationally Determined Contributions (NDCs) under the Paris Agreement are implemented, still temperature will rise 3.2°C. So that Paris Agreement goals are attained, emissions must decrease 7.6% per year from 2020 to 2030 for the 1.5°C goal and 2.7 per cent per year for the 2°C goal. The Intergovernmental Panel on Climate Change (IPCC) has declared that surpassing 1.5°C will make heatwaves, storms and other disasters caused by climate change even more frequent and intensive than in the recent years (United Nations Environment Programme, 2019). Economic damage incurred from climate change related disasters was estimated as USD 337 billion in 2017 and is expected to rise if greenhouse gas emissions are not decreased (OECD, 2020). In the situation of COVID-19, it is important to align economic recovery with climate goals and limit the risk of locking-in carbon-intensive infrastructure (OECD, 2020). The aim of our study is to estimate the impact of the international economic activity on the environmental situation. We contribute to the existing literature by analyzing the impact of export and foreign direct investment on CO_2 emissions in Russia on the regional level. The results of our research can be useful for development of environmental policy and international trade policy measures. The paper is organized as follows. Section 2 is devoted to the research background. In Section 3 empirical analysis is presented. Section 4 concludes.

2. RESEARCH BACKGROUND

2.1. The situation with CO_2 emissions in Russia

Russia is on the 4th place in the world in terms of CO_2 emissions. The situation continues to deteriorate. In Table 4 below there is dynamics of CO_2 emissions across industries in Russia.

	2005	2010	2012	2014	2016	2017
Energy industry	1601.1	1668.4	1729.7	1659.1	1661.5	1699.9
Manufacturing	207.7	197.1	216.6	221.1	219.1	233.2
Agriculture	117.1	115.5	118.5	121.9	124.4	127.9
Land use and forestry	-563.9	-727.1	-667.7	-623.4	-616.6	-577.7
Waste	68.0	76.7	81.5	87.3	92.5	94.5
Overall, excluding land use and forestry	1994.0	2057.7	2146.3	2089.5	2097.5	2155.5

Table 1: Dynamics of greenhouse gas emissions by sector in Russia (mln tons CO_2 equivalent per year)
(Source: Russian Federal State Statistical Service data)

Based on this table we can conclude that CO_2 emissions in various sectors have been increasing during the years 2005-2017. In absolute values of the emissions, energy industry is the leading one, and there CO_2 emissions have increased as well. Meanwhile, land use and forestry absorb greenhouse gases, which emphasizes the importance of protecting forests and nature overall. Another conclusion that can be made from studying this table is the need to develop 'green'

economy in order to reverse the pattern of CO_2 emissions dynamics. In Russia, the share of expenditures on environmental protection in GDP has remained 0.7% since the year 2012. As GDP was growing since 2012, the sum has increased in absolute value. However, both larger expenditures and their more efficient use are needed to solve the existing environmental problems.

2.2. Theoretical and empirical background

For a long time, resources were considered to be not only the key factors for production but also inexhaustible ones. Therefore the accent was not made on preserving resources and protecting the environment. The situation changed in the 1970ies, when the deterioration of environment attracted attention of the economists. Today, there are many different theories and approaches regarding the impact of the economy on the environment. Meadows et al. (1972) studied patterns of human activities and pointed out that 'business as usual' is not sustainable, i.e. would lead to environmental and economic catastrophe if continued. Sustainable development concept received attention in the economic literature after the UN report on the environment and development 'Our common future' in 1987 (UN, 1987). This report emphasizes scarcity of natural resources and the interests of future generations. Sustainable development concept includes social, economic and environmental aspects. Among the approaches to study environmental pollution, and specifically, greenhouse gas emissions, is pollution functions. This approach emphasizes the relations between economic, environmental and health issues and draws attention to the environmental protection measures needed in specific situations (Gambhir et al., 2017). As far as international economic activity is concerned, while designing policy measures, it is important to take into consideration both environmenatal and economic concequences for the involved countries (Sugiyama and Saito, 2009). An important concept developed in the environmental literature is the environmental Kuznets curve hypothesis: with increase in gross regional product per capita CO_2 emissions increase up to a certain point, and with further growth of gross regional product per capita they decrease. (Grossman, Krueger, 1991). This pattern is assumed to arise as increase in GDP is associated with increased industrial activity, and with increased use of energy and transportation, causing higher levels of emissions; however, with further economic growth cleaner technologies can be introduced, leading to decrease in CO_2 emissions. For the world countries the evidence on the environmental Kuznets curve is mixed (Doytch and Uctum, 2012). This hypothesis was confirmed for all G7 countries excluding Japan (Churchill et al., 2019) and for the countries with middle and high income (Ike et al., 2020; Muhammad et al., 2020). For the Russian regions the hypothesis of the environmental Kuznets curve was confirmed by some authors (Ivanova, 2019), while other authors did not find the evidence of the environmental Kuznets curve (Pao et al., 2011). For Kazakhstan this hypothesis was not confirmed, as CO_2 emissions were found to increase with increase in GDP per capita (Hasanov et al., 2019). The evidence on the impact of international trade on CO_2 emissions is controversial. There is evidence in the literature that with increased economic openness emissions first increase, then stabilize, and afterwards decrease, i.e. the relation between openness and CO_2 emissions looks like the environmental Kuznets curve (Akin, 2014). For the Far East Asian countries it was found that trade openness leads to increase in CO_2 emissions (Anwar et al., 2020). Export was found to decrease CO_2 emissions in the countries with low, middle and high income, but to increase CO_2 emissions in the countries with lower middle income; import was found to increase CO_2 emissions in the countries with low income level, and to decrease them in the countries with high income level (Muhammad et al., 2020). Concerning the impact of foreign direct investments on CO_2 emissions, the evidence is controversial as well. For example, Muhammad et al. (2020) confirm the pollution haven hypothesis in the countries with all income levels.

Doytch and Uctum (2012) find that foreign direct investment overall lead to increase in CO_2 emissions, but this effect is determined mainly by FDI into manufacturing, while FDI into the other sectors tend to affect CO_2 emissions less; the impact also varies among countries, countries with lower income being more vulnerable in terms of negative environmental effects. Based on study 85 countries for the period 1991–2011 Akin (2014) finds that energy use and GDP per capita lead to increase in CO_2 emissions. Muhammad et al. (2020) find that population and energy use increase CO_2 emissions in the countries regardless of income and development levels. Mansoor and Sultana (2018) study Pakistan economy and claim that energy consumption and population growth are the main factors defining sustainable development goal in the country. They find that increase in GDP per capita, i.e. economic growth, leads to decrease in CO_2 emissions due to development of new technologies. Overall, there is controversial evidence of the impact of economic openness, i.e. foreign trade and foreign direct investment, on CO_2 emissions (Anwar et al., 2020; Doytch and Uctum, 2012). The same time, international trade policy and environmental protection are interrelated; stricter environmental measures can limit free trade, while such kind of measures might be needed as market cannot internalize environmental externalities, for example, in case of oil extraction leading to damaged ecosystems (Sugiyama and Saito, 2009). Balance between environmental protection and free trade is an issue that attracts attention of the economists, as both environmental issues and trade bareers can cause trade and political conflicts (Chuiko, 2014). Climate issues connected with CO_2 emissions are among the environmental issues to be addressed in this context. Based on the previous findings discussed above, we introduce the following *hypotheses*.

- *Hypothesis 1*. The impact of GRP per capita on CO_2 emissions is characterized by Kuznets curve, i.e. with increase in gross regional product per capita CO_2 emissions increase up to a certain point, and with further growth of gross regional product per capita they decrease, following an inverted U-shape (Grossman, Krueger, 1991).
- *Hypothesis 2.* Foreign direct investment leads to the increase in CO_2 emissions. The impact of foreign direct investment on CO_2 emissions is found to differ across countries and regions, depending among other issues on the prevailing industries and countries' level of development. If multinational companies bring in their cleaner technologies together with foreing direct investment, *Halo effect* will arise, i.e. CO_2 emissions will decrease with the increase in foreing direct investment. However, if the investors will be interested in locating their production facilities in a country with weaker environmental legislaton, *Pollution haven effect* will arise, i.e. CO_2 emissions will increase with the increase in foreing direct investment (Doytch and Uctum, 2012; Davidson and Mariev, 2019).
- *Hypothesis 3*. Export leads to increase in CO_2 emissions. Here again there are two possibilities. The first one is that exporting firms use cleaner technologies leading to decrease in CO_2 emissions. The second one is that export leads to depletion of natural resources and to increase in CO_2 emissions, resulting in global warming (Copeland, 2001).

Overall, the link between international trade and environment can be explained by scale, technique and composition effects. The idea behind these effects is linked to the environmental Kuznets curve hypothesis. *Scale effect* implies that with increase in international trade economic growth and industrial activities are also increased, leading to the increase in energy use and, as a result, increased environmental pollution. *Technique effect* implies that trade liberalization simplifies 'green' technology transfer, thus improving environment. *Composition effect* implies that at earlier stages international trade leads to increase in environmental pollution due to weak environmental protection; at later stages with improvement of environmental protection norms international trade leads to decrease in environmental pollution (Antweiler et al., 2001). The next section is devoted to the discussion of empirical analysis.

3. EMPIRICAL ANALYSIS

Our research is based on data for 80 regions of Russia provided by the Russian Federal State Statistical Service and The Unified Interdepartmental Statistical Information System (UISIS) for the years 2002-2018.

To test the hypotheses discussed above we construct the following model:

$$CO_{2_{it}} = \alpha_i + \beta_1 grp_{it} + \beta_2 grp_{it}^2 + \beta_3 \text{spend\_env}_{it} + \beta_4 \text{inv\_env}_{it} + \beta_5 \text{fdi\_pop}_{it} + \beta_6 \text{exgrp}_{it} + e_{it} \quad (1)$$

where:

- $CO_{2_{it}}$ – CO_2 emissions in region *i* at time *t*, thousands tons;
- grp_{it} – gross regional product per capita in region *i* at time *t*, rubles;
- spend_env_{it} – expenditures on environmental protection in region *i* at time *t*, thousands roubles;
- inv_env_{it} – investment into fixed assets, aimed at environmental protection and rational use of natural resources in region *i* at time *t*, thousands roubles;
- fdi_pop_{it} – foreign direct investment inflow per capita in region *i* at time *t*, thousands roubles;
- exgrp_{it} - export share in GRP in region *i* at time *t*, thousands roubles.

The model is estimated using random effects and fixed effects methods. The results of the estimation are presented in Table 2 below.

Dependent variable: CO_2	RE	FE
GRP	0.209***	0.230***
	(0.029)	(0.025)
GRP squared	-1.940***	-1.950***
	(0.000)	(0.000)
spend_env	-0.010***	-0.013***
	(0.001)	(0.001)
inv_env	-0.002***	-0.002***
	(0.001)	(0.001)
exgrp	46.371***	36.929***
	(7.583)	(6.910)
fdi_pop	96.571	121.195**
	(59.806)	(53.198)
_cons	227943.2***	238741.5***
	(28846.17)	(5738.329)
R^2	0.314	0.319

Table 2: The impact of international economic activity on CO2 emissions
*(Source: Own estimations, based on Rosstat and UISIS data; Standard errors are reported in parantheses, * p < 0,1, ** p < 0,05, *** p < 0,01)*

Hausman test showed that the model with fixed effects describes the data in the best way.

We find that at present export and foreign direct investment lead to increase in CO_2 emissions in the Russian regions. As this result is probably linked to specialization of Russia in natural resource extraction, it emphasizes that economic diversification would be beneficial for Russia.

The hypothesis of the environmental Kuznets curve was confirmed, while in Russia the majority of regions are on the increasing branch of the Kuznets curve. These findings are overall in line with the conclusions in the literature discussed above. This result is probably also linked to specialization of the country in natural resources and therefore also raises the question of economic diversification. Other reasons might be associated with institutional problems and business environment not favorable enough for high tech industries and various types of innovation. This emphasizes the need for measures aimed at environmental protection and to programs aimed at increasing energy efficiency, improving public transportation and others, so that CO_2 emissions start decreasing with economic growth along the Kuznets curve. It was also revealed that *expenditures on environmental protection* and *investment into fixed assets, aimed at environmental protection and rational use of natural resources* contribute to decrease in CO_2 emissions in the Russian regions. *Expenditures on environmental protection* are all expenditures associated with environmental protection and rational use of natural resources financed by an enterprise or by state.

4. CONCLUSION

The hypotheses put forward in Section 2 were confirmed. First, the existence of the environmental Kuznets curve was confirmed, while majority of the Russian regions are at present at the rising branch of the Kuznets curve. Second, it was confirmed that at present export and foreign direct investment result into increase in CO_2 emissions; Russian economy is characterized by *scale effect* discussed in Sectin 2, when increase in international economic activity leads to economic growth and to increase in CO_2 emissions. Both international trade and foreign direct investment being essential for economic development and improvement of living standards, we would advise to increase international economic activity, but the same time to carry out measures aimed at sustainable development. Moreover, based on the environmental Kuznets curve hypothesis and on the concept of *technique effect* discussed in Section 2 we can assume that with further increase in international economic activity and increase in economic growth, cleaner technologies will be introduced by the national and foreign firms, and CO_2 emissions will decrease. Partly this assumption is based on access to international market of 'green' technologies and growing citizens' demand for cleaner production. However, both state regulation measures and business environment friendly for 'green' innovations are essential to decrease CO_2 emissions. Overall, the results lead to the conclusion that in order to pursue sustainable development the issues such as economic diversification, investment into 'green' technologies and cleaner production, innovation and modernization of equipment need to be addressed. Indeed, at present international economic activity is concentrated in the energy and natural resources extraction sectors, major contributors to CO_2 emissions. This situation dates back to the 1990ies when the main aim was to develop the transition economy of Russia after the collapse of Soviet Union, and even ealier, to the time when oil fields were discovered in the country. Russia is specializing on the goods of its comparative advantage, and export and foreign direct investment concentrate in these sectors. However, by now it is clear that both from economic and from environmental points of view such path of development is not favorable for the country. If to look broader at the environmental issues, in general, the production process cannot be environmentally friendly unless the technology is sufficiently transformed. Today, the development and implementation of new types of technologies that ensure the reuse of objects of labor, the disposal of their components, waste, and emissions are of particular importance. Thus, in order to reduce the impact of the international economic activity on the environment, specifically on CO_2 emissions, the concept of sustainable development needs to be addressed and transition towards 'green' economy should be considered. The main conditions for transition to 'green' economy are: rejection of inefficient investments and subsidies; valuation of natural resources in cash; stimulation of the production

of environmentally friendly products; reforming the system of 'environmental' taxation and fines; maintaining state support for research related to the invention of environmentally friendly technologies; increased state investment in infrastructure that supports and complies with the principles of sustainable development. A promising direction for Russia is the opportunity to participate in the emerging system of global environmental management, where Russia is already contributing. However, full participation is possible only with the strengthening of Russia's domestic economic potential. Based on the obtained results we can also conclude that it is important to develop and implement environmental regulation, probably not only in Russia but also in the other countries; it seems to be especially important for the developing economies in order to fill the legislative gap concerning the environmental issues. Measures aimed at environmental protection are assumed to increase economic efficiency as they allow taking into consideration full costs of production and consumption, including environmental costs. In other words, if all costs are taken into account, resources are allocated in the Pareto-efficient way, leading to production of a certain amount of goods under lower costs. This logic applies to the international economic activity, raising a question of the role of international regulation, environmental protectionism and other measures aimed at the environmental protection. One of the issues that deserves attention is balance between environmental protection and free trade, taking into account the existing groups of interest in the countries. These are questions for further research.

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INVESTING IN HOTEL EMPLOYEES AS ELEMENT OF MARKETING NETWORK: RELATIONSHIP MARKETING PERSPECTIVE

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ABSTRACT

Establishing long-term relationships with business partners helps a company to better understand its partners, consequently contributing to company performance. Moreover, by building relationships with business partners, a company creates its marketing network. Employees are a part of a company's internal marketing network and are considered to be one of the core competitive strengths of hotel companies, contributing to hotel performance in the long run. Furthermore, investing in relationship quality can help a company to perform better than its competitors. Hence, the purpose of this paper is to analyse how building relationship quality contributes to the enhanced recognition of employees in an internal marketing network, and how this contributes to improving perceived hotel performance. The paper builds upon previous research on relationship marketing and uses scales from the existing literature. Empirical research was conducted using a questionnaire and interviews. Information was collected from 270 hotel managers in Croatia. Findings indicate that there are differences between hotels that have a developed internal marketing network and regard employees as being important in improving hotel performance, and hotels that have not developed this perspective. Research results also indicate that organizations that have loyal and educated employees, and include employees in different hotel planning activities, have employees that are more prone to co-create value with hotel guests

Keywords: *relationship quality, employees, marketing network, hotels, Croatia*

1. INTRODUCTION

A marketing network is viewed as a network of business partners and stakeholders (customers, employees, suppliers, distributors, retailers, agencies, etc.) with whom a business relationship is established. This type of mindset helps an organization create different relationships that can result in higher profitability and enhance the performance of all partners in the network (Rouzies and Hulland 2014; Kotler, Keller and Martinovic, 2014). The quality of relationships between internal and external stakeholders in the network will play an important role in securing a long-term quality relationship among partners and, consequently, in increasing customer satisfaction and profit for each organization. Relationship quality is related to the confidence of the organization to meet the needs of, and cultivate high-quality relationships and interaction with, different members in the organization's marketing network (Moorman, Zaltman and Deshpande 1992; Bendapudi and Berry 1997; Lam and Zhang 1999). When partners perceive a specific relationship as beneficial, relationship quality is present. In the hotel industry the relationship between individuals (employees, customers, etc.) is especially important in providing high-quality service.

By creating complex and high-quality networks and relationships, employees will facilitate the development of an organization's specific knowledge that will result in enhancing its products and services to better meet customer needs (Davis and Simpson 2017; Hatch and Dyer 2004). Also, investing in employees' education, training and quality communication will positively influence product and service quality, customer value, satisfaction and loyalty. The paper aims to contribute to understanding the importance of employees in the development of marketing networks and it aims to examine how hotels with a developed marketing network are performing compared with hotels that have not developed a marketing network among their employees. Hence, the paper focuses on exploring relationship quality in building a marketing network and the influence of relationship quality on perceived hotel performance. The purpose of the paper is to analyse how building relationship quality contributes to better recognition of employees as part of the internal marketing network, and how this contributes to improving perceived hotel performance.

2. THEORETICAL BACKGROUND

2.1. Marketing network

Taking in account the existing general definition of marketing networks (O'Donnell 2004) and the specific characteristics of the industry, a marketing network in the hotel industry can be defined as a group of tourists and stakeholders that interact and connect, with a focus on creating, selling and promoting products and services in the tourism market. The key determinant of a marketing network is the links between suppliers, customers (tourists, customers in hotels), the competition, tourist destination providers (tourist agencies, tour operators, cultural institutions, etc.) and internal users (employees). Competitive advantages are gained by strengthening and developing these links within the marketing network (Tzokas and Saren 2004). Stakeholders in the marketing network are interconnected, using the existing links to exchange information and resources. Key factors in building an effective marketing network include joint utilization of business opportunities, trust, commitment, satisfaction, exchange of information, and investment to the benefit all marketing network participants (Grbac 2013; Bowie and Buttle 2004). Hotel products and services are highly work intensive and special attention should be focused on strengthening relationships with employees. Internal marketing networks include links between employees, hotel departments and the organization, focusing on providing the guest with quality service. The hotel industry and hotel activities strongly rely on educated and skilled employees as the key provider of quality service to tourists. The quality of a hotel offering depends on the expertise and knowledge of employees and on the enhancement of employee satisfaction (Vrtiprah and Sladojev 2012). Wang and Chung (2013) point out that employee motivation, investment in employees' education, recognition by superiors, sharing of information, perception of the personal contribution to added value, and adequate pay will lead to stronger employee commitment as well as greater employee satisfaction and loyalty. Thus, a stronger link is created between management and employees.

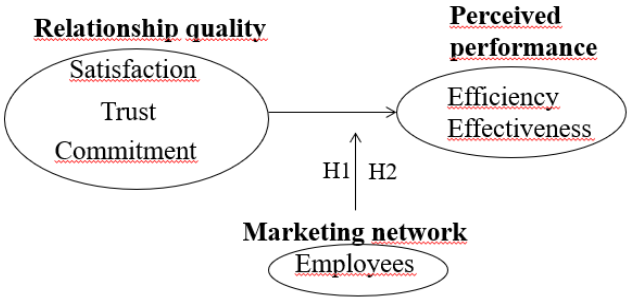
2.2. Relationship quality

The quality of the relationships between stakeholders (internal and external) represents a cornerstone of effective marketing networks. Huntley (2006) defines relationship quality as a set of characteristics that can reveal the quality of relational relationships between two parties in an exchange. Various authors have underscored the elements that should be taken into account when evaluating relationship quality. These are trust, satisfaction, commitment (Kang, Oh and Sivadas, 2013; Lagrosen and Lagrosen 2012) and partnership (Fynes, Voss and de Burca 2005). By ensuring relationship quality, an organization can reduce, prevent and eliminate weaknesses in relationships between entities in the marketing network, ultimately

leading to increased consumer satisfaction with product quality and service provided and to greater profit for the organization. In the past, businesses primarily focused on the implementation of economic efficiency (cost reduction etc.), but in recent years there has been a shift towards effectiveness (quality, reliability, development of the production cycle, etc.). Especially in the hotel industry there is a strong tendency to incorporate non-financial indicators together with traditionally present financial ones (Hudson, Smart and Bourne 2001). The research of Rouziès and Hulland (2014) looks at the success of organizations in the hotel industry through two factors, efficiency and effectiveness, thus providing a holistic perspective on an organization's perceived performance. Employees with adequate knowledge and skills will be a real, non-imitable and valuable resource to the organization, and the success or the failure of any business will mainly rely on employee performance. Organizations will invest in employee training programs, consequently improving employee performance and organizational productivity (Elnaga and Imran 2013). The development of employees who are skilled and motivated to deliver high-quality products and services will contribute towards gaining a sustainable competitive advantage and improving overall business performance (Bahtijarević-Šiber 2014; Zupan and Ograjenšek 2004). The following hypotheses were formulated on the basis of previous theoretical frameworks. Figure 1 provides a graphical presentation of the hypotheses.

- H1. The level of development of a marketing network (employees) moderates the relationship between relationship quality and perceived performance – effectiveness.
- H2. The level of development of a marketing network (employees) moderates the relationship between relationship quality and perceived performance – efficiency.

Figure 1: Conceptual model



Source: the authors

3. METHODOLOGY

To achieve the purpose of research, empirical research was conducted in hotels in Croatia. Respondents were managers or employees in the marketing department. If a hotel did not have a marketing department, then employees from sales or procurement were asked to respond to the questionnaire. Research was conducted in the period from June to October 2014. A convenience sample was used and a total of 266 questionnaires were collected using the online Limesurvey platform. Follow-up qualitative research, consisting of interviews with four hotel marketing managers, was conducted in May 2019. The aim was to additionally explore the importance of investing in employees and in internal marketing networks. The paper builds upon previous research on relationship marketing and uses scales from the existing literature. Relationship quality is approached as consisting of satisfaction (Kang, Oh and Sivadas, 2013), trust and commitment (Moorman, Zaltman and Deshpande, 1992). Wang and Chung's (2013) scale was used to explore marketing network (employees). Perceived hotel performance was borrowed from Rouziès and Hulland's (2014) work and includes perceived efficiency and perceived effectiveness.

In addition, the questionnaire also included several questions relating to hotel characteristics, in order to better describe the research sample. Data were analysed using univariate and multivariate statistical analysis. Descriptive statistics, reliability analysis and multivariate regression analysis were done with SPSS ver 26 for Windows.

4. RESEARCH RESULTS

4.1. Research sample

The research sample consists of 266 respondents. According to research sample analysis, the average hotel marketing manager works in a hotel that has 10-49 employees (61.8%), operates on a seasonal basis (59.1%), has 0-99 (34.4%) or 200 or more (34.1%) accommodation units, and has 0-199 beds (37.5%). The hotel is located on the coast (40.2%) and has an average guest stay of 4-7 days (72.8%). Additional interviews were conducted with four hotel marketing managers working in hotels that operate on a seasonal basis. Three of these hotels are located on the coast and one, in a city destination. The marketing managers' work experience in the hotel industry ranges from 8 to 15 years of experience.

4.2. Analysis of the research results

Analysis of the research results continued with exploratory factor analysis to test if the scales used are suitable for further analysis. Exploratory factor analysis (EFA) was conducted using Principal component analysis in SPSS with oblimin rotation and Kaiser Normalisation. After purifying the scales and discarding items that had low communalities, that is, lower than 0.5 as suggested by Field (2009), one item was removed from further analysis. Analysis results relating to the Kaiser-Meyer-Olkin (KMO) adequacy of sampling and Bartlett's test of sphericity reported: KMO=0.930 and $\chi 2=3480.546$ ($p<0.05$). Hence, according to the threshold values of Hair et al. (2010), this sample is adequate, and analysis can be continued. In the analysis, no factor loading lower than 0.3 is present, as Field (2009) has suggested. In our EFA, a four-factor solution emerged, revealing the following factors: marketing network (employees), and relationship quality consisting of trust, satisfaction, and commitment. These factors explain 77.937% of variance in the research results. The results of exploratory analysis and reliability analysis are presented in Table 1.

Table following on the next page

Table 1: Factor analysis and reliability analysis for marketing network and relationship quality

Items	Factor			
	Marketing network (employees)	Relationship quality - Trust	Relationship quality - Satisfaction	Relationship quality - Commitment
The managers of each of our functional department regularly visit customers, suppliers, employees, and competitors.	0.597			
Information about customers, suppliers and competition is shared with all departments	0.707			
We do a good job integrating the activities of all departments	0.921			
Our managers understand how employees can contribute to creating added value for customers.	0.733			
Our resources are shared across all departments	0.873			
All departments are involved in preparing business plans and strategies.	0.653			
We are committed to our partners.				-0.737
We consider our partners as part of our team.				-0.800
We genuinely take care of business relationships with our partners.				-0.773
If our partners are not able to contact us, we will let them make important decisions without us.		0.688		
If we are not able to monitor our partners' activities, we trust them to do the job right.		0.645		
We trust that our partners will do the things we are not able to do.		0.835		
We trust that our partners will give us to do the things they are not able to do.		0.811		
We are generally satisfied with the relationship with our partners.			-0.756	
We think that our partners are good partners to do business with.			-0.957	
We are satisfied with the support and service received from our partners.			-0.774	
Cronbach's alpha	0.908	0.909	0.883	0.936
% of explained variance	55.718	10.130	7.306	4.783
Eigenvalue	8.915	1.621	1.169	0.765
Scale mean	28.54	16.19	17.52	15.40

Note: Rotation converged in 10 iterations
Source: Research results

The used scales (Table 2) are reliable as their reliability is above the suggested value of 0.7 (Nunnally, 1967), that is, Cronbach's alphas are in the range of 0.883 to 0.936. Hence, the scales are suitable for further analysis. Exploratory analysis of a hotel's perceived performance was done using Principal component analysis in SPSS with oblimin rotation and Kaiser Normalisation.

Analysis results relating to the Kaiser-Meyer-Olkin (KMO) adequacy of sampling and Bartlett's test of sphericity reported: KMO=0.922 and $\chi 2$=2288.468 ($p<0.05$). Thus, according to the threshold values of Hair et al. (2010), this sample is adequate, and analysis can be continued. Also, no factor loading lower than 0.3 is present, as Field (2009) has suggested. In our EFA, following the literature review and variable operationalization, a two-factor solution emerged, revealing the following factors of a hotel's perceived performance: effectiveness and efficiency. These factors explain 84.389% of variance in research results. Results of exploratory analysis and reliability analysis are presented in Table 2.

Table 2: Factor analysis and reliability analysis for perceived performance

Items	Factor	
	Effectiveness	Efficiency
Market share growth.		0.944
Sales growth.		0.970
Increased customer satisfaction.	0.768	
Increased customer value.	0.802	
Increased profits.	0.304	0.608
A greater focus on customers.	1.031	
Market success compared to competitors.	0.596	0.331
Stronger relationships with customers.	0.944	
Cronbach's alpha	0.947	0.914
% of explained variance	77.569	6.820
Scale mean	25.00	12.51

Note: Rotation converged in 7 iterations
Source: Research results

Research results in Table 2 indicate that the scales are reliable (Nunnally, 1967), and can be used for further analysis, as Cronbach's alpha ranges from 0.914 to 9.947. In subsequent analysis, all scales were composed as an average index of items that constitute the factor. Two groups were formed to test the stated hypotheses. The first group consisted of respondents whose hotels have a low level of marketing network (employees) development and the second, of respondents whose hotels have a high level of marketing network (employees) development. The split criterion that was used is the average value of the marketing network (employees) factor. As the average value of the marketing network (employees) factor was 4.76, respondents in hotels whose average value of the marketing network (employees) factor was equal to or lower than 4.76 fell into the group of poorly developed networks (employees) while respondents in hotels whose average value of the marketing network (employees) factor was equal to or higher than 4.77 fell into the group of highly developed networks (employees). To test the first hypothesis, *H1. The level of development of a marketing network (employees) moderates the relationship between relationship quality and perceived performance – effectiveness,* multivariate regression analysis was applied with perceived performance - effectiveness as the dependent variable. The Enter method was used in the selection of variables in regression analysis. Results are presented in Table 3.

Table following on the next page

Table 3: Results of multiple regression analysis for perceived performance – effectiveness

Highly developed marketing network (employees)			
	B	Beta	T-value
Constant	1.572 (0.599)		2.626**
Commitment	0.400 (0.110)	0.345	3.631***
Trust	0.073 (0.074)	0.092	0.989
Satisfaction	0.205 (0.111)	0.176	1.843
R^2	0.517		
R^2 (adj)	0.267		
F-value	14.960**		
Poorly developed marketing network (employees)			
	B	Beta	T-value
Constant	0.968 (0.386)		2.509**
Commitment	0.421 (0.093)	0.414	4.541***
Trust	-0.155 (0.094)	-0.130	-1.654
Satisfaction	0.462 (0.107)	0.394	4.302***
R^2	0.675		
R^2 (adj)	0.456		
F-value	37.662***		

*Note: N=266, N(low)=139, N(high)=127; standard error is in parentheses; *** $p < 0.001$; ** $p < 0.05$*

Source: Research results

Table 3 shows that to boost perceived performance – effectiveness in hotels with a highly developed marketing network (employees) it is important to develop commitment as an element of relationship quality (β=0.345). To boost perceived performance – effectiveness in hotels with a poorly developed marketing network (employees) it is important to develop both commitment (β=0.414) and satisfaction (β=0.394) as elements of relationship quality. Relationship quality elements explain 26.7% of variance in perceived performance – effectiveness with regard to highly developed marketing networks (employees,) and 45.6% of variance in research results with regard to poorly developed marketing network (employees). To test the second hypothesis, *H2. The level of development of a marketing network (employees) moderates the relationship between relationship quality and perceived performance – efficiency,* multivariate regression analysis was applied with perceived performance - efficiency as the dependent variable. The Enter method was used in the selection of variables in regression analysis. Results are presented in Table 4.

Table following on the next page

Table 4: Results of multiple regression analysis for perceived performance – efficiency

Highly developed marketing network (employees)			
	B	Beta	T-value
Constant	0.590 (0.767)		0.769
Commitment	0.498 (0.141)	0.347	3.525***
Trust	0.127 (0.095)	0.128	1.338
Satisfaction	0.093 (0.142)	0.065	0.657
R^2	0.463		
R^2 (adj)	0.215		
F-value	11.218**		
Poorly developed marketing network (employees)			
	B	Beta	T-value
Constant	-0.647 (0.449)		-1.441
Commitment	0.283 (0.108)	0.240	2.624**
Trust	-0.098 (0.109)	-0.071	-0.904
Satisfaction	0.713 (0.125)	0.525	5.706***
R^2	0.673		
R^2 (adj)	0.453		
F-value	37.215***		

*Note: N=266, N(low)=139, N(high)=127; standard error is in parentheses; *** $p < 0.001$; ** $p < 0.05$*

Source: Research results

Table 5 shows that to boost perceived performance – efficiency in hotels with a highly developed marketing network (employees) it is important to develop commitment as an element of relationship quality (β=0.347). To boost perceived performance – efficiency in hotels with a poorly developed marketing network (employees) it is important to develop both satisfaction (β=0.525) and commitment (β=0.240) as elements of relationship quality. Relationship quality elements explain 21.5% of variance in perceived performance – efficiency in highly developed marketing networks (employees) and 45.3% of variance in research results in poorly developed marketing network (employees). VIF values range from 1.439 to 1.526 (highly developed marketing network (employees)) and from 1.536 to 2.085 (poorly developed marketing network (employees)). Tolerance ranges from 0.655 to 0.695 (highly developed marketing network (employees)) and from 0.480 to 0.651 (poorly developed marketing network (employees)). Both VIF and tolerance are at acceptable levels, indicating that collinearity is not a problem since VIF is not substantially larger than 1 (Field, 2009) and tolerance is not lower than 0.40 (Allison, 1999). In the first model (perceived performance – effectiveness), the Durbin-Watson test is 2.117 (highly developed marketing network (employees)) and 1.867 (poorly developed marketing network (employees)). In the second model (perceived performance – efficiency), the Durbin-Watson test is 1.704 (highly developed marketing network (employees)) and 1.988 (poorly developed marketing network (employees)). All Durbin-Watson values indicate that residuals are not correlated (Field, 2009). To additionally check our results, interviews were conducted with four marketing managers. They all stressed the importance of investing in employees and in internal marketing networks. The respondents pointed out that when hotel employees are loyal and educated (N=3) and when they are included in various hotel planning activities (N=4), they are more inclined towards co-creating greater value for hotel guests. They also pointed out (N=3) that co-creating value for customers together with employees helps a hotel to be more effective, thus improving the hotel's perceived performance.

5. CONCLUSION

This paper contributes to better understanding the importance of investing in employees and developing marketing networks (employees). It also underlines the relationship quality perspective in building marketing networks (employees) and in influencing a hotel's perceived performance. Findings indicate that there are differences between hotels that have a developed marketing network (employees) and regard employees as being important in improving hotel performance and hotels that have not developed this perspective. Hotels that have a highly developed marketing network (employees) are more focused on commitment when evaluating the influence of relationship quality. On the other hand, hotels that have not developed a marketing network (employees) or that have a poorly developed marketing network (employees) tend to focus on satisfaction and commitment when evaluating the influence of relationship quality. Research results are similar to those of Ramayah, Lee and In (2011) who found that trust, as an element of relationship quality, has no influence on collaboration or performance in tourism. Differences are also observed in perceived performance between hotels that have different levels of marketing network (employees) development. Hotels that have a highly developed marketing network (employees) and regard employees as an element of customer value creation are more focused on developing commitment among their employees. The importance of commitment is similar for both the effectiveness and efficiency of perceived performance. On the other hand, hotels with a poorly developed marketing network (employees) focus more on both commitment and satisfaction in building relationship quality. Commitment, however, is more important in enhancing perceived performance – effectiveness, while satisfaction has a dominant effect in enhancing perceived performance – efficiency. Research results suggest that in order to develop marketing networks (employees) hotel marketing managers should invest in building employee commitment by treating employees as partners and making them a part of their team. This can be achieved by including employees in different decision-making teams as well as in the development of hotel plans for the new season and in the value co-creation process. Thus, employees, in particular those in direct contact with customers, will be able to co-create value with customers and, consequently, enhance customer satisfaction. If a hotel has a poorly developed marketing network (employees), its marketing manager should seek to create satisfaction among the hotel's partners, especially its employees. This can be done through additional emphasis on encouraging teamwork and providing feedback to employees about their work. There are some limitations in this study. One limitation is the sample structure as convenience sampling was used in the study. Still, results are indicative and can be used as a starting point in analysing hotels in Croatia with regard to building relationship quality. Another limitation is that hotel performance is explored from the perspective of marketing managers. It is also possible that research results could differ from the results that real financial data would indicate. Hence, further research could combine a hotel's perceived performance with its real financial data. Further research could also focus on analysing other marketing network elements and how their level of development affects hotel performance.

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THE ROLE OF TOURISM REVENUES ON FINANCING THE CURRENT ACCOUNT DEFICITS: AN EMPIRICAL ANALYSIS ON TURKISH ECONOMY

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ABSTRACT
The current account deficit is one of the most serious problems of the Turkish economy. On the other hand, tourism revenues constitute one of the financing items of the current account deficit. Although there are several studies which investigate the effects on tourism revenues on economic growth, the few of studies investigate the relationsihp between tourism revenues and current account deficits. The objective of this study is to examine the impact of tourism revenues on Turkish current account deficits. For this purpose, 2006-2019 period data were considered and Engle-Granger co-integration test was done. According to findings obtained from co-integration and error correction analysis the variables are co-integrated and there is a negative relationship from tourism revenues to current account deficits. Accordingly, increases in tourism revenues cause decreases in the current account deficit. This finding points out to the importance of the tourism revenues on financing Turkish current account deficits.
Keywords: *cointegration, current account deficits, tourism revenues, Turkish economy*

1. INTRODUCTION

Balance of payments deficits are still one of the most fundamental problems for developing countries. Foreign trade deficit and current account deficit are among the main reasons for this problem. Especially in the short run, the financing of current account deficits is of vital importance for such economies suffering from foreign exchange deficit. For this reason, countries facing current account deficit have to make serious efforts to finance these deficits. For this purpose, they apply different politics to attract foreign direct and portfolio investments that will provide foreign currency inflow to their countries. From this point of view, tourism revenues can play an important role in contributing to the financing of the current account deficit. Increases in tourism revenues can lead to improvements in the services balance, allowing the current account deficits to decrease. As in many developing countries, Turkey's economy is facing a balance of payments deficit problem. Therefore it is an important topic the financing of the current account deficit for Turkey. The aim of this study is to analyze the effects of tourism revenues on financıng Turkish current account deficits in the long and short run. The second section of study includes the literature which analyzed tourism revenue and current account relationship. In the third section, findings obtained as a result of analysis were given. Finally, the concluding remarks were made in the last section.

2. LITERATURE REVIEW

Although there are many studies on the relationship between tourism revenues and economic growth in the literature, there are very few studies on the relationship between tourism revenues and current account balance. Most of these studies were done after 2009. In this respect, the relationship between tourism revenues and current account balance emerges as a topic recently examined in the literature. Besides, an important part of these studies was done on the Turkish economy. Because one of the serious and persistent problems of Turkey's economy is the current account deficit, the number of studies in order to identify the determinants of the current account deficit in Turkey is increasing day by day.

Therefore, most of the studies about the relationships between tourism income and the current account deficit in the literature are on the Turkish economy. The literature summary about relationship between TR and CA are given in Table 1.

Table 1: Literature Summary about Relationship between TR and CA

Authors	Period	Country	Method	Results
Hepaktan and Çınar (2010)	1980-2010	Turkey	Granger causality test	TR→Foreign trade balance
Malik et al. (2010)	1972-2007	Pakistan	-Johansen cointegration - Granger causality test	• non-cointegrated • TR↮CAD
Dam et al. (2012)	2002:01-2011:12 (monthly)	Turkey	VAR (Vector Autoregressive) analysis	TR↛CAD (for variance decomposition)
Kara et al. (2012)	1992:01-2011:05 (monthly)	Turkey	-Engle-Granger cointegration test -Granger causality test	• non-cointegrated • TR↔CA
Lorde et al. (2013)	1990:01-2006:04 (quarterly)	Barbados	Johansen cointegration	• cointegrated (Net TR→ CA)
Narayan et al. (2013)	1895-2010	6 Pacific Island Countries	Panel predictive regression analysis	Visitor arrivals predict CA (except for Papua New Guinea and the Solomon Islands)
Cihangir et al. (2014)	1984-2013	Turkey	-Johansen cointegration - Granger causality test	• cointegrated • TR→CAD
Owino (2014)	1980-2013	Kenya	-Johansen cointegration - Granger causality test	• cointegrated • TR→CAD
Uğuz Çelik (2014)	1984-2014	Turkey	-Johansen cointegration - Granger causality test	• cointegrated • TR→foreign trade deficit
Alp Aykac and Genc Guneren(2015)	2003:01-2013:09 (monthly)	Turkey	TAR-VEC model estimation	• balance of services→ CA (+) • TR →balance of services (+)
Koyuncu Turan (2015)	1980-2014	Turkey	-Johansen cointegration - Granger causality test	• non-cointegrated • TR→CA
Yilmaz et al. (2015)	2003:05-2013:12 (monthly)	Turkey	Johansen cointegration	• Cointegrated (TR→foreign trade deficit)
Şit (2016)	1980-2015	Turkey	-Johansen cointegration - Granger causality test	• cointegrated • TR→CAD
Saçık Yapar et al. (2018)	2003:01-2018:04 (quarterly)	Turkey	-VAR analysis -Granger causality test	TR↔CA
Sancar and Akbaş (2018)	2003:01-2017:04 (quarterly)	Turkey	VAR analysis	TR→CAD (+) (for impulse-response)

Notes: *(+) and (-) refers positive and negative relationships between variables, respectively. (→) and (↔) symbols denote the existence of one-way and two-way causality relationships between variables, respectively.*

3. EMPIRICAL ANALYSIS AND RESULTS

3.1. Data and methodology

In the study, the effects of tourism revenues on the current account balance in Turkey for the period 2006-2019 will be tested empirically by using quarterly data. For this purpose, the tourism revenues (TR) and the current account balance (CA) data were obtained from The Turkish Statistical Institute and The Central Bank of the Republic of Turkey database.

The reason that the period analyzed in the study has started since 2006 is that foreign tourist income data is calculated since 2006 according to nationalities. Both variables are included in the model as a ratio of GDP. Also, variables were seasonally adjusted using the tramo/setas method.

3.2. Descriptive statistics

In the study, descriptive statistics and correlation analysis of variables were included before performing time series analysis. Table 2 shows some descriptive statistics for the variables. According to the results given in Table 2, the average values of the current account deficit and the tourism revenues as s ratio of GDP in the period of 2006-2019 were 0.016% and 0.008%, respectively. CA variable reached its maximum value in the fourth quarter of 2018 and its minimum value in the second quarter of 2008. On the other hand, the TR variable has realized its maximum value just after the period in which the CA takes its minimum value and its minimum value in the next period of the period when the CA takes its maximum value. The periods in which the maximum and minimum values are realized indicate the probability of the CA and TR variables to move together.

Table 2: Descriptive Statistics

	Variables	
	CA	**TR**
Mean	-0.016493	0.008941
Median	-0.012164	0.007952
Maximum	0.00038 (2018Q4)	0.030789 (2008Q3)
Minimum	-0.047188 (2008Q2)	0.000937 (2019Q1)
Std. Dev.	0.013959	0.006733
Observations	54	54

Note: *The dates in parentheses indicate the periods in which the relevant values were realized.*

3.3. Unit root analysis

It is extremely important to determine whether the variables contain unit root in time series analysis. Studies with non-stationary series may cause spurious regression problem. Even if the R^2 values of the variables are high and the t statistics are significant in the case of spurious regression, it will be erroneous to interpret the model (Wooldridge, 2013: 645). For this reason, in this part of the study, it was investigated whether the variables contain unit root or not by applying the Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests, which are accepted as traditional unit root in the literature. The results of unit root tests are presented in Table 3.

Table 3: The Results of Unit Root Tests

Variables	**ADF**		**PP**	
	trend and intercept	**intercept**	**trend and intercept**	**intercept**
CA	-3.854(1)[b]	-2.159(1)	-2.891	-1.839
ΔCA	-4.709(0)[a]	-4.757(4)[b]	-4.716[a]	-4.764[a]
TR	-2.963(0)	-0.146(1)	-2.976	-0.198
ΔTR	-7.988(0)[a]	-8.018(0)[a]	-7.974[a]	-8.001[a]

Notes: *a and b are statistically significant at 1% and 5%, respectively. Values in parentheses indicate optimal lag lengths determined according to Schwarz Information Criteria (SIC). Δ expresses the difference operator.*

According to Table 3, both variables have unit root in their levels. In other words, they are stationary in the first difference [I(1)]. After determining whether the variables contain unit root or not, cointegration analysis was performed to determine the long-run relationship between variables in the study.

3.4. Cointegration test and causality analysis

The notion of cointegration implies that the two series are stationary in the first difference [I (1)] and their linear combinations are stationary at the level [I (0)]. This case is called co-integrated and it is assumed that there is a long-run relationship between series (Wooldridge, 2013: 632). In other words, it is accepted that they move together in the long-run. The cointegration test first applied by Engle-Granger (1987) was valid only for bivariate analysis. Later, owing to the multivariate cointegration test developed by Johansen (1988), Johansen and Juselius (1990) and Johansen (1991), the long-run relationships between more than two variables whose at the first difference [I(1)] are stationary could also be investigated. Pesaran et al. thanks to the bounds test developed by (2001), the existence of cointegration between variables can be investigated regardless of whether they are I (0) or I (1). Since there are two variables in this study and both are I (1), the existence of cointegration in this study was analyzed by using Engle-Granger (1987) cointegration test. In the first stage of this two-stage cointegration test the model, where the current account balance and the tourism income are included as dependent and independent variables respectively was estimated by Ordinary Least Squares (OLS) method and the error term of the model was obtained. The regression model created for this purpose is as follows.

$$CA_t = \alpha_0 + \alpha_1 TR_t + u_t \quad (1)$$

In the second stage of the cointegration test, ADF test is applied to the error term (u_t) obtained from the estimation from equation (1). After that, the test statistic obtained from the unit root test is compared with the table critical value and it is decided whether there is a cointegration relationship. In the Engle-Granger cointegration test, the null hypothesis is established as that the series are not cointegrated. If the ADF test statistic is greater than the table critical value, the null hypothesis is rejected and thus the variables are acceptable as cointegrated. The result of Engle-Granger cointegration test is given in Table 4.

Table 4: The Result of Engle-Granger Cointegration Test

ADF Test Statistic	Table Critical Values		
	0.01	**0.05**	**0.10**
-7.831(0)[a]	4.32	3.67	3.28

Notes: *a is statistically significant at 1%. Values in parentheses indicate lag length determined according to SIC.*

As shown in Table 4, the ADF statistic of the error term obtained from the estimation of the cointegration model is greater than the table critical value at 1% significance level. This result indicates that the variables are cointegrated. In other words, there is a long-run relationship between the current account balance and tourism revenues. In this study, the validity of the cointegration relationship was also investigated by estimating the error correction model. The regression model created for this purpose is as follows.

$$\Delta CA_t = \beta_0 + \beta_1 u_{1t-1} + \sum_{i=1}^{m} \theta_i \Delta CA_{t-i} + \sum_{i=1}^{n} \delta_i \Delta TR_{t-i} + \varepsilon_t \quad (2)$$

Here θ_i and δ_i the coefficients of the variables, β_1 the error correction term (ECT), m and n represent the optimal lag length. Equation 2 was estimated by OLS method and the results are given in Table 5.

Table 5: Results of Error Correction Model

Variables	Coefficient	t-stat.
Constant	0.001	0.991
ECT(-1)	**-0.878[a]**	**-2.863**
ΔCA(-1)	1.070[a]	3.797
ΔCA(-2)	-0.213	-1.262
ΔTR(-1)	-0.744	-1.140
ΔTR(-2)	1.512[b]	2.225
ΔTR(-3)	0.491	0.721
ΔTR(-4)	-0.331	-0.522
ΔTR(-5)	1.411[b]	2.291
R^2: 0.497 F=4.818[a][0.000] χ^2_{LM}: 0.002 [0.958] χ^2_{WHITE}: 10. 215 [0.250]		

Notes: *a and b are statistically significant at 1% and 5%, respectively. Values in square brackets indicates the probability value.*

According to the error correction model results given in Table 5, the error correction coefficients are between -1 and 0 as expected and are statistically significant at the 1% level. Therefore, the long-term relationship between CA and TR obtained by the Engle-Granger cointegration test is also valid according to the error correction model results. The error correction coefficient was calculated as -0.878. Accordingly, nearly 88% of a disequilibrium that will occur in the system will be eliminated at the end of the next period. On the other hand, the sum of the lag values of the TR variable (2.339) is positive. Similarly, the sign of the statistically significant lag values of the TR variable is also positive. Therefore, there is a positive relationship between TR to CA in the short run. Accordingly, increases in tourism revenues lead to improvements in the current account balance. In other words, increases in tourism revenues reduce current account deficits and contribute to their financing. Lastly in the study, the Granger causality test was performed to determine the causality relationship between the variables in the study, and the results obtained are presented in Table 6.

Table 6: Results of Granger Causality Test

Null Hypothesis	χ2	Probability
TR doesn't Granger cause CA	12.907	0.004
CA doesn't Granger cause TR	8.523	0.036

According to Granger causality test results, there is bi-directional causality between tourism revenue and current account balance in Turkey.

4. CONCLUDING REMARKS

The aim of this study, to examine the long and short-run effects of tourism revenues on the current account deficits. Thus, it is aimed to determine the role of tourism revenues on the financing of the current account deficit. For this purpose, in Turkey the period 2006-2019 is applied linear time series analysis with quarterly data.

According to co-integration test, the variables are co-integrated. In other words, tourism income and current account balance move together in the long run. Besides, the short-run coefficients indicate that there is a positive effect from TR to CA. Accordingly, increases in tourism revenues lead to improvements in the current account balance. These results obtained indicate that tourism revenues have a crucial role in financing Turkish current account deficits, especially in the short-run. Thus, large-scale declines in Turkey's tourism income can be seriously damage the financing of the current account deficit.

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OVERVIEW OF METHODS TO ADDRESS HETEROSCEDASTICITY IN FACTOR ANALYSIS

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ABSTRACT
Factor analysis first appeared in Spearman's research on intelligence in the field of psychology in 1904. This method of data analysis aims to present the observed variables in an empirical study as functions of a reduced number of unobservable variables (factors). Over the years, factor analysis has been widely used in business disciplines such as organizational behavior, human capital management, entrepreneurship, and marketing. With continued emphasis on quantitative research and modeling in academic as well as in practitioner domains, it is important to review refinements of this technique. This paper discusses the specific challenge of heteroscedasticity, which refers to the error variance being a function of factor scores, thereby leading to violation of an important assumption in factor analysis. Factor analysis has similarities with linear regression where much of the previous research on detection and treatment of heteroscedasticity has been conducted. While factor analysis was developed more than 100 years ago, and heteroscedasticity in linear regression has been extensively studied over several decades, there are very few studies on heteroscedasticity in factor analysis. This paper reviews the prominent methods proposed in the literature to address heteroscedasticity in factor analysis: limited-information two-stage least squares estimator (Bollen, 1996), generalized least squares estimator using sample moments (Meijer & Mooijaart, 1996), weighted least squares and pseudo likelihood estimators using sample moments (Lewin-Koh & Amemiya, 2003), and marginal maximum likelihood estimator (Hessen & Dolan, 2009). In all these works, the authors conducted simulation studies to compare methods and Hessen and Dolan (2009) also provided a computer program in Mx software. There are trade-offs associated with these methods. The treatment of heteroscedasticity in factor analysis has not become part of mainstream research and that may be attributed to computational complexity and lack of available tools in popular statistical software such as SPSS, SAS, and R.
Keywords: *Factor analysis, Heteroscedasticity, Estimation methods*

1. FACTOR ANALYSIS

The basic factor analysis model is as follows. For an individual observation in a sample of n observations,

$$\boldsymbol{y_{px1}} = \boldsymbol{\alpha_{px1}} + \boldsymbol{\lambda_{pxk}}\, \boldsymbol{\xi'_{kx1}} + \boldsymbol{\varepsilon_{px1}} \qquad (1)$$

Where $\boldsymbol{y_{px1}}$ is the vector (px1) of p observed variables for an individual, $\boldsymbol{\alpha}$ is the vector (px1) of intercepts of the equations for p observed variables, $\boldsymbol{\xi'_{kx1}}$ is the transpose of $\boldsymbol{\xi_{1xk}}$, the vector (1xk) of k unobservable variables (factors) that account for the intercorrelations among the observed variables included in $\boldsymbol{y_{px1}}$, $\boldsymbol{\lambda_{pxk}}$ is the matrix (pxk) of factor loadings on k factors for the observed variables included in $\boldsymbol{y_{px1}}$, and $\boldsymbol{\varepsilon_{px1}}$ is the vector (px1) of error or disturbance for each of the p equations.

The above model applies to both exploratory and confirmatory factor analyses. If some parameters are constrained such that the factor loadings and factor scores can be uniquely

determined, then the approach is confirmatory (Jennrich, 2007). If there are no constraints imposed on the factor analysis model, then it is exploratory. In an exploratory sense, factor analysis aims to discover through observed data the underlying latent variables called factors that explain the correlation among the observed or manifest variables. This has connection with a theory in that discipline that defines a concept, which is hard to measure directly, but is reflected through indicators. The number of factors is smaller than the number of observed variables. Beginning with the seminal work of Spearman (1904), factor analysis has thrived for over 100 years in research on psychology and applied behavioral fields in business such as organizational behavior, human capital management, entrepreneurship, and marketing. In business research, factor analysis has led to greater understanding of personality traits and skills relevant for employee selection and entrepreneurship, attitudes of consumers and employees, and employee performance, among a wide variety of concepts. Despite the significant advancement of our knowledge of factor analysis over the decades, it is surprising there are very few studies that address the problem of heteroscedasticity, which has been extensively researched in the context of linear regression.

2. HETEROSCEDASTICITY IN LINEAR REGRESSION

Factor analysis has similarities with the linear regression technique, and more importantly, the methods to address heteroscedasticity in regression were used in the early attempts to address heteroscedasticity in factor analysis (e.g., Meijer & Mooijaart, 1996). A regression equation is as follows.

$$y = \beta_0 + \beta_1 x_1 + \ldots + \beta_r x_r + e \qquad (2)$$

Where y is the dependent variable, $x_1 \ldots x_r$ are the r independent variables, β_0 is the intercept and $\beta_1 \ldots . \beta_r$ are the regression coefficients, and e is the unobserved error and it captures the effect of other variables not included in the regression model.

Under the Gauss-Markov conditions to facilitate the use of ordinary least squares (OLS) method as the best linear unbiased estimator of regression coefficient in cross-sectional data, an important assumption is that the variance of error is constant (i.e., of the same magnitude) across different values of the independent variable (Wooldridge, 2013). This assumption is the condition of homoscedasticity. A deviation from this assumption, that is, unequal error variance across different values of the independent variable, is called heteroscedasticity. It is important to note that despite heteroscedasticity, the regression coefficients estimated with OLS are unbiased (Gujarati & Porter, 2009). Unbiased estimator means the expected value of regression coefficient estimator through random sampling is equal to the population regression coefficient (Larsen & Marx, 2012). Despite heteroscedasticity, the OLS estimator of population regression coefficient continues to be consistent, in the sense as sample size increases, the estimate approaches the true value of the population parameter (Gujarati & Porter, 200). An estimator with lower variance would have higher precision and would be considered more efficient than an estimator with higher variance (Larsen & Marx, 2012). Under heteroscedasticity, the variance of regression coefficient has a different expression and the estimator is not efficient (Gujarati & Porter, 2009). In addition, there is a bias in the standard error of the regression coefficients, because of which the confidence intervals of the regression coefficients are less credible (Kaufman, 2013). The variance of y conditional on a given value of x is the same as conditional error variance (Gujarati & Porter, 2009). Heteroscedasticity could occur in cases such as the relationship between wage as the dependent variable and education level as the independent variable (Wooldridge, 2013). Wooldridge argued that with increase in education level, the variance of occupational interests is likely to increase, and this would cause the

variance in wages to increase with education level. Kaufman (2013) discussed three strategies for mitigating the adverse effects of heteroscedasticity: (1) Variance-stabilizing transformation, (2) Heteroscedasticity-consistent covariance matrix, and (3) Generalized least squares estimator.

3. HETEROSCEDASTICITY IN FACTOR ANALYSIS

Like linear regression analysis, an assumption in factor analysis is that error variance is constant across observations (i.e., at different values of factors). According to Meijer and Mooijaart (1996), the problem of heteroscedasticity might occur in factor analysis for similar reasons as in the case of linear regression such as measurement of a variable on a ratio scale or due to range restriction. Similar to regression analysis, if there is a bias in the standard error of factor loading, it could lead to less credible confidence intervals in both exploratory analysis, where the goal might be test if a factor loading is different from zero, and confirmatory factor analysis, with additional hypotheses tests such as two factor loadings being equal. Compared to linear regression, an important challenge of heteroscedasticity in factor analysis is that the latent factors are unobservable, unlike the observed independent variables in case of linear regression. In addition, there are multiple observed variables that are a function of factors. Thus, error variance could be heteroscedastic in some cases and not others (Hessen & Dolan, 2009). Therefore, heteroscedasticity is more difficult to incorporate in factor analysis. Four major studies have proposed different methods of addressing heteroscedasticity in factor analysis and are discussed below.

3.1. Two-Stage Least Squares (2SLS) Estimator for Heteroscedastic Factor Analysis

Two-stage least squares (2SLS) technique is commonly used in solving simultaneous equations and falls under the category of instrumental variable estimators. It is used in case of model misspecification due to omission of variables that leads to the problem of endogeneity or simultaneity, resulting in possible correlation between an independent variable and the error term in the regression model (Gujarati & Porter, 2009; Wooldridge, 2013). Thus, an important Gauss-Markov assumption is violated. In order to reduce this problem, the 2SLS estimation utilizes instrumental variable that is correlated with the independent variable (the one that is correlated with error), but not correlated with the error term. 2SLS is a limited-information instrumental variable estimator (Greene, 2003). The estimation is done one equation at a time utilizing only the information available in that specific equation among all the equations in a system. On the other hand, full-information estimation includes information such as correlations of errors across simultaneous equations in the whole system and is considered more efficient. These full-information estimation methods include three-stage least squares and full-information maximum likelihood estimators. It must be noted that 2SLS estimation must be used only if there is a problem of simultaneity, that is, there is a correlation between an independent variable and error (Gujarati & Porter, 2009). If the simultaneity problem does not exist, 2SLS estimator is not as efficient as the OLS estimator. Hausman specification test could be used for verifying the simultaneity/endogeneity problem. For 2SLS to be the most efficient instrumental variable estimator, there is an assumption of homoscedasticity (Greene, 2003). Bollen included the effect of heteroscedasticity in a latent variable model, which included the typical factor analysis model of observed variables as indicators of unobservable factors. Since latent variable models tend to be mis-specified, Bollen used the 2SLS estimator. However, the 2SLS estimator is for the problem of simultaneity / endogeneity and not heteroscedasticity, and so, building on the work of White (1980), Bollen computed the heteroscedastic-consistent standard errors of factor loadings. In addition, based on the work of White (1982), Bollen addressed the effect of heteroscedasticity by using two-stage instrumental variable (2SIV) method, which takes into account heteroscedasticity of an unknown nature and is

asymptotically efficient compared to 2SLS estimators. The author conducted simulations with heteroscedasticity induced in the error variance. Bollen provided a comparison of estimates obtained through 2SLS, 2SIV, and General 2SLS estimators (analogous to generalized least squares but in two stages). The author found the heteroscedastic-consistent standard errors in 2SLS to be close in magnitude to the standard errors obtained through 2SIV and General 2SLS. However, the uncorrected standard errors of factor loadings were smaller than the corrected ones. Thus, based on these simulation studies, the coefficients in factor analysis could be erroneously significant due to heteroscedasticity. While these methods of addressing heteroscedasticity showed promising results at an asymptotic level, Bollen emphasized the need to examine these results with more simulations using smaller samples. It may be noted that Bollen did not model the structure of heteroscedasticity, which was addressed by other scholars discussed below. Two other noteworthy attempts (Lewin-Koh & Amemiya, 2003; Meijer & Mooijaart, 1996) to address heteroscedasticity used variants of the Generalized Least Squares (GLS) estimator. Therefore, this topic will be discussed before reviewing the proposed techniques of Meijer and Mooijaart (1996) and Lewin-Koh and Amemiya (2003).

3.2. Generalized Least Squares (GLS) for Heteroscedastic Factor Analysis

In case of heteroscedasticity, when we examine the scatterplot with a regression line fitted with OLS estimator, the variance of the dependent variable (i.e., the error variance for a given value of independent variable) differs across the values of the independent variable. This information of non-uniform variance is ignored in the OLS estimation. Ideally, the researcher would like to give lower weight to observations for the segment of population corresponding with the value of independent variable where the error variance is high (Gujarati & Porter, 2009). However, the OLS estimator gives equal weight to each observation and thus, is not efficient. Generalized least squares (GLS) estimator does a transformation of variables by dividing each term of the regression equation by the known error variance for each observation. Thus, each term is weighted by the inverse of the known variance. In the transformed equation, the error variance is homoscedastic, the Gauss-Markov assumption are met, and therefore, the OLS technique can be applied as it is the best linear unbiased estimator. Thus, GLS minimizes the weighted sum of squares of residuals and is also called weighted least squares (WLS) technique in the context of heteroscedasticity, though GLS is a broader term (Gujarati & Porter, 2009). It is to be noted that WLS estimator can be used to address heteroscedasticity only when the researcher knows the nature of dependence of error variance on the independent variable.

3.3. Method of Moments for Heteroscedastic Factor Analysis

The probability density function of a random variable can be completely described by its moments (Creel, 2006). Population moment conditions can be specified that yield equations in terms of population parameters to be estimated. If these equations are true, and if the sample estimates are unbiased, the empirical moments obtained through sample data must also meet these conditions. The goal is to minimize some measure of distance between the population moments and sample moments. If the sample moments yield L equations with K unknowns (the number of parameters to be estimated), there are three possible situations (Greene, 2003). If $L < K$, the system of equations is underidentified. There are fewer equations than the number of unknowns and so, the parameters cannot be estimated. Unless some constraints can be imposed the on the parameters to be estimated, this situation is not helpful to the researcher. If $L = K$, the system of equations is exactly identified and there is a unique solution for the population parameters. If $L > K$, the system of equations is overidentified and there is no unique solution for the population parameters. To obtain a unique solution, additional conditions such as least squares can be imposed. The square of the distance between sample moments and population moments could be minimized in case of heteroscedastic models (Greene, 2003).

Thus, if L >= K and if there is no redundancy in the moment equations, then the population parameters can be estimated or identified from the system of equations of moments of different orders (Greene, 2003). OLS and 2SLS can be interpreted as generalized method of moments (GMM) estimators. Meijer and Mooijaart (1996) built on the heteroscedastic models proposed by Judge et al. (1985). These models specify the error variance as a function of the independent variable (factor, in case of factor analysis). For example,

$$(\sigma_i^2 | \xi) = \beta_0 + \beta_1 \xi_1 \qquad (3)$$

If the population parameters (e.g., regression coefficient of factor score that predicts error variance) included in this equation can be estimated, it would help in testing whether heteroscedasticity is present and to also arrive at more precise estimates of the population parameters related to factor loadings through the use of generalized (or weighted) least squares. Among the models of Judge et al. that explicitly incorporated heteroscedasticity, Meijer and Mooijaart considered the ones that would be relevant for variables measured on ratio scale and variables with range effects, such as floor and ceiling effects, which could be relevant for factor analysis. A potential problem in incorporating these models of heteroscedasticity is that they may not be identified, that is, it is not possible to calculate the value of the coefficients in Equation (3) through the covariance matrix of the observed variables. Since the covariance matrix includes the second order moments and there are fewer equations than the number of unknown variables, Meijer and Mooijaart considered the third order moments, which helped in solving for the unknown population parameters in Equation (2) and its modified forms, based on the nature of variables and heteroscedasticity. Thus, it was possible to test for the presence of heteroscedasticity and include error variance as a function of factor scores in the estimation of population parameters related to factor loadings. Meijer and Mooijaart conducted simulation studies where they generated data based on heteroscedasticity. Using subsamples of the data, similar to drawing random samples from a population, they compared normal theory estimation, asymptotic distribution free estimation with second order moments, and asymptotic distribution free estimation with third order moments, which actually enable the estimation of coefficients linking error variance with factor scores in the chosen heteroscedastic model. Along with these methods of estimation, the authors used generalized least squares and two of its variants (linearized generalized least squares and bootstrapped generalized least squares) for estimation of unconditional error variance. Based on the simulation studies, the authors concluded that normal theory estimation does not work well when there is heteroscedasticity in factor analysis. Asymptotic distribution free estimation with second order moments performed better, but the presence of heteroscedasticity cannot be estimated through this approach. While asymptotic distribution estimation with third order moments can be used to test for heteroscedasticity, there was a strong downward bias in the estimators of coefficients of factor scores predicting error variance, and the confidence intervals contained the true value of β_1 (Equation 3) only about 50-65 percent of times. Thus, compared to Bollen (1996), Meijer and Mooijaart (1996) explicitly modeled heteroscedasticity based on the likely sources in factor analysis such as variables measured on ratio scale and variables with range restriction, and included asymptotic distribution free estimation that does not make restrictive assumptions about the data. However, there was bias in estimating the coefficient of factor score that predicts error variance. This would imply error variance cannot be accurately included in generalized least squares estimation of factor loadings. As a result, the factor loadings cannot be precisely estimated. The method proposed by Lewin-Koh and Amemiya (2003) was based on the dissertation of Lewin-Koh (1999), which provides a more detailed explanation. Therefore, we will discuss Lewin-Koh (1999). Like Meijer and Mooijaart (1996), Lewin-Koh (1999) followed the method of moments and did not assume any particular distributional form for factor scores and errors.

Lewin-Koh expressed error variance as a more general polynomial equation of factor scores. Since the first two moments are not adequate to estimate the coefficients of factor scores in the error variance equation, Lewin-Koh considered higher moments, computed through different combinations, cross-products and pure powers, in the augmented observation vector. The order of moments and the specific nature of moments (cross-product versus pure power) would depend on the nature of the polynomial equation of factor scores to describe error variance. While using weighted least squares as the measure of distance between sample moments and population moments, fourth order moments were required. To reduce the dependence on higher order moments, Lewin-Koh considered pseudo likelihood as the second measure of distance, which considers subsets of probability density functions, in place of the likelihood of the full dataset. Similar to Meijer and Mooijaart (1996), Lewin-Koh tested for the presence of heteroscedasticity through the equation for error variance. In addition, Lewin-Koh also estimated the factor loadings and calculated the factor scores based on heteroscedastic error variance. Lewin-Koh conducted simulation studies and compared the estimators (weighted least squares and pseudo likelihood) of factor loadings and coefficients of factors in the equation for error variance. The author compared these two estimators with maximum likelihood estimator that did not take heteroscedasticity into account. Unlike error variance as a linear function of factor scores in case of simulation conducted by Meijer and Mooijaart (1996), Lewin-Koh considered a quadratic form. For the case of heteroscedastic error variances, the mean-squared error of factor loadings was lower for pseudo likelihood than for weighted least square estimator for smaller sample size. The coverage probability of 95% confidence interval of factor loadings was higher for pseudo likelihood and weighted least squares in all cases. The performance of pseudo likelihood and maximum likelihood were close to each other. The coverage probability of 95% confidence interval of coefficients of factor score in the equation for error variance was consistently higher for the pseudo likelihood method and the difference was much higher in case of the coefficient of the quadratic term of factor score under different scenarios of normal versus uniform distributions of factor scores and errors. Lewin-Koh and Amemiya (2003) also conducted heteroscedastic factor analysis on real data on corals. Meijer and Mooijaart (1996) considered different variants of generalized least squares and Lewin-Koh's weighted least squares would fall under the same category. However, Lewin-Koh considered pseudo likelihood estimator that showed much better results in terms of mean-squared errors of factor loadings in homoscedastic case, and coverage probabilities of 95% confidence interval of factor loadings and coefficients of factor scores in heteroscedastic model of error variance. Thus, Lewin-Koh's study indicates the promise with using pseudo likelihood estimator to address heteroscedasticity in factor analysis. While the pseudo likelihood estimator is available in software packages, a limitation, according to Lewin-Koh, is that the covariance matrix of the estimated population parameters is not correct since it assumes normal distribution of observed variables. Since the augmented observation vector was used by Lewin-Koh to identify the larger number of population parameters in the heteroscedastic model and since they included higher powers of the observed variable, the normality assumption is not valid.

3.4. Marginal Maximum Likelihood Estimation for Heteroscedastic Factor Analysis

The method of moments used in the previous two studies - Meijer and Mooijaart (1996) and Lewin-Koh (1999) – has some important limitations. Higher order moments may be difficult to estimate and may not meet the sufficiency requirement of an estimator. The methods of moments estimators discussed earlier use the same number of moments as the number of parameters to be estimated (Creel, 2006) and so, fewer moments are used. This makes the method of moments less efficient than the maximum likelihood estimation (MLE) that uses information from all moments. Hessen and Dolan (2009) considered the full information marginal maximum likelihood estimation.

Under heteroscedasticity, the error variance is not constant and is, instead, a function of the factor score. Accordingly, Hessen and Dolan considered the normal probability distribution function for each observed value, y_i conditional on the factor score, ξ. Thus, the expected values, μ_i and variance, σ_i were conditional on ξ (Hessen & Dolan, 2009, page 59, minor change in symbols).

$$f(y_i|\xi) = \frac{1}{\sqrt{2\eta(\sigma_i^2|\xi)}} e^{-\frac{1}{2}\frac{\left(y_i-(\mu_i|\xi)\right)^2}{(\sigma_i^2|\xi)}} \qquad (4)$$

i = 1… p refers to the p observed scores for an individual.

Hessen and Dolan's approach was also different from the previous works described earlier in terms of the nature of heteroscedasticity. For a given factor score, the variance of y is the same as conditional error variance. The authors set up a general exponential function for the conditional error variance in terms of a polynomial of factor scores (Hessen & Dolan, 2009, page 60, minor change in symbols).

$$(\sigma_i^2|\xi) = exp\left(\sum_{m=0}^{k_i} \beta_{im}\xi^m\right) \qquad (5)$$

The polynomial is of degree k within the exponential function. β_{im} are the parameters that describe the heteroscedastic error variance as a function of factor score. In case of homoscedasticity, the only value m can take is zero. Thus, the authors did not restrict the nature of heteroscedasticity to be linear or quadratic between error variance and factor score, as in the case of previous studies. Moreover, using the exponential function ensures that the value of variance would not be negative. The above expression for error variance conditional on factor score could be inserted in the conditional probability density function of the observed variables. For a given factor score, the observed variables are assumed to be independent. If there are p observed variables, then the multivariate conditional probability density function would be the product of the density function associated with each observed variable. If x and y have a joint continuous probability density function $f_{x,y}(x, y)$, then the marginal probability density function of x is given by the following equation (Larsen & Marx, 2012, page 169).

$$f_X(x) = \int_{-\infty}^{\infty} f_{X,Y}(x, y)\, dy \qquad (6)$$

On similar lines, Hessen and Dolan considered the marginal probability density function of observed scores for an individual. They assumed a normal probability density function of factor scores, which was multiplied with the multivariate conditional probability density function of observed variables, and integrated over all possible values of factor scores. Intuitively, marginal density function of observed scores gives the probability of witnessing the observed scores of an individual, conditional on a given factor score, adjusted by the probability of the factor scores. The advantage of the marginal density function is that the underlying latent variable, that is, the factor score of an individual, is not required for estimation of population parameters with the likelihood method described below. If a given sample has been randomly drawn from a population with the above distribution, then the likelihood of drawing such a sample across n individuals is the product of n such marginal probability density functions (Larsen & Marx, 2012). If all the population parameters (ν_i, the intercepts, λ_i, the factor loadings, and β_{im}, the coefficients of factor scores in the equation for error variance) are included in vector

τ, for vectors of all observed scores of p variables in a sample of size n, the marginal likelihood function can be expressed as follows (Hessen & Dolan, 2009, page 61).

$$L(\vec{\tau}|\overrightarrow{y_1} \dots \overrightarrow{y_n}) = \prod_{v=1}^{n} h(\overrightarrow{y_v}|\vec{\tau}) \qquad (7)$$

A logarithm of the above would yield the log-likelihood function, *l*, where the product function on the right side of the equation would become a sum. The rationale behind maximum likelihood estimation is that an estimate of population parameter would maximize the likelihood of the sample (Larsen & Marx, 2012). The same logic applies to marginal maximum likelihood function. To maximize the likelihood of arriving at the observed sample, partial derivatives of the log-likelihood function with respect to the population parameters were taken and set to zero (Hessen & Dolan, 2009, page 61, minor change in symbols).

$$\frac{\partial l}{\partial v_i} = 0 \qquad \frac{\partial l}{\partial \lambda_i} = 0 \qquad \frac{\partial l}{\partial \beta_{im}} = 0 \qquad (8, 9, \text{and } 10)$$

A solution of the above equations would yield the population parameters, thereby jointly estimating the intercepts, factor loadings, and error variance. In addition, the test for the presence of heteroscedasticity could be done based on the values of β_{im}.

It is difficult to derive analytical solutions of integrals in the likelihood function. A numerical procedure must be used, and the authors used the Gauss-Hermite Quadrature. Using this method, Hessen and Dolan approximated the integrals in the likelihood equations with weighted sums of functions, choosing nodes and weights. Statistical packages such as R and Octave have library functions for Gauss-Hermite Quadrature (Hessen & Dolan, 2009). The authors used the Newton-Raphson iterative procedure to solve the log-likelihood equations for the three partial derivates set to zero. For multiple dimensions, derivatives can be replaced by gradient vector that gives the direction of fastest change. The reciprocal of the second derivatives in Newton-Raphson procedure can be expressed as inverse of the Hessian matrix, which is a square matrix of partial derivatives of the second order. For testing heteroscedasticity in the factor analysis model, Hessen and Dolan set up the null and alternative hypotheses (Hessen & Dolan, 2009, page 63, minor change in symbols).

$H_0: \beta_i = 0$
$H_1: \beta_i \neq 0$, for at least one case.

Where $\beta_i \; is$ a vector containing all the coefficients, β_{im}, except the constant term, in the polynomial expression within the exponential function of error variance. Heteroscedasticity might be present in case of errors of some observed variables and not others, which is captured by the alternative hypothesis shown above. Thus, different kinds of heteroscedasticity, including homoscedasticity, are nested within each other. Accordingly, Hessen and Dolan proposed model comparison by chi-square statistic, given by the following expression, with the degrees of freedom being the difference of degrees of freedom between the two log-likelihood functions (Hessen & Dolan, 2009, page 63).

$$\chi^2 = 2 \ln L\,(\vec{\tau}|\overrightarrow{y_i} \dots \overrightarrow{y_n}) - 2 \ln L\,(\vec{\pi}|\overrightarrow{y_i} \dots \overrightarrow{y_n}) \qquad (11)$$

Where π is a vector equivalent to τ but refers to the case of homoscedasticity. Knowing which of the beta values is non-zero would assist in determining the exact form of relationship between error variance and factor scores.

While the knowledge of these coefficients might not be of primary interest, it would help in obtaining more accurate estimates of intercepts and loadings in the factor analysis model. Similar to the previous works discussed above, Hessen and Dolan conducted simulation studies. The factor scores were assumed to be normally distributed. The power to detect heteroscedasticity increased with the magnitude of coefficients in the polynomial of factor scores in the exponential function. Like Lewin-Koh and Amemiya (2003), Hessen and Dolan also provided results with real data and included observed scores on subtests for mental ability. The authors used Mx software to test their method of heteroscedastic factor analysis with real data. Thus, Hessen and Dolan (2009) provided an alternative to the method of moments used by the previous two studies, Meijer and Mooijaart (1996) and Lewin-Koh (1999). Whereas Bollen (1996) used a limited information approach, Hessen and Dolan used the more efficient full information approach. In addition, Hessen and Dolan considered a more flexible model of heteroscedasticity in error variance.

4. CONCLUSION

There are trade-offs associated with different methods used in the literature for addressing heteroscedasticity in factor analysis. WLS estimator can be used to address heteroscedasticity only when the researcher knows the nature of dependence of error variance on the factor. While marginal maximum likelihood estimation has the advantage of not requiring the estimation of factor score for an individual, it is a computationally complex procedure. The efficiency of maximum likelihood estimator (MLE) is high only when the model of population parameters can be correctly specified (Wooldridge, 2013). MLE requires every moment to be correctly specified. Thus, the method of moments is more robust than MLE on the attribute of distribution specification (Creel, 2006). Two stage least squares and the method of moments with generalized least squares share similarities with heteroscedastic regression analysis and so, might be easier to interpret for most researchers. However, using higher moments has its limitations. While Hessen and Dolan demonstrated their method with real data using Mx software, ultimately, the incorporation of heteroscedasticity would become mainstream only when different techniques are embedded in popular software tools (e.g., SPSS, SAS, R) for factor analysis.

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BULGARIAN UNIVERSITIES AND THE CRISIS SITUATION CREATED BY COVID-19

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ABSTRACT
This analysis makes a research on the real situation as a result of the pandemic crisis caused by COVID-19 and looks for answers of the lack of appropriate training of the Bulgarian students for action in times of crisis. Past periods are analysed when there was such specialized training and possible correlation is searched for in this emergency situation as well as the steps taken by the government and those of the whole population.
Keywords: *Pandemic crisis, Universities, Crisis situation, Education, COVID-19*

1. INTRODUCTION

The dynamically changing environment as a result of the pandemic situation caused by COVID-19 necessitates taking objective decisions, which in some cases are not well-grounded. One of the circumstances is the lack of enough time for detailed analysis of the processes and circumstances, as well as preparedness for taking such decisions. COVID-19 pandemic is changing us slowly but surely and this is proven by the steps taken in Bulgaria and the rest of the European countries. The general conclusion is in the direction that we haven't been prepared for the ongoing processes and the situation makes us act without a plan as we learn in progress. The mantra "this is not going to happen to me" was replaced by the original psychosis and consequently by one new stable psychological, social and economic state of the society. Today we are totally different from yesterday and tomorrow, after we overcome the crisis, we will be changed even more. It is important to do the analyses now and not to wait for the situation to be over, because once again we will be late in this activity as we were at the moment of the crisis onset.

2. PREPARATION FOR ACTION IN A CRISIS SITUATION

We could have been better prepared and stronger at the onset, and it could have helped not only in the medical aspect of the crisis, but also in the rest of its elements, which can't be defined as concurrent. We make this interpretation understanding and realizing how much it is necessary to have a comprehensive and continuous preparation as citizens and society to face crisis situations. Life quite often meets us with such crisis situations, but we are not prepared all the time. When the state entered the process of democratization under different pretexts, which we will not comment in detail, a subject providing plenty of knowledge and enough skills for managing situations like today's was literally destroyed – back then this subject was called "Organization and protection of the people and national economy". The knowledge was about managing crisis situations (disasters and accidents) and elimination of their consequences, with hazardous chemical compounds (then called war poisons), radiation, fire and any organizational steps and measures for their prevention and elimination of consequences. We call this a part from prevention because of its definition as (dangerous communist subject), it was terminated together with the whole set of knowledge it provided (Petrov, Georgiev, 2019; Georgiev, 2019a-b). Subsequently, plenty of attempts were made to put back on the curriculum this subject or something similar to it at different universities with other minor courses, unfortunately not sufficient to prepare the future specialists to react in times of crisis situations and in the broader perspective to provide expertise good enough in this field.

Even the standards of the Ministry of Education and Science didn't achieve good results because of the pronounced autonomy of universities. Of course, such a subject had to be cleared of any ideologies, but from today's perspective we see how necessary it has been, and if it is made up-to-date, it could serve us very well in this respect. Today, we really do not speak about military poisonous substances, because we are not in a situation of a war, but the dangerous chemical substances continue to exist in space and are unfortunately used as chemical or biological weapons sometimes. Fires, floods, earthquakes and other crisis situations come to us permanently and more often than we want or assume. Institutions are trying to handle these, but we, the citizens, are not only uninformed, but we do not have the knowledge and skills to react to such situations. The subject, which existed until 1995 school, gave knowledge on how to make and execute plans and measures, how to adjust the economy to such situations – preliminary training, response and result. All this was considered in all aspects and comprehensively – protection of human life and health, with care for workers and their social needs, with maximum preservation of economic indicators and financial stability during any crisis situation. The situation with COVID 19 reminded us of the time when shouts against "civil defence" ruined an important education. Today we see the virus as a tragedy, we are divided into supportive and non-supportive, disciplined and non-compliant, which in this case is a proof that we are divided in both our views and actions. And not so much because the measures are inadequate, but because we are not taught to live and act in such a situation, and in a step the situation turns out to be stronger than us. And if today is difficult, then tomorrow we will see our ruined economy as an even greater tragedy. Will all this teach us to prepare in advance to face such situations? Scientists and experts say that there are three key words that we must take into account - prevention, prevention and again prevention, but not in words, but actually implemented. Where were the plans of each organization and institution for actions during crisis? No one seems to have referred to the Disasters and Accidents Act. Probably not because we do not know the law, but because we have not complied with its provisions, which no one has revoked, but because our specialists at various levels have not studied and have not been purposefully prepared to meet crises. Unfortunately, these do not occur by order, they are different, both in nature and duration. Therefore, if we talk about crisis prevention, we must also talk about changes in the education system, which is expressed in determining those knowledge and skills that will help students, future professionals and managers to cope in any situation, including crisis. In any case, education provides serious basic training, including not only a set of acquired knowledge, but also sufficient skills (Terziev, Solovev, 2020-a). What are the priority knowledge and skills we teach our students? How do we define them? We are talking about professional (hard) and soft skills. crisis management skills are not discussed anywhere in professional career development networks. Courses of the sort of 'Risk Management' shall be included in every curriculum and moreover, it shall be with reliable enough number of classes and quality of education, because it may really guarantee a preparation that is of significant importance in crisis situations. Risk management is related to many sectors of our socio-economic life, as well as to ensuring our national security. Risk management is not just a whim - it is a philosophy of life in its diversity. Risk management is part of the overall management of systems. It requires a systematic approach and is by no means limited to the establishment of temporary special committees, press conferences and the introduction of state of emergency. All these measures, described and arranged, are in readiness and are activated in the realization of the risk. And so are they in the institutions of healthcare. Moreover, all managers of the healthcare system have completed a course of training in Healthcare System Management where the "health risk management" is an important and integral part. We do not say that everything could be going fine in this crisis situation but it could have been easier for all of us.

However, risk management should not resemble the system of winter preparation - everyone declares that they are ready to meet the winter and everyone is surprised by the first snow (Terziev, 2020b-c)...

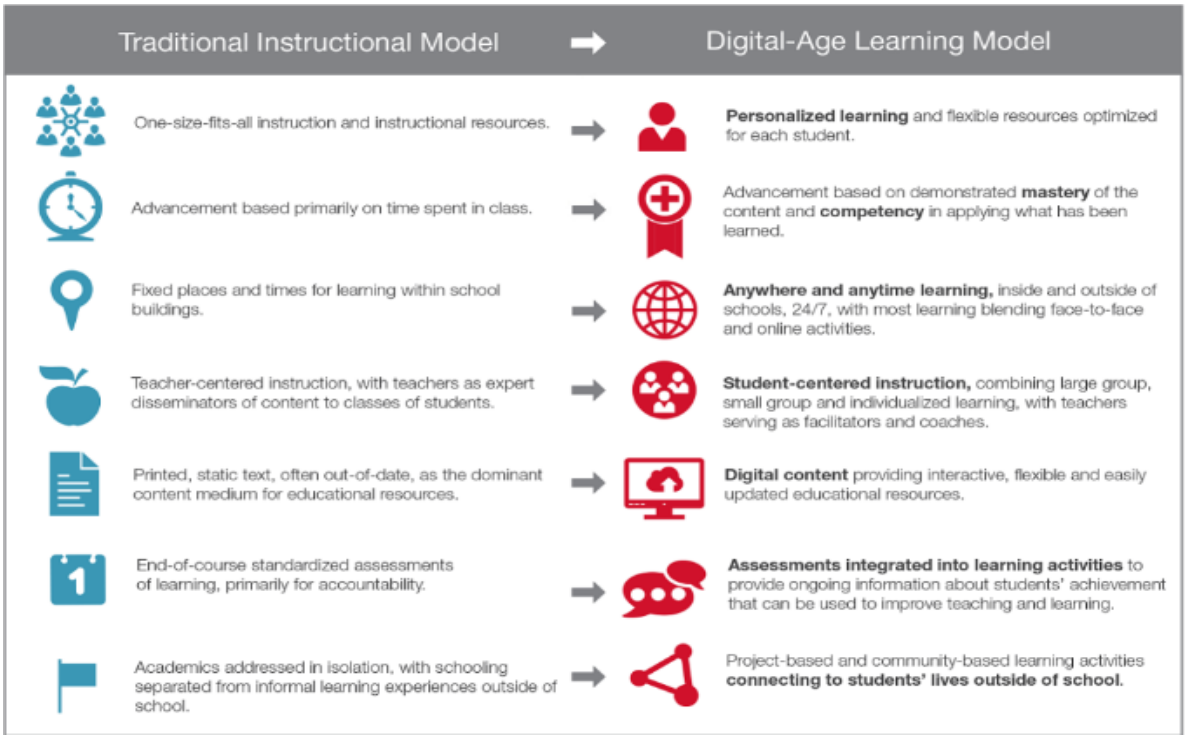

Figure1: Key elements of digital – age learning model
(Source: Kleiman, 2016)

Close to the state of risk management is another area of our lives – health and safety at work. We make an analogy with the education of pupils and students in health and safety at work, because at the moment it is also grossly neglected. The compulsory nature of this training is inscribed in a number of documents at European and national level (Fig.1), but it is carried out in very few places and, unfortunately, is often identified with safety equipment, which is insubstantial. We are all witnessing real situations in which knowledge and skills in health and safety at work are absolutely necessary. We will not cite data on accidents at work, fatal accidents, losses from accidents at work and work days. Yes, students probably can't understand the significance and importance of this preparation today, but they will certainly be satisfied with this preparation in time. However, those who set training priorities need to know and be able to identify the needs for this (Terziev, Lyubcheva, Solovev, 2020d; Terziev, Bankova, Dacheva, 2019c).

3. THE REAL ACTIONS

In connection with the current crisis situation caused by the pandemic epidemic, in view of the state of emergency, the Bulgarian government adopted the following main measures, according to the "Law on Measures and Actions during the State of Emergency" (promulgated in SG, issue 28 dated 24.03. 2020), namely:

- Until the revocation of the state of emergency all terms of court, arbitration and enforcement proceedings with the exclusion of the terms of criminal proceedings shall stop to be effective; the limitation and other terms, stated in the legal regulations; the terms for execution of guidelines.

- All announced public sales and enforced entitlements to possession are terminated; no forfeitures are attached on bank accounts of individuals and hospitals, seizures on wages and pensions; the notary proceedings are limited.
- Employers may request their employees to use up to half of their paid annual leave even without employee's consent;
- Police authorities and the fire safety and civil protection authorities may work overtime above the limitations in this regard;
- Military personnel from the armed forces may participate in the implementation of anti-epidemic measures and restrictions in the territory of the country
- Military personnel from the armed forces shall have the right to: make inspections for establishing people's identity; to restrict the movement of individuals until the arrival of the bodies of the Ministry of Interior, for which there are data that they have refused or do not implement the measures and actions during the state of emergency; stop vehicles; stop vehicles until the arrival of the bodies of the Ministry of Interior; restrict the movement of persons and vehicles at a checkpoint; use physical force and auxiliary means.
- Pharmacies may supply medicines only as per a medical prescription book, without requiring a prescription, according to the last data entered in the medical prescription book;
- The export of medicines may be prohibited;
- Organization of the educational process in an electronic environment by using means of information and communication technology.

These actions seek to address what is already happening and aim its delay and not its prevention. The lack of a specific action plan in the enacted laws, as well as the existence of such plans in another form raises the main question why and for what reasons we have not provided actions and activities for crisis management in all its stages - at its occurrence, its existence and the exit from it, as well as for elimination of the consequences (Terziev, (2019d-e).

4. CONCLUSION

In other words, the preparation in certain, very important areas, should be thought of not as just a daily routine or simply to meet the current needs of teachers and disciplines, nor only when events come our way, but constantly and in the long run - priority knowledge and skills for all - for citizens, for managers, for pupils and students, who after the school or university environment will need them in their professional realization. Furthermore, a great part of them are future managers and they are expected to be highly efficient and high-graded, as well as to make the right and informed decisions in difficult situations. All this should not be determined by any ideologies, but should be guided by genuine concern for the quality of our lives. The pandemic situation caused by COVID 19 motivated us to make this analysis, but the core reason are our observations in many areas of our lives that need a change.

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